

SUPPLEMENT TO

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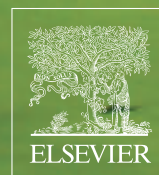


ABSTRACTS OF THE 45th AAGL Global Congress of Minimally Invasive Gynecology

November 14-18, 2016
The Rosen Hotel at Shingle Creek
Orlando, Florida

Welcome Letter
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Scientific Program Committees
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AAGL
45TH GLOBAL CONGRESS
ON MINIMALLY INVASIVE GYNECOLOGY



13TH AAGL INTERNATIONAL CONGRESS ON MIGS

in partnership with the Federación de Obstetricia y Ginecología (FECOLSOG)

CARTAGENA DE INDIAS, COLOMBIA

The AAGL, in partnership with the Federación Colombiana de Obstetricia y Ginecología (FECOLSOG) is proud to present the 13th Annual AAGL International Congress on Minimally Invasive Gynecology and 5th Colombian Congress on Gynecologic Endoscopy. This congress is the AAGL's largest international event to take place outside of the United States.

We are honored to welcome an esteemed faculty of the top thought leaders from all over the world, including, for the first time in Latin America, Dr. Mats Bränström, the surgeon who performed the first successful uterus transplant procedure. The program will feature a variety of Open Communications, Video and Poster Presentations, as well as pre-congress courses, both didactic and hands-on.

Join us for this opportunity to interact with international thought leaders and learn the latest in minimally invasive techniques in gynecologic endoscopy, all with the backdrop of the enthralling and historic city of Cartagena de Indias. A World Heritage Site, the city is one of the most popular destinations on the rise in the world, according to TripAdvisor. Come experience what the city has to offer! For more information, visit www.fecolsog.org/aagl-international-congress-english/



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45TH GLOBAL CONGRESS
ON MINIMALLY INVASIVE GYNECOLOGY
THE ROSEN HOTEL AT SHINGLE CREEK
ORLANDO, FLORIDA | NOV. 14-18, 2016



Dear Colleagues and Friends,

The AAGL welcomes you to the Rosen Hotel & Convention Center at Shingle Creek in Orlando, Florida for the 45th AAGL Global Congress of Minimally Invasive Gynecology.

Early in 2016 the Call for Abstracts opened, inviting all AAGL members and non-members who specialize in minimally invasive gynecology worldwide to share their research, experience and knowledge with their colleagues at the 45th Global Congress. We had an exceptionally high number of submissions with 877 abstracts submitted in 10 different categories. The abstracts were submitted from 45 countries and 37 states in the U.S.

All of these abstracts were reviewed and graded by 410 reviewers, according to standard grading schemes. Each abstract was reviewed by 5 graders who read and/or viewed video abstracts and determined their merits on originality, clarity of writing, study design (if applicable), sample size (if applicable), analysis, conclusion, and pertinence to the meeting. Without the time these reviewers freely gave to complete this process for the 877 abstracts submitted, the task would not have been completed.

After grading, the Scientific Program Committee undertook the task of reviewing the grades and assigning the abstracts to the sessions of the Global Congress. This year we have 8 Plenary Sessions, 24 Open Communications and 16 Video Sessions, plus Scientific Virtual and Video Posters.

Presented in this publication are the complete abstracts as they were submitted in the Call for Abstracts program. Please read through them, determine which presentations you want to see, and seek out the author to ask further questions or express a compliment.

Abstracts are the first point of dialogue among colleagues about what is developing within our specialty of minimally invasive gynecology. It is the research, experience and knowledge gained on the front line by practitioners of our specialty.

The Call for Abstracts program will open in March 2017 for the 46th Global Congress of Minimally Invasive Gynecology, to be held November 12-16, 2017, at the Gaylord National Resort & Convention Center in National Harbor, Maryland (Washington, D.C.). Plan now to submit your written or video abstract for consideration for that scientific program.

Sincerely,

Kevin J.E. Stepp, M.D.
Scientific Program Chair

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45th AAGL Global Congress Committees

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Abstracts that were submitted for consideration for presentation and received as of April 30, 2016, are published as submitted and are provided to the members of the AAGL for use at the 45th AAGL Global Congress on Minimally Invasive Gynecology. The abstracts will be presented in oral, video and poster sessions.

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The ways in which our Key Partners support the mission of the AAGL include:

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BLOCK PROGRAM

MONDAY POSTGRADUATE DAY 1 - NOVEMBER 14 (REGISTRATION HOURS 6:00 AM - 5:30 PM)										
7:00am – 4:30pm	CME State-of-the-Art Postgraduate Courses									
11:15am – 12:15pm	Luncheon - Discussion with the Experts									
6:00pm	FMIGS Graduation Ceremony and Reception (by invitation)									
TUESDAY POSTGRADUATE DAY 2 - NOVEMBER 15 (REGISTRATION HOURS 6:00 AM - 7:00 PM)										
7:00am – 4:30pm	CME State-of-the-Art Postgraduate Courses									
11:15am – 12:15pm	Luncheon – Discussion with the Experts									
4:45pm – 6:00pm	CME General Session I – Live Interactive Cadaveric Demonstration: Anatomy									
6:05 pm – 6:45pm	Opening Ceremony – Jordan M. Phillips Keynote Address									
6:45pm – 8:00pm	Welcome Reception in Exhibit Hall									
WEDNESDAY CONGRESS - NOVEMBER 16 (REGISTRATION HOURS 6:30 AM – 5:30 PM) EXHIBIT HALL HOURS 9:30 AM – 3:30 PM										
6:00am – 7:45am	Industry Sponsored Breakfasts (6:00 am – 7:45 am)									
7:00am – 11:00am	CME Laboratorio de Simulación en ESPAÑOL: Sutura Laparoscópica				CME Hysteroscopy 360° Beyond The Basics: Maximize Treatment, Minimize Failures					
7:45am – 9:30am	CME General Session II – Award Winners									
9:35am – 11:00am	Exhibit Hall Open/Refreshment Break									
Room Number										
11:00am – 12:00pm	CME Surgical Tutorial 1 Tissue Extraction	CME Panel 1 Evidence	CME Plenary 1 Laparoscopy	Open Comm. 1 Robotics	Open Comm. 2 Endometriosis	Open Comm. 3 Research & Science	Video Session 1 Laparoscopy	Video Session 2 Robotics	Surgical Techniques in China	
12:10pm – 1:10pm	CME Surgical Tutorial 2 Endometriosis	CME Panel 2 Hereditary Cancers	CME Plenary 2 Oncology	Open Comm. 4 New Instruments	Open Comm. 5 Laparoscopy	Open Comm. 6 New Instruments	Video Session 3 Endometriosis	Video Session 4 Reproductive Issues		
1:10pm – 3:30pm	ExhibitHall Open/Box Luncheon									
2:15pm – 3:15pm	CME Surgical Tutorial 3 Cuff Dehiscence	CME Panel 3 Reimbursement	CME Plenary 3 Hysteroscopy	Open Comm. 7 Hysteroscopy	Open Comm. 8 Laparoscopy	Open Comm. 9 Basic Science/Education	Video Session 5 Urogynecology	Video Session 6 Basic Science/Education	FMIGS Town Hall	
3:25pm – 5:05pm	CME Surgical Tutorial 4 Essure	CME Panel 4 Infertility	CME Plenary 4 Robotics	Open Comm. 10 Laparoscopy	Open Comm. 11 Urogynecology	Open Comm. 12 Endometriosis	Video Session 7 Laparoscopy	Video Session 8 Robotics	Mastering Mentorship	
5:10pm – 6:10pm	General Session III – Stump the Professor									
6:10pm – 8:10pm	Industry Sponsored Symposia									
THURSDAY CONGRESS - NOVEMBER 17 (REGISTRATION HOURS 6:30 AM – 5:30 PM) EXHIBIT HALL HOURS 9:30 AM – 3:00 PM										
6:00am – 7:45am	Industry Sponsored Breakfasts (6:00 am – 7:45 am)									
7:45am – 9:30am	CME General Session IV – Operating with the Stars/Business Meeting									
9:30am – 11:00am	Exhibit Hall Open/Refreshment Break									
ROOM NUMBER										
11:00am – 12:00pm	CME Surgical Tutorial 5 Isthmocele	CME Panel 5 Back to Basics	CME Plenary 5 Urogynecology	Open Comm. 13 Robotics	Open Comm. 14 Laparoscopy	Open Comm. 15 Reproductive Issues	Video Session 9 Laparoscopy	Video Session 10 Oncology		
12:10pm – 1:10pm	CME Surgical Tutorial 6 Complications	CME Panel 6 Future of MIGS	CME Plenary 6 Reproductive Issues	Open Comm. 16 Surgical Trends	Open Comm. 17 Laparoscopy	Open Comm. 18 Basic Science/Education	Video Session 11 Laparoscopy	Video Session 12 Hysteroscopy		
1:10pm – 3:00pm	Exhibit Hall Open/Box Luncheon									
2:15pm – 3:15pm	CME Surgical Tutorial 7 RFA and Lasers	CME Panel 7 Oncofertility	CME Plenary 7 Pelvic Pain	Open Comm. 19 New Instruments	Open Comm. 20 Hysteroscopy	Open Comm. 21 Oncology	Video Session 13 New Instruments	Video Session 14 Endometriosis		
3:25pm – 5:05pm		CME Panel 8 From Idea to Product	CME Plenary 8 Research & Science	Open Comm. 22 Laparoscopy	Open Comm. 23 Endometriosis	Open Comm. 24 Hysteroscopy	Video Session 15 Laparoscopy	Video Session 16 Urogynecology		
5:10pm – 7:10pm	Industry Sponsored Symposia									
7:30pm	45th Anniversary Gala									
FRIDAY CONGRESS - NOVEMBER 18										
8:30am – 12:30pm	CME General Session V – Telesurgery Session									



WORKSHOP ON SURGICAL ANATOMY OF THE PELVIS AND PROCEDURES IN PATIENTS WITH CHRONIC PELVIC PAIN

 DECEMBER 9-10, 2016
 ST. JOSEPH'S HOSPITAL AND MEDICAL CENTER
PHOENIX, ARIZONA
 WWW.AAGL.ORG

Michael Hibner, M.D., Ph.D., Scientific Program Co-Chair
Nita A. Desai, M.D., Co-Chair
Mark W. Dassel, M.D., Lab Chair

This two-day course is designated for gynecologists seeking to advance their knowledge of pelvic anatomy and chronic pelvic pain. The morning will consist of didactic instruction.

The afternoon hands-on course will be divided into 3 labs, which will run concurrently and participants will switch at a designated time. The first lab will provide each participant the opportunity to treat patients with pelvic pain, particularly surgical treatment for severe endometriosis, including: dissection of pelvic anatomy, using un-embalmed cadavers, with an emphasis

on the retroperitoneal space, including pararectal/paravesical spaces, the ureters, and branches of the iliac arteries and associated pelvic nerves.

The second lab will highlight principles of common procedures used in the treatment of pelvic pain, such as nerve blocks and trigger point injections, specifically: diagnosis and treatment for abdominal wall and pelvic floor, specifically ilioinguinal, genitofemoral, pudendal and obturator nerves, by employing ultrasound-guided nerve blocks. Surgical access to these areas will be highlighted. Additionally, we

will explore complications, particularly those related to mesh and other traditional gynecologic procedures.

The third lab, under the direction of a world-renowned pelvic floor physical therapist, will include hands-on training using the "Pelvic-mentor," a pelvic model that can be used to evaluate patients with pelvic floor dysfunction, and improve understanding of the pelvic musculature in relation to the diagnosis and treatment of pelvic pain.

Join us December 9-10 in Phoenix for this comprehensive workshop.

To register go to: www.aagl.org.



2016 Award Winning Abstracts & Videos

Listed below are the winning abstracts and videos for the 45th AAGL Global Congress on Minimally Invasive Gynecology. All of these awards will be presented during the General Session on Wednesday, November 16, 2016 at 7:45am to 9:05am, except for the Robert B. Hunt award, which will be presented during the JMIG Breakfast. They also will be presented at their regularly scheduled times.

Golden Hysteroscope Award

Best Paper on Hysteroscopy

16 (7:45 AM - 8:00 AM)

Analysis of the Differential Genetic Expression Between Symptomatic and Asymptomatic Endometrial Polyps

Rosa-e-Silva JC, Troncon JK, Meola J, Candido-dos-Reis FJ, Poli-Neto OB, Nogueira AA. Gynecology and Obstetrics, School of Medicine of Ribeirao Preto, University of Sao Paulo, Ribeirao Preto, Sao Paulo, Brazil

Study Objective: To determine whether genetic markers involved in endometrial carcinogenesis (PTEN, BCL-2, MLH-1 and CTNNB1) have differential expression between endometrial polyps presenting with and without postmenopausal bleeding.

Design: Cross-sectional study.

Setting: A tertiary referral hospital.

Patients: Postmenopausal women undergoing hysteroscopic polypectomy, with no current or previous use of hormonal therapy or tamoxifen.

Intervention: A fragment of the endometrial polyps removed hysteroscopically from the selected patients was submitted to processing and PCR (polymerase chain reaction), to quantify the expression of the studied genes. Clinical data from each patient were analyzed, such as age, time from menopause, presence of diabetes and systemic hypertension, smoking habits, and size of the polyp.

Measurements and Main Results: Data from 60 patients were obtained, being 21 asymptomatic women, and 39 presenting with postmenopausal bleeding. The level of gene expression for the analyzed genes (PTEN, BCL-2, MLH-1 and CTNNB1) showed no statistical difference between the two groups of patients (symptomatic and asymptomatic), with p-values of 0,98, 0,74, 0,31 and 0,74 for the expression of BCL-2, PTEN, MLH-1 and CTNNB1, respectively. There were outliers for the gene expression in all groups, but with no clinical correspondence when analyzing each of the cases individually. Regarding the clinical data, no statistical difference was obtained between the groups.

Conclusion: Current scientific evidence shows that endometrial polyps presenting with postmenopausal bleeding are at greater risk for malignancy, but there is a lack of studies to define whether the polyps are in fact cancer precursors, or only a marker that allows earlier diagnosis of malignancy.

Golden Laparoscope Award

Best Surgical Video

277 (8:00 AM - 8:15 AM)

Laparoscopic Management of Cesarean Scar Ectopic Pregnancy

Ramirez CI, Stuparich MA, Lee TTM. Department of Obstetrics and Gynecology, Magee-Womens Hospital of UPMC, Pittsburgh, Pennsylvania

Cesarean scar ectopic pregnancies are rare and carry a high risk of uterine rupture and hemorrhage due to the weakened myometrial wall overlying the pregnancy. In this video we demonstrate a safe laparoscopic approach to excision of a cesarean scar ectopic pregnancy by using surgical techniques to minimize intraoperative blood loss, lyse dense bladder adhesions, and reconstruct the anterior uterine wall. Intraoperative hemostasis was achieved with dissection of the retroperitoneal space to temporarily ligate the uterine artery, temporary ligation of the infundibulopelvic ligament, and myometrial injection of Vasopressin. Back-filling the bladder allowed for identification of the vesicouterine reflection despite dense bladder adhesions. During reconstruction of the anterior lower uterine segment, inflation of a foley catheter within the uterus was used for orientation and to prevent incorporation of the posterior uterine wall. By using these surgical techniques, cesarean scar ectopic pregnancies can be safely treated laparoscopically with minimal blood loss.

2016 Award Winning Abstracts & Videos

Jerome J. Hoffman Award

Best Abstract by a Resident or Fellow

213 (8:15 AM - 8:30 AM)

The Sterility of Selected Operative Sites During Total Laparoscopic Hysterectomy

Shockley ME, Nutting HL, Beran BD, Arnolds KS, Sprague ML, Zimberg SE. *Gynecology, Cleveland Clinic Florida, Weston, Florida*

Study Objective: To describe the type and quantity of bacteria found intra-operatively on the abdomen, vagina, surgical gloves, instrument tips and uterus during total laparoscopic hysterectomy (TLH).

Design: Descriptive study.

Setting: Academic affiliated hospital

Patients: 25 Women undergoing TLH for benign indications in 2016.

Intervention: After antibiotic prophylaxis and chlorhexidine preparation, swabs were collected from the vaginal fornices and abdomen. During TLH, additional swabs were collected from the following sites: surgeon's gloves following placement of the uterine manipulator, tips of instruments used to close the vaginal cuff, uterine fundus after extraction, and surgeon's gloves following removal of the uterus. A calibrated loop was used to inoculate each specimen onto 5% blood and chocolate agars for growth of aerobes and onto brucella blood, phenylethyl alcohol, kanamycin vancomycin, and Bacteroides bile esculin agars for growth of anaerobes. Manual colony counts were tabulated for all cultures and reported in colony forming units/ml (CFU/ml). Positive cultures were reported by genus and by species when applicable.

Measurements and Main Results: Anaerobic bacterial growth was not seen on the abdomen, in the vagina, or on the instrument tips of any patient. Aerobic bacterial growth was not seen in the vagina of any patient. On the surgeon's gloves following uterine manipulator placement, no patients demonstrated sufficient growth of anaerobic or aerobic bacteria to potentially cause surgical site infection (≥ 5000 CFU/ml). On gloves following uterus extraction, one patient demonstrated sufficient growth of anaerobic bacteria to potentially cause infection. None of the patients developed surgical-site infections postoperatively.

Conclusion: Swabs from multiple operative sites yielded bacterial growth, but the bacterial concentrations did not exceed the threshold for potential infection in 98% of cultures. Further studies are indicated before surgeons may consider approaching the perineum and abdomen as a single surgical field when performing TLH.

IRCAD Award

Excellence in Education

19 (8:30 AM - 8:45 AM)

Proficiency Based Robotics Training Curriculum for Suturing Tasks: Transferability of Skills to a Live Porcine Model

¹Vargas MV, ¹Moawad G, ²Denny K, ³Powers-Happ L, ²Margulies S, ¹Abi Khalil E, ¹Marfori C. ¹Obstetrics and Gynecology, George Washington University Medical Faculty Associates, Washington, District of Columbia; ²School of Medicine and Health Sciences, George Washington University, Washington, District of Columbia; ³Milken Institute of Public Health, George Washington University, Washington, District of Columbia

Study Objective: To assess whether a robotic simulation curriculum for novice surgeons can improve performance of a suturing task in a live porcine model.

Design: Randomized controlled trial: (Canadian Task Force classification I).

Setting: Academic medical center

Patients: 36 surgery naïve medical students.

Intervention: Participants were enrolled in an online session of training modules followed by an in-person orientation. Baseline performance testing on the Mimic technologies da Vinci Surgical Simulator (dVSS) was also performed. Participants were then randomly assigned to the completion of 4 dVSS training tasks (Camara clutching 1, Suture sponge 1 and 2, and Tubes) versus no further training. The intervention group performed each dVSS task until proficiency or up to 10 times. A final suturing task was performed on a live porcine model, which was video recorded and blindly assessed by experienced surgeons. The primary outcomes were Global Evaluative Assessment of Robotic Skills (GEARS) scores and task time. The study had 90% power to detect a mean difference of 3 points on the GEARS scale, assuming a standard deviation (SD) of 2.65, and 80% power to detect a mean difference of 180 seconds, assuming a SD of 90 seconds.

Measurements and Main Results: There were no differences in demographics and baseline skills between the two groups. No significant differences in task time in seconds or GEARS scores were seen for the final suturing task between the two groups: proficiency based virtual reality simulation training and standard orientation to the robotic console (553 versus 593; $p=0.406$ and 16.0 versus 15.4; $p=.603$). The 95% confidence interval for the difference in mean task times was -57.20 to 137.82, and mean GEARS scores was -3.25 to 2.00.

Conclusion: Based on the results of this study, live suturing task performance was not improved with a proficiency-based virtual reality simulation suturing curriculum compared to standard orientation to the da Vinci robotic console.

Jay M. Cooper Award

*Best Paper on Minimally Invasive Gynecology
by a Fellow*

118 (8:45 AM - 9:00 AM)

Laser Angiography with Indocyanine Green (ICG) to Assess Vaginal Cuff Perfusion During Total Laparoscopic Hysterectomy (TLH): A Pilot Study

¹Beran BD, ¹Shockley ME, ¹Arnolds KD, ²Escobar PF, ¹Zimberg SE, ¹Sprague ML. ¹Section of Minimally Invasive Gynecology, Cleveland Clinic Florida, Weston, Florida; ²Department of Gynecologic Oncology and Reproductive Medicine, University of Texas MD Anderson Cancer Center, Houston, Texas

Study Objective: To determine feasibility of using NIR perfusion angiography to assess vaginal cuff vascular perfusion during total laparoscopic hysterectomies.

Design: Pilot experimental study.

Setting: Academic-affiliated hospital

Patients: Twenty women undergoing TLH for benign disease.

Intervention: Following intravenous administration of indocyanine green (ICG), NIR perfusion angiography was employed to capture images of the vaginal cuff before and after closure. Three reviewers analyzed NIR images of vaginal cuffs to determine percent of cuff perimeter with adequate perfusion when open and length of vaginal cuff adequately perfused when closed. Participants underwent 1:1 randomization of energy method used for colpotomy (ultrasonic versus monopolar) and vaginal cuff closure suture (barbed versus non-barbed).

Measurements and Main Results: ICG was visible at the vaginal cuff in all participants. Mean time to appearance of ICG in the pelvis after administration was 19.78±6.75 seconds (mean±S.D.) pre-closure, and 25.99±22.22 seconds post-closure. With ultrasonic energy, 67.47±17.42% (mean±S.D.) of open cuff perimeter, and 74.42±20.5% of closed cuff length were adequately perfused, while with monopolar energy use, 59.14±17.43% of the open cuff perimeter and 66.28±15.4% of closed cuff length were adequately perfused. Cuffs closed with barbed suture showed adequate perfusion along 71.46±15.14% of the length, while those closed with non-barbed suture showed 68.94±20.94% adequate perfusion. When standardized to cervical cup circumference, ultrasonic energy required 0.97±0.21 s/mm (mean±S.D.), while monopolar energy required 0.80±0.31 s/mm (p=0.162). Linear regression showed no association of standardized time of energy activation versus percentage of perimeter of open cuff (R²=0.007) or length of closed cuff (R²=0.005) with adequate perfusion. No complications related to intravenous ICG administration occurred.

Conclusion: Intravenous ICG administration and use of NIR perfusion angiography allow evaluation of vascular perfusion at the vaginal cuff during TLH. This technique may inform future prospective studies examining causes for vaginal cuff dehiscence, which is most common following total laparoscopic hysterectomy.

Robert B. Hunt Award

*Best Paper Published in JMIG
(September 2015 – August 2016)*

(9:00 AM - 9:05 AM)

Molecular Diagnosis for Nodal Metastasis in Endoscopically Managed Cervical Cancer: The Accuracy of the APTIMA Test to Detect High-Risk Human Papillomavirus Messenger RNA in Sentinel Lymph Nodes

¹Köhler, C, ¹Le X, ^{1,2}Dogan NU, ¹Pfiffer T, ³Schneider A, ⁴Marnitz S, ⁵Bertolini J, ¹Favero G. ¹Department of Advanced Operative and Oncologic Gynecology, Asklepios Hospital, Hamburg, Germany; ²Department of Obstetrics and Gynecology, Akdeniz University, Antalya, Turkey; ³Institute for Cytology and Dysplasia, Fürstenbergkarree, Berlin, Germany; ⁴Department of Radiooncology, University of Cologne, Cologne, Germany; ⁵Institute for Pathology, MVZ Hanse Histologicum, Hamburg, Germany

Study Objective: To evaluate the feasibility and accuracy of a commercially available test to detect E6/E7 mRNA of 14 subtypes of high-risk HPVs (APTIMA; Hologic, Bedford, MA) in the sentinel lymph nodes of CC patients laparoscopically operated.

Design: Prospective pilot study.

Setting: The study was conducted in the Department of Advanced Operative and Oncologic Gynecology, Asklepios Hospital, Hamburg, Germany.

Patients: 54 women with HPV-positive CC submitted to laparoscopic sentinel node biopsy alone or sentinel node biopsy followed by systematic pelvic and/or para-aortic endoscopic lymphadenectomy.

Interventions: All removed sentinel lymph nodes (SLNs) underwent sample collection by cytobrush for the APTIMA assay before frozen section.

Measurements: Results obtained with the HPV mRNA test were compared with the definitive histopathological analysis of the SLNs and additional lymph nodes removed.

Results: A total of 125 SLNs (119 pelvic and 6 para-aortic) were excised with a mean number of 2.3 SLNs per patient. Final histopathologic analysis confirmed nodal metastases in 10 SLNs from 10 different patients (18%). All the histologically confirmed metastatic lymph nodes were also HPV E6/E7 mRNA positive, resulting in a sensitivity of 100%. Four histologically free sentinel nodes were positive for HPV E6/E7 mRNA, resulting in a specificity of 96.4%.

Conclusion: The HPV E6/E7 mRNA assay in the SLNs of patients with CC is feasible and highly accurate. The detection of HPV mRNA in 4 women with negative SLNs might denote a shift from microscopic identification of metastasis to the molecular level. The prognostic value of these findings awaits further verification.



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AAGL SurgeryU continues the highly successful Online Master Course series with this two-part webinar exploring laparoscopic hysterectomy in a step-by-step fashion for the two predominant choices of port placement: two ipsilateral ports; or suprapubic/midline and lateral ports. Performed and instructed by two of the most reputable laparoscopic surgeons in the world, this course is designed for residents, fellows, and surgeons in practice who want to expand their understanding of laparoscopic anatomy and surgical techniques. The didactic portion will detail the above, and will also include anatomy-based strategies and techniques in difficult hysterectomies, and much more. The webinar will conclude with a cadaveric pelvic retroperitoneal dissection, focusing on techniques for identification and dissection of the ureter, in addition to common approaches to isolation of the uterine artery from its origin, culminating with a total laparoscopic hysterectomy. You may view this enduring CME activity online at AAGL.org/laparoscopy.



**JON IVAR EINARSSON,
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M.D., FACOG**

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Magee Women's Hospital
University of Pittsburgh
Medical Center
Pittsburgh, Pennsylvania

LEARNING OBJECTIVES: At the conclusion of this activity, the participant will be able to: 1) Discuss the differences and similarities between the ipsilateral and suprapubic schools of laparoscopy and their step-by-step approaches to laparoscopic hysterectomy; 2) demonstrate medial and lateral approaches to laparoscopic ureteral identification and dissection; 3) demonstrate posterior/pararectal and anterior/median umbilical approaches to ligating the uterine artery at its origin; 4) discuss various dissection techniques to maximize surgical efficiency and minimize complications; and 5) articulate strategies for difficult laparoscopic hysterectomy.

COURSE OUTLINE

PART 1: DIDACTIC

Step-by-Step Approach to Laparoscopic Hysterectomy

T.T.M. Lee, J.I. Einarsson

- Port Placement
- Round Ligament Incision and Development of a Bladder Flap
- Management of Upper Pedicles (Utero-Ovarian and Infundibulopelvic Ligaments)
- Securing Uterine Artery and Cardinal Ligament
- Colpotomy
- Vaginal Cuff Closure

Strategies and Techniques for Large Fibroids

J.I. Einarsson

Strategies and Techniques for a Dense C-Section Scar

T.T.M. Lee

PART 2: CADAVERIC DEMONSTRATION

Pelvic Retroperitoneal Dissection

J.I. Einarsson, T.T.M. Lee

- Developing Pelvic Spaces
- Medial and Lateral Approach to Ureteral Identification and Dissection
- Anterior/Median Umbilical and Posterior/Pararectal Approaches to Isolating Uterine Artery at Its Origin

Laparoscopic Hysterectomy

J.I. Einarsson, T.T.M. Lee

Oral Presentations

WEDNESDAY, NOVEMBER 16, 2016

**1 Plenary 1 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)**

11:00 AM – GROUP A

Implementation Rate of Risk-Reducing Salpingectomy at Time of Benign Hysterectomy 

Till SR, Edwards M, Kobernik E, Kamdar N, As-Sanie S, Campbell DA, Morgan DM. Obstetrics and Gynecology, University of Michigan, Ann Arbor, Michigan

Study Objective: To delineate the change in rate of risk-reducing salpingectomy over the study period and to examine patient, operative, surgeon, and hospital-level factors associated with implementation of salpingectomy.

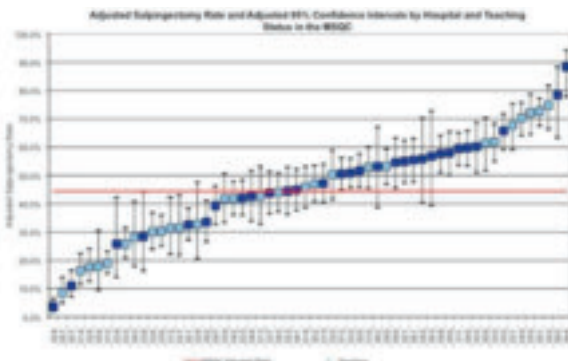
Design: Retrospective cross-sectional study of a Michigan multi-center prospective database from January 2013 through April 2015.

Setting: Subjects were drawn from the Michigan Surgical Quality Collaborative (MSQC), a statewide group of 73 hospitals that voluntarily report quality and safety outcomes and perioperative data. It includes patients from both public and private insurance payers. Specially trained, dedicated nurses abstract patient characteristics, intraoperative data and 30-day postoperative outcomes.

Patients: Women who underwent ovarian-conserving hysterectomy for benign indications.

Intervention: The change in the rate of risk-reducing salpingectomy was examined over the study period. Surgeon volume, patient, operative, and hospital characteristics for patients who received salpingectomy were compared to those who did not.

Measurements and Main Results: During the study period, 18,642 hysterectomies were performed for benign indications, of which 55.7% (n=10,382) were ovarian conserving. Among patients who had ovarian conserving hysterectomy, 44.9% (n=4,668) had salpingectomy, with rates increasing steadily from 26.4% to 61.1% across the study period (p<0.001). Salpingectomy was more likely with laparoscopic approach (OR 2.93, 95% CI 2.69-3.20) and among women age <60 (OR 2.60, 95% CI 1.42-1.98), but did not vary with surgeon volume. After adjustment for age, BMI, and surgical approach using a mixed model, there was substantial variation in rates of salpingectomy across hospital sites, ranging from 3.7% to 88.3%




Variation in adjusted salpingectomy rates was not associated with academic affiliation or hospital size.

Conclusion: Rate of risk-reducing salpingectomy increased substantially over the course of the study period. There is substantial variation in the practice of salpingectomy, which is not accounted for by patient, surgeon, or hospital characteristics.

**2 Plenary 1 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)**

11:10 AM – GROUP A

Can Narrowband Imaging Improve the Laparoscopic Identification of Superficial Endometriosis? A Prospective Cohort Trial 

Ma TJ, Ellett L, McIlwaine K, Manwaring J, Readman E, Maher P. Endosurgery Department, Mercy Hospital for Women, Melbourne, Victoria, Australia

Study Objective: To assess if the use of Narrow Band Imaging (NBI) at diagnostic laparoscopy improves the detection of superficial endometriosis.

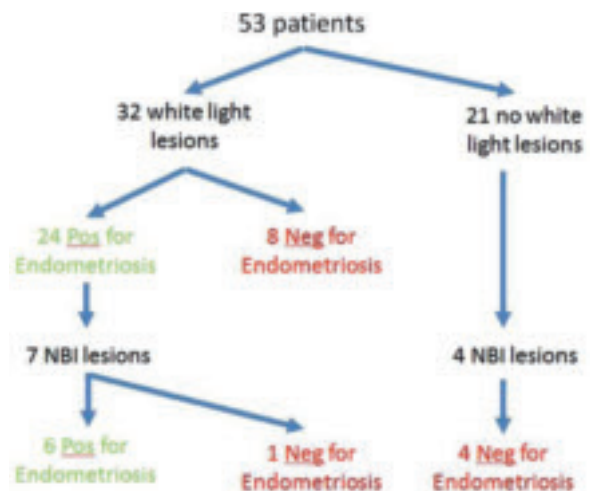
Design: Prospective cohort study.

Setting: Laparoscopic specialty unit within a tertiary teaching hospital.

Patients: Patients undergoing laparoscopy for investigation and treatment of pelvic pain who have no pre-operative ultrasound evidence of deep infiltrating endometriosis.

Intervention: Standard inspection of the pelvis was performed using white light with areas suspicious for endometriosis documented. Repeat evaluation of the pelvis was then performed using NBI with any additional areas of suspicion documented. All areas identified as possible endometriosis were surgically excised with monopolar diathermy and assessed for histopathology.

Measurements and Main Results: 53 eligible patients undergoing laparoscopy for pelvic pain were included. Thirty two (60%) patients had at least one lesion suspicious for endometriosis excised after white light survey of the pelvis. Twenty four (75% of patients biopsied) had endometriosis confirmed on histopathology. NBI survey revealed an



additional area of suspicion in 11 patients, of which six (54%) of these additional samples were positive for endometriosis.

Conclusion: NBI not only made neovascularization of superficial endometriosis more prominent but the depth of field of the laparoscopy was significantly shortened. This forced the operator to make a very close inspection of the peritoneal surfaces.

Therefore NBI is a simple and non-invasive tool that can aid in the diagnosis of superficial endometriosis that may otherwise be missed at standard white light laparoscopy.

3 Plenary 1 - Laparoscopic Surgeries (11:00 AM - 12:00 PM)

11:20 AM – GROUP A

A Randomized Trial of Wound Infiltration with Extended-Release versus Short-Acting Bupivacaine Before Laparoscopic or Robotic-Assisted Hysterectomy

Barron KI,¹ Lamvu G,² Schmidt RC,¹ Fisk M,¹ Blanton E,¹ Patanwala I,¹ Hoover F.¹ ¹Advanced and Minimally Invasive Gynecology, Department of Obstetrics and Gynecology, Florida Hospital Orlando, Orlando, Florida; ²Gynecologic Surgery, Department of Surgery, Orlando Veteran's Affairs Medical Center, Orlando, Florida

Study Objective: To evaluate if pre-incision infiltration with extended-release liposomal bupivacaine provides improved pain relief after laparoscopic or robotic-assisted total hysterectomy compared to 0.25% bupivacaine.

Design: Triple-masked randomized controlled trial; patients followed for 14 days postoperatively.

Setting: Tertiary-care community hospital.

Patients: Patients recruited from July 2015 through January 2016. Sixty-four patients were randomized and 60 were analyzed for the primary outcome.

Intervention: Women scheduled to undergo multiport laparoscopic or robotic-assisted total hysterectomy for benign indications were randomized to receive pre-incision infiltration with either undiluted liposomal bupivacaine or 0.25% bupivacaine.

Measurements and Main Results: The primary outcome was pain intensity by a numeric rating scale (0-10) using the Brief Pain Inventory (BPI) via telephone survey on postoperative days (POD) 1, 2, 3 and 14. A sample size of 28 per group (N=56) was planned to detect a 30% change in pain scores. Secondary outcomes were numeric pain scores while inpatient, pain interference as measured by the BPI, total opioid use, and adverse effects. There were no demographic differences between the two groups. For our primary outcome, there were no differences in composite pain scores on POD1, POD2, or POD14 (Table 1). We found lower average, worst, and composite pain scores on POD3 in the liposomal bupivacaine compared to the 0.25% bupivacaine group (average pain score 2.79 ± 2.26 vs. 4.07 ± 1.98, p=.025; worst pain score 3.72 ± 2.81 vs 5.56 ± 2.36, p=.007). There

Table 1. Postoperative composite pain scores, numeric rating scale

Variable	n	Pain score	P value
POD1 composite			
Liposomal bupivacaine	30	5.07±2.29	.377
0.25% Bupivacaine	30	5.63±2.63	
POD2 composite			
Liposomal bupivacaine	29	3.74±2.24	.058
0.25% Bupivacaine	30	4.87±2.28	
POD3 composite			
Liposomal bupivacaine	29	3.26±2.48	.009
0.25% Bupivacaine	30	4.83±2.11	
POD14 composite			
Liposomal bupivacaine	28	2.00±2.78	.470
0.25% Bupivacaine	28	2.39±2.81	

POD, Postoperative day. Composite, mean of average and worse pain scores. Data are mean ± standard deviation.

were no differences in pain scores while inpatient (Figure 1), BPI pain interference scores, opioid use (Table 2), or reported adverse effects.

Conclusion: For laparoscopic and robotic-assisted multiport hysterectomy there were decreased post-operative pain scores with pre-incisional liposomal bupivacaine compared to 0.25% bupivacaine on POD3 only, and no difference in opioid use, pain interference scores, or reported adverse effects. These findings indicate limited effectiveness of liposomal bupivacaine for laparoscopic hysterectomy.

Table 2. Opioid medication use (acute oral morphine equivalents)

Variable	Liposomal bupivacaine	0.25% Bupivacaine	P value
Inpatient opioid use*	216 (75-810)	266 (54-634)	.398
POD3 total opioid use†	320 (115-766)	344 (84-784)	.892
POD14 total opioid use‡	360 (115-1086)	443 (84-1234)	.631

*n=32 in both groups. †n=29 in liposomal bupivacaine and 30 in 0.25% bupivacaine groups. ‡n=27 in liposomal bupivacaine and 28 in 0.25% bupivacaine groups. Data are median (range).

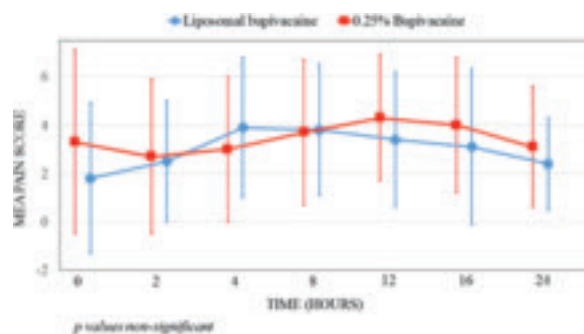


Fig. 1. Postoperative pain scores during the first 24 hours from surgery, numeric rating scale ± standard deviation.

4 Plenary 1 - Laparoscopic Surgeries (11:00 AM - 12:00 PM)

11:30 AM – GROUP B

Does Ulipristal Acetate Objectively Affect Surgical Experience at Laparoscopic Myomectomy?

Luketic L,¹ Shirreff L,¹ Kives S,² Liu G,³ El Sogy R,⁴ Leyland N,⁵ Solnik J,¹ Murji A.¹ ¹Department of Obstetrics and Gynecology, Mount Sinai Hospital, Toronto, Ontario, Canada; ²Department of Obstetrics and Gynecology, St. Michael's Hospital, Toronto, Ontario, Canada; ³Department of Obstetrics and Gynecology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada; ⁴Department of Obstetrics and Gynecology, William Osler Health System, Brampton, Ontario, Canada; ⁵Department of Obstetrics and Gynecology, McMaster University, Hamilton, Ontario, Canada

Study Objective: 1. Develop a grading tool to objectively assess various components of the laparoscopic myomectomy procedure. 2. Determine if pre-treatment with Ulipristal Acetate (UPA) affects surgical experience at laparoscopic myomectomy.

Design: Retrospective review of laparoscopic myomectomy videos.

Setting: Multiple fully-affiliated academic hospitals.

Patients: Patients that had a laparoscopic or robotic myomectomy over a three-year period (2012-2015) for which a video of the myomectomy was made were included.

Intervention: Two gynecologists independently reviewed laparoscopic/robotic myomectomy surgical videos. Reviewers were blinded to whether or not patients had received pre-treatment with UPA. Each procedure was scored using a new 22-point surgical experience grading tool. The tool contained 6 subscales that evaluated: depth of myometrial incision, ease

of myoma-myometrium cleavage plane identification, ease of myoma detachment, blood loss during fibroid detachment, myometrial blood loss after fibroid detachment, and myoma consistency. Inter-rater reliability was calculated and scores for UPA-treated patients were compared to those without medical pre-treatment.

Measurements and Main Results: 50 myomectomy procedure videos were assessed. There was high agreement between reviewers for the total surgical experience score (intra-class correlation 0.97, $p < 0.01$). Agreement for the six subscales of the tool ranged between 0.80 – 0.98. UPA pre-treatment was used in 25 procedures (50%) compared to 25 (50%) who received no pre-treatment. There was no difference in mean surgical experience score in the UPA group (13.5 ± 2.9) compared to the group without pre-treatment (13.3 ± 2.9), $p = 0.81$. There was also no difference in subscale scores between the two groups. This study was powered to detect a 20% difference in scores between groups (power=0.8, $\alpha = 0.05$).

Conclusion: The new scale of surgical experience at laparoscopic myomectomy had high inter-rater reliability. There was no difference in surgical experience for myomectomies pre-treated with UPA, compared to those without pre-treatment.

5 Plenary 1 - Laparoscopic Surgeries (11:00 AM - 12:00 PM)

11:40 AM – GROUP B

Laparoscopic Single Incision Supracervical Hysterectomy for Extremely Large Uterus with Bag Tissue Extraction



Guan X, Wang Y, Gisseman J. *Obstetrics & Gynecology, Baylor College of Medicine, Houston, Texas*

Background: Single-incision laparoscopic hysterectomy can be difficult because of longer surgery time, steep learning curve, and the need for articulated instruments, but is especially challenging in patients with a uterus larger than 20 cm. However, the advantages of single-site laparoscopic surgery may include less bleeding, infection, pain, and better cosmetic outcome.

Objective: To describe the single incision laparoscopic technique with an articulated energy device for uterus larger than 20 cm.

Clinical information: A 49 year-old G3P3 female with 24 weeks sized fibroid uterus requested supracervical hysterectomy presented with a 2-year history of pelvic pain and menorrhagia.

Interventions: Laparoscopic single incision supracervical hysterectomy with contained bag tissue extraction.

Results: Rotating between the patient's right and left side allows the surgeon to access the entire abdomen from a single umbilical port. Single incision laparoscopic hysterectomy for larger than 20 cm uterus is not only possible, but leads to better outcomes.

6 Plenary 1 - Laparoscopic Surgeries (11:00 AM - 12:00 PM)

11:50 AM – GROUP B

Urinary Tract Complications and Repair Strategies in Total Laparoscopic Hysterectomy at Kurashiki Medical Center



Nakajima S, Andou M, Kanno K, Shirane A, Yanai S. *Obstetrics and Gynecology, Kurashiki Medical Center, Kurashiki, Okayama, Japan*

Objectives: The aim of this study is to clarify cases with urinary tract injury during TLH, and to review strategies for repairing urinary tract complications.

Methods: All 2604 women who underwent TLH in our department from January 2011 to December 2015 were included in this study.

Results: The ureter was injured in 8 cases (0.31%), the bladder was perforated in 7 cases (0.27%), and the bladder muscle layer was injured

in 27 cases (1.04%). During the study period, no cases needed conversion to laparotomy to repair urinary tract complications. I will present some cases of urinary tract complications and explain how these complications were managed.

Conclusions: It is most important that we strive to not cause urinary tract complications in the first place. However, when they do occur, appropriate treatment with manipulation can prevent conversion to laparotomy.

7 Plenary 2 - Oncology (12:10 PM - 1:10 PM)

12:10 PM – GROUP A

Practice Changes in Power Morcellation Among Gynecologic-Oncologists Since 2014



Mandelberger AH, Mathews S, Chuang L. *Icahn School of Medicine at Mount Sinai, New York, New York*

Study Objective: To determine attitudes and practice changes among gynecologic oncologists since the 2014 FDA warning on uterine power morcellation.

Design: Observational survey study.

Setting: In response to media attention surrounding a few cases of disseminated uterine sarcoma after power morcellation in 2013, the FDA issued a statement in April 2014 discouraging use of power morcellation. Several institutions since have placed a moratorium on power morcellators.

Patients: Members of the Society of Gynecologic Oncologists.

Intervention: A 34-question survey was sent to all members of SGO. Questions included demographic information, questions regarding practices prior to the FDA warning, practice changes since the warning, institutional changes and regulation, and attitudes.

Measurements and Main Results: 199 gyn-oncologists responded to the survey. 65.48% were male and 34.52% female. 47.74% reported they performed laparoscopic supracervical hysterectomies. Since the FDA warning, 12.5% decreased and 38.75% discontinued use of power morcellation. Factors most influential for decreased or discontinued use included patient refusal, FDA statement release and change of institutional policy. Men were more likely than women to decrease or discontinue use (58.46% vs 19.35%, $p = .0015$). There were no differences in change of use based on region of practice, years in practice, or institution type. 41% report they have changed their surgical technique to minimally invasive without use of power morcellation, and 20.54% report changing to laparotomy. Other changes included more rigorous consent process (38.67%), patient selection (37.5%), and perioperative evaluation (30.14%) with 20.54% report adding preoperative MRI.

Conclusion: Although attitudes towards its use are divided, there seems to be an overall consensus that minimally invasive techniques can be sustained without the use of power morcellation. Many gynecologic oncologists continue its use and have made changes in patient selection, perioperative evaluation, and consent process, either by physician discretion or necessitated by institutional policy.

8 Plenary 2 - Oncology (12:10 PM - 1:10 PM)

12:20 PM – GROUP A

Laparoscopic Nerve Sparing Anatomical Radical Hysterectomy with Fascia Space Dissection Technique for Early Stage Cervical Cancer: Techniques, Application and Results



Wang Y, Chen G, Xu H, Chen Y, Liang Z. *Department of Obstetrics and Gynecology, Southwest Hospital, Third Military Medical University, Chongqing, China*

Study Objective: The objectives of this study were to describe our laparoscopic nerve-sparing anatomical radical hysterectomy (LNSARH) technique and to assess the feasibility and safety of the procedure, as well

as its impact on voiding function. We introduce a fascia space dissection technique in order to preserve the pelvic nerve.

Design: Data from patients were prospectively collected and compared.

Setting: University teaching hospital.

Patients: From October 2008 to November 2014, 245 consecutive patients with cervical cancer underwent laparoscopic radical hysterectomy (LRH) and pelvic lymphadenectomy.

Intervention: With 118 woman undergoing LNSARH with fascia space dissection technique (LNSARH group) and 127 undergoing LRH (LRH group).

Measurements and Main Results: Post-operative assessment of bladder function. The laparoscopic nerve-sparing anatomical radical hysterectomy procedure was completed successfully and was conducted safely in all of the patients. There were no conversions to open surgery in the two groups. The median operative duration in the LNSARH and the LRH groups were 163.52 ± 34.47 min and 132.13 ± 31.42 min, respectively. Blood loss was 142.12 ± 62.38 ml and 187.69 ± 68.63 ml, respectively. The time taken to obtain a post-void residual urine volume of less than 50 ml after removal of the urethral catheter was 7.42 ± 2.35 d (5–18 d) in LNSARH group and 16.75 ± 7.73 d (5–35 d) in LRH group ($P < 0.05$). The bladder void function recovery to Grade 0–I was 76 (92.7%) for the LNSARH group and 59 (72.8%) for the LRH group. A mean follow-up of 52.3 (12–72) months was adhered to. The overall disease-free survival was 95.2% for Ia2, 89.5% for Ib1, and 84.5% for IIa1 respectively.

Conclusion: The technique described in this preliminary study appears to be safe, feasible, and easy in our population, with satisfactory recovery of voiding function and oncological outcome.

9 Plenary 2 - Oncology (12:10 PM - 1:10 PM)

12:30 PM – GROUP A

Risk Reducing Surgery for Patients at High Risk of Gynecologic or Breast Cancer: Who, What, When, Where, Why, and How



Hill AM, Azodi M. *Obstetrics and Gynecology, Yale New Haven Health - Bridgeport Hospital, Bridgeport, Connecticut*

Study Objective: Describe the surgical treatment of patients with elevated risk of breast or gynecologic cancer, including BRCA1/2, Lynch Syndrome, and women with breast cancer.

Design: Review.

Setting: Literature search.

Patients: Women with high risk of gynecologic or breast cancer, including BRCA1/2 mutations, Lynch Syndrome, and patients with breast cancer.

Intervention: Literature reviewed to formulate recommendations regarding risk reducing BSO, answering the questions “Who?” (Which patients benefit from prophylactic BSO), “What?” (Role of hysterectomy and staged salpingectomy before oophorectomy), “Where?” (Facilities and resources necessary), “When?” (Timing of surgery), “How?” (Surgical techniques and principles), and “Why?” (Evidence that risk reducing BSO is beneficial).

Measurements and Main Results: Who? Women with BRCA1/2 (individualized care for variants of undetermined significance), Lynch Syndrome, and/or hormone receptor positive breast cancer.

What? Salpingectomy with interval oophorectomy closer to menopause is acceptable. Hysterectomy for Lynch Syndrome and considered for BRCA and those with breast cancer.

Where? Surgery should be performed in a facility with Gyn/Onc backup or by a Gyn-Oncologist. Pathologist must have expertise in processing specimens from high-risk patients to avoid missing occult malignancy.

When? Society of Gynecologic Oncology recommends BSO between 35 and 40 years in patients with BRCA1/2 mutations. However, there is a role for fertility preservation in young women.

How? Laparoscopy is standard, and single-port laparoscopy may be considered. Peritoneal lavage should be performed. Care should be taken to remove the entire fallopian tube, ovary, and IP ligament. Omental biopsy should be considered.

Why? Risk reducing BSO decreases the risk of ovarian and breast cancer as well as overall mortality in women with BRCA. BSO reduces mortality in breast cancer patients, especially premenopausal.

Hormone therapy remains an option in women with BRCA mutations after risk reducing BSO.

Conclusion: Bilateral salpingo-oophorectomy is a straightforward procedure, but a standardized approach and impeccable surgical technique are necessary in patients with elevated risk of ovarian cancer.

10 Plenary 2 - Oncology (12:10 PM - 1:10 PM)

12:40 PM – GROUP B

Laparoscopic Hysterectomy with Morcellation versus Abdominal Hysterectomy for Presumed Uterine



Leiomyomata: An Updated Decision Analysis

Siedhoff MT,¹ Doll KM,² Rutstein SE,² Wheeler SB,² Geller EJ,² Wu JM,² Clarke-Pearson DL.² ¹Obstetrics & Gynecology, Minimally Invasive Gynecologic Surgery, Cedars-Sinai Medical Center, Los Angeles, California; ²Obstetrics & Gynecology, University of North Carolina, Chapel Hill, North Carolina

Study Objective: To compare mortality associated with laparoscopic hysterectomy (LH) with morcellation to total abdominal hysterectomy (AH) for an enlarged uterus presumably due to leiomyomata, using updates from the literature following 2014 FDA statements.

Design: Decision analytic model with 5-year time horizon.

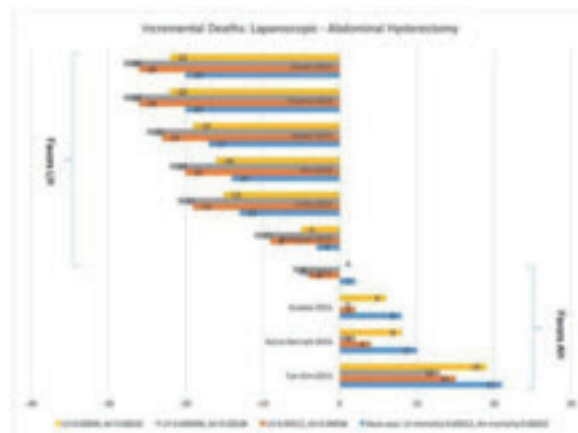
Setting: Women with an enlarged uterus presumed due to leiomyomata undergoing hysterectomy.

Patients: Hypothetical cohort of 100,000 women undergoing hysterectomy in the United States.

Intervention: LH with morcellation versus AH.

Measurements and Main Results: We previously constructed a decision analysis, modeling LH with morcellation compared to AH.* Quality of life and nearly all clinical outcomes (transfusion, wound infection, venous thromboembolism, hernia) favored LH. Using data available in the literature prior to the 2014 FDA statements on morcellation, the risk of occult leiomyosarcoma was estimated at 0.0012. Assuming more deaths due to morcellation in the LH group, overall mortality was still higher in the AH group due to procedure-related mortality. We searched the literature for updated estimates on the risk of occult LMS during hysterectomy published following the 2014 FDA statements.

The number of subjects ranged from 808 to 34,728 and LMS rates ranged from zero to 0.0032 (1:314). In total, 127 cases of LMS were found among 103,892 surgeries for a weighted average of 0.0012. Thus, mortality still favored LH using an updated base-case estimate. This finding was robust in sensitivity analysis, varying the LMS and procedure death rates, with most scenarios favoring LH



Study	Study characteristics	Candidate LMS prevalence	LMS cases	LMS		Hysterectomy deaths in LH	Hysterectomy deaths in AH	Incremental difference (LH-AH)
				deaths in LH (0.72)	deaths in AH (0.59)			
Tan-Kim 2015	941 patients LSH or TLH with morcellation 2001-12	1:314 (0.0032)	320	230	189	12	32 (-20)	21
						12	38 (-26)	15
						10	38 (-28)	13
						10	32 (-22)	19
Raine-Bennett 2016	34,728 hysterectomies for presumed fibroids 2006-2013	1:429 (0.0023)	230	166	136	12	32 (-20)	10
						12	38 (-26)	4
						10	38 (-28)	2
						10	32 (-22)	8
Graebe 2015	1,361 laparoscopic hysterectomy with power morcellation	1:454 (0.0022)	220	158	130	12	32 (-20)	8
						12	38 (-26)	2
						10	38 (-28)	0
						10	32 (-22)	6
Paul 2015	1,781 TLH with vaginal morcellation 2004-2014	1:594 (0.0017)	170	122	100	12	32 (-20)	2
						12	38 (-26)	-4
						10	38 (-28)	-6
						10	32 (-22)	0
Rodriguez 2016	12,226 LSH for fibroids among US insurance claims 2002-2011	1:763 (0.0013)	130	94	77	12	32 (-20)	-3
						12	38 (-26)	-9
						10	38 (-28)	-11
						10	32 (-22)	-5
Pritts 2015	Meta-analysis of 133 studies on hysterectomy or myomectomy, indication fibroid, 30,193 patients. Required histopathology to be explicitly reported, included studies where cancer not found	1:1961 (0.00051)	51	37	30	12	32 (-20)	-13
						12	38 (-26)	-19
						10	38 (-28)	-21
						10	32 (-22)	-15
Kho 2016	10,119 hysterectomies over 14 years at single institution	1:2023 (0.00049)	49	35	29	12	32 (-20)	-14
						12	38 (-26)	-20
						10	38 (-28)	-22
						10	32 (-22)	-16

Candidate hysterectomy death rates

*Siedhoff MT et al. Laparoscopic hysterectomy with morcellation vs abdominal hysterectomy for presumed fibroid tumors in premenopausal women: a decision analysis. *Am J Obstet Gynecol.* 2015;212(5):591.e1-8.

Conclusion: Updated estimates of occult LMS during surgery for presumed fibroids published after the FDA statements on morcellation did not change the results of our original decision analysis, adding strength to the conclusion that minimally invasive surgery remains a safe option for patients with leiomyomata.

11 Plenary 2 - Oncology (12:10 PM - 1:10 PM)

12:50 PM – GROUP B

Radical Ureteral Reconstruction After Extensive Resection for Recurrent Gynecologic Cancer



Andou M, Kannno K, Shirane A, Yanai S, Nakajima S. *Gynecology, Kurashiki Medical Center, Kurashiki-shi, Okayama-ken, Japan*

We describe the potential of laparoscopic reconstructive surgery. Case one suffered recurrent cervical cancer, originally undergoing TLH for CIS but pathology revealed 1B OCC 3mmx8mm adenocarcinoma. The patient opted for laparoscopic intervention for right ureteral obstruction for recurrence at the right parametria and ovary. We performed radical parametrectomy and reconstruction- Boari flap and psoas hitch. The patient could quickly undergo chemo-radiation, the primary therapy. Case two had recurrence at the right parametria and vagina, discovered three years after hysterectomy for stage 1A endometrial cancer. As the ureter was near the recurrent tumor, we resected part of the bladder and lower ureter

with the right parametria and vagina. Reconstruction included ileal substitution. The patient underwent chemotherapy post-operatively and is healthy 9 years after surgery.

Neither case had blood transfusion, anastomotic leak or stenosis. Laparoscopic radical ureteral reconstruction after extensive resection for recurrent gynecologic cancer assists in early administration of adjuvant therapy.

12 Plenary 2 - Oncology (12:10 PM - 1:10 PM)

1:00 PM – GROUP B

Sentinel Lymph Node Mapping



Magtibay P III, Magtibay P II, Wasson MN. *Mayo Clinic Arizona, Phoenix, Arizona*

The sentinel lymph node is the first chain node that receives primary lymphatic flow from the organ of interest. If this node is negative for metastatic disease, then other lymph nodes in the lymphatic basin are expected to be negative. Ultrastaging of the sentinel lymph node can be used during staging of endometrial and cervical carcinomas. When compared to full lymphadenectomy, sentinel lymph node mapping and excision is associated with significantly lower blood loss, decreased surgical time, and reduced lymphedema without compromising oncologic outcomes. Sentinel lymph node mapping can be completed with cervical injection of either 1% methylene blue or combined indocyanine green and near-infrared fluorescence imaging. Intraoperatively, the retroperitoneum is

accessed and areolar tissue is separated. This allows lymphatic channels and the sentinel lymph node to be visualized. Monopolar energy, traction, and counter-traction are used to fully excise the sentinel lymph node.

13 Plenary 3 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Hysteroscopic Proximal Tubal Occlusion versus Laparoscopic Salpingectomy as Treatment for Hydrosalpinges Prior to IVF or ICSI: A RCT



Emanuel MH,¹ Dreyer K,² Hompes PGA,² Mijatovic V,² ¹Ob/Gyn, Spaarne Gasthuis, Hoofddorp, NH, Netherlands; ²Ob/Gyn, VU Medical Center, Amsterdam, NH, Netherlands

Study Objective: Does hysteroscopic proximal tubal occlusion by intratubal devices as treatment for hydrosalpinges result in comparable ongoing pregnancy rates following IVF/ICSI as compared to laparoscopic salpingectomy?

Design: A two-centre, randomized controlled non-inferiority trial between October 2009 and December 2014. Randomization was based on a computer generated randomization list. The study was unblinded. Primary outcome was ongoing pregnancy rate, defined as a fetal heartbeat on ultrasound beyond 10 weeks gestation following one IVF/ICSI treatment (fresh and frozen thawed embryo transfers).

Setting: The in- and outpatient treatment units of an academic and non-academic training hospital.

Patients: Women aged 18-41 years, with uni- or bilateral ultrasound visible hydrosalpinges who were scheduled for an IVF/ICSI treatment. A total of 85 women were included.

Intervention: 42 Patients were randomized to hysteroscopic proximal occlusion by intratubal device placement (outpatient) and 43 patients to laparoscopic salpingectomy (inpatient).

Measurements and Main Results: The ongoing pregnancy rates per patient according to the intention to treat principle were 11/42 (26.2%) after hysteroscopic proximal occlusion by intratubal devices (intervention group) versus 24/43 (55.8%) after laparoscopic salpingectomy (control group) ($p=0.008$) (absolute difference 29.6%; 95% confidence interval (CI) 7.1 to 49.1, relative risk (RR) 0.47 95% CI 0.27 – 0.83, $p=0.01$). In the per protocol analysis the ongoing pregnancy rate per patient following hysteroscopic proximal occlusion by intratubal devices was 9/27 (33.3%) compared to 19/32 (59.4%) following laparoscopic salpingectomy ($p=0.067$) (absolute difference 36.1%; 95% CI -1.8 to 50.0, RR 0.56; 95% CI 0.31 to 1.03, $p=0.062$).

Conclusion: Hysteroscopic proximal tubal occlusion by intratubal devices is inferior to laparoscopic salpingectomy in the treatment of hydrosalpinges in women undergoing IVF/ICSI with respect to ongoing pregnancy rates.

14 Plenary 3 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

2:25 PM – GROUP A

Tertiary Prevention of Morbus Asherman: A Randomized Controlled Trial



Hanstede M, Emanuel MH. Asherman Expertise Center, Spaarne Gasthuis, Hoofddorp, Noord Holland, Netherlands

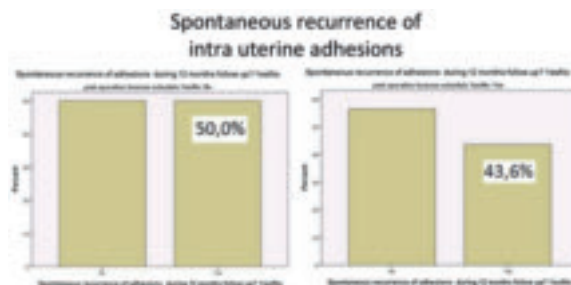
Study Objective: The challenge with Asherman's disease is not the remove the adhesions but to prevent them from coming back. Our objective was to study whether exogenous hormone administration starting immediately after a successful hysteroscopic adhesiolysis, in patients with M. Asherman reduces the incidence of spontaneous recurrence of adhesions more than the endogen production of hormones.

Design: Single blind randomized controlled trial.

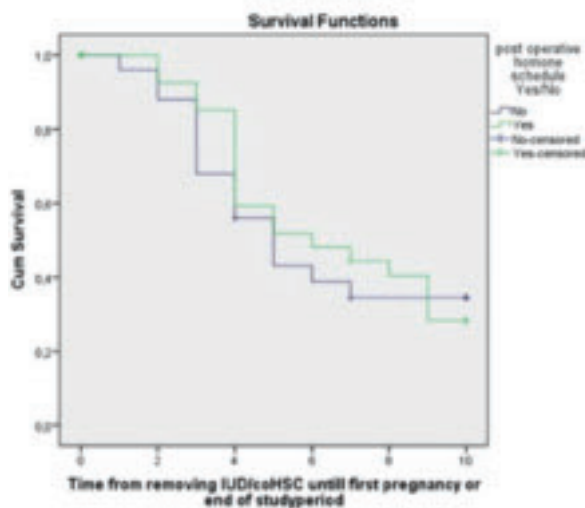
Setting: The study was performed in the Asherman Expertise Center, a referral and last resort center for women suffering from Asherman's

Baseline Characteristics

	Intervention	Control
Age (mean)	32.5	33.2
Grade of adhesion (%)		
Mild	7	8
moderate	45	54
Severe	48	38
Causative procedure (%)		
1st trimester	71	76
post partum	30	24



Pregnancy after adhesiolysis



disease. This is a department of the Spaarne Gasthuis a teaching hospital in Hoofddorp/Haarlem, that is affiliated to the Amsterdam Universities in the Netherlands.

Patients: A total of 110 patients with M. Asherman who had a successful hysteroscopic adhesiolysis were randomized.

Intervention: After successful adhesiolysis (using hysteroscopy with conventional instruments guided by fluoroscopy) an intra uterine shield was inserted in the uterine cavity in all patients. Women who were allocated to the intervention group received a schedule with estragen and norethisteron for 40 days post operation.

Measurements and Main Results: A control hysteroscopy was performed by a blinded gynecologist 2-3 months after adhesiolysis in all patients. During the 12 months follow up women were asked to monitor their bloodloss by PBAC and any sign of recurrence of adhesion or re-intervention was monitored.

In the hormone group the percentage of recurrences was slightly lower (but not significant $p=0.590$) than in the patients that did not receive hormone treatment, respectively 43.6% and 50.0%.

In the secondary outcomes no significant difference was shown in pregnancies (Figure 2), restoration of menstrual flow and endometrial thickness. The side effects measured in the treatment group were frequent.

Conclusion: We found no evidence for a positive effect of the use of additional hormones, in women with M.Asherman after an initial successful adhesiolysis, as tertiary prevention method.

15 Plenary 3 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

2:35 PM – GROUP A

Uterine Synechiae After Hysteroscopic Myomectomy: Should We Use Bipolar or Monopolar Energy?



Fernandez H, Capmas P, Nazac A. Bicetre Hospital, Le Kremlin Bicêtre, France

Study Objective: To compare synechiae rate after bipolar hysteroscopic myomectomy versus monopolar hysteroscopic myomectomy.

Design: Unicentric randomized controlled trial.

Setting: Gynecology unit of a teaching hospital.

Patients: Women 18 to 42 years old, with heavy menstrual bleeding or infertility and type 0, 1 or 2 myoma.

Intervention: Hysteroscopic myomectomy was performed by a rigid resectoscope with monopolar or bipolar energy 26 Fr brand Karl Storz® through an electrode with a cutting loop of 4mm. The patients were operated in the follicular phase. No anti adhesions device should not be inserted in the cavity: neither anti adhesions gel or other mechanical device in the cavity.

A diagnostic hysteroscopy was performed 6 weeks after surgery.

Measurements and Main Results: 58 women were randomized for type of energy: monopolar (n = 27) vs. bipolar (n = 31).

No significant difference was found between the two groups regarding patient characteristics.

Mean number of myoma was 1.4 ± 0.8 myoma. The localization of the myoma was mainly anterior (n = 26) or posterior (n = 23). Myomas were mainly type 1 (n = 23) or 2 (n = 33) out of the 69 resected myoma.

The synechiae rate at 6 weeks was significantly lower in bipolar energy group 1/31 (3.2%) compared to monopolar energy group 7/27 (26.9%) (p = 0.012).

Conclusion: This study is the first randomized trial about rate of synechia after hysteroscopic myoma resection using monopolar or bipolar energy. Bipolar energy led to significantly less synechiae after hysteroscopic resection of type 0 to 2 myoma compared to monopolar energy.

Therefore, we recommend the use of bipolar energy and office hysteroscopic control 6 weeks after surgery.

16 Plenary 3 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

2:45 PM – GROUP B

Analysis of the Differential Genic Expression Between Symptomatic and Asymptomatic Endometrial Polyps



Rosa-e-Silva JC, Troncon JK, Meola J, Candido-dos-Reis FJ, Poli-Neto OB, Nogueira AA. Gynecology and Obstetrics, School of Medicine of Ribeirao Preto, University of Sao Paulo, Ribeirao Preto, Sao Paulo, Brazil

Study Objective: To determine whether genetic markers involved in endometrial carcinogenesis (PTEN, BCL-2, MLH-1 and CTNNB1) have differential expression between endometrial polyps presenting with and without postmenopausal bleeding.

Design: Cross-sectional study.

Setting: A tertiary referral hospital.

Patients: Postmenopausal women undergoing hysteroscopic polypectomy, with no current or previous use of hormonal therapy or tamoxifen.

Intervention: A fragment of the endometrial polyps removed hysteroscopically from the selected patients was submitted to processing and PCR (polimerase chain reaction), to quantify the expression of the

studied genes. Clinical data from each patient were analyzed, such as age, time from menopause, presence of diabetes and systemic hypertension, smoking habits, and size of the polyp.

Measurements and Main Results: Data from 60 patients were obtained, being 21 asymptomatic women, and 39 presenting with postmenopausal bleeding. The level of gene expression for the analyzed genes (PTEN, BCL-2, MLH-1 and CTNNB1) showed no statistical difference between the two groups of patients (symptomatic and asymptomatic), with p-values of 0,98, 0,74, 0,31 and 0,74 for the expression of BCL-2, PTEN, MLH-1 and CTNNB1, respectively. There were outliers for the gene expression in all groups, but with no clinical correspondence when analyzing each of the cases individually. Regarding the clinical data, no statistical difference was obtained between the groups.

Conclusion: Current scientific evidence shows that endometrial polyps presenting with postmenopausal bleeding are at greater risk for malignancy, but there is a lack of studies to define whether the polyps are in fact cancer precursors, or only a marker that allows earlier diagnosis of malignancy.

17 Plenary 3 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

2:55 PM – GROUP B

Myomectomy of Type II Submucous Uterine Myoma Using Hysteroscopy Endo-Operative System (HEOS)



Xu D,¹ Johnson G,² Zhang A,¹ Wang Y,¹ Guan X.² ¹Ob/Gyn, Third Xiangya Hospital of Central South University, Changsha, Hunan Province, China; ²Ob/Gyn, Baylor College of Medicine, Houston, Texas

Objective: This video demonstrates the advantages of using HEOS, a specially designed operative hysteroscope with a 13 Fr working channel and 3mm cold instruments, to remove a type II myoma while protecting the endometrium overlying the surface of the myoma in a single procedure.

Setting: Third Xiangya Hospital.

Patient(s): A 37 yo, G2P0 underwent routine ultrasound revealed a 33mm*32mm*34mm myoma located in the left uterine wall, and 1/5 of the myoma protruded into the uterine cavity.

Intervention: Myomectomy of type II submucous uterine myoma using HEOS (Sopro-comeg Company, Bordeaux, France).

Measurement and Main Results: The type II submucous myoma was removed completely using HEOS cold scissors and graspers in a single procedure. The operation time totaled 28 minutes. No complications. Postoperative pathology: uterine myoma. The myoma bed appeared well-healed at the follow up visit 2 months postoperatively.

Conclusions: When indicated, myomectomy of a submucous myoma using HEOS is safer than using traditional resectoscopy.

18 Plenary 3 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

3:05 PM – GROUP B

Effective Management of Essure Complications



Lutz M, Uy-Kroh J, Bradley L. Women's Health Institute, Cleveland Clinic, Cleveland, Ohio

Essure removal is becoming more prevalent because of complications, which, as listed in the literature include: delayed -type hypersensitivity to nickel, malposition (defined as perforation, expulsion or migration), bowel obstruction or injury, infection, chronic pain, and unintended pregnancy. Case 1 demonstrates the possible challenge in diagnosing malposition and that diagnostic laparoscopy may be necessary to assess for malposition. We then describe a case of Essure malposition in a woman seeking permanent sterilization who wished to keep her uterus and the importance of including patient goals with respective risks and benefits, including possible retained fragments. Finally we share a unique

case of hysteroscopic Essure removal and we express our recommendation to use intraoperative imaging with KUB or fluoroscopy in order to assess for complete excision and to drive postop counseling. We hope that the techniques shared here may help providers improve the quality of their care for patients.

19 Plenary 4 - Robotics
(3:25 PM - 5:05 PM)

3:25 PM – GROUP A

Proficiency Based Robotics Training Curriculum for Suturing Tasks: Transferability of Skills to a Live Porcine Model



Vargas MV,¹ Moawad G,¹ Denny K,² Powers-Happ L,³ Margulies S,² Abi Khalil E,¹ Marfori C.¹ ¹Obstetrics and Gynecology, George Washington University Medical Faculty Associates, Washington, District of Columbia; ²School of Medicine and Health Sciences, George Washington University, Washington, District of Columbia; ³Milken Institute of Public Health, George Washington University, Washington, District of Columbia

Study Objective: To assess whether a robotic simulation curriculum for novice surgeons can improve performance of a suturing task in a live porcine model.

Design: Randomized controlled trial: (Canadian Task Force classification I).

Setting: Academic medical center.

Patients: 36 surgery naïve medical students.

Intervention: Participants were enrolled in an online session of training modules followed by an in-person orientation. Baseline performance testing on the Mimic technologies da Vinci Surgical Simulator (dVSS) was also performed. Participants were then randomly assigned to the completion of 4 dVSS training tasks (Camara clutching 1, Suture sponge 1 and 2, and Tubes) versus no further training. The intervention group performed each dVSS task until proficiency or up to 10 times. A final suturing task was performed on a live porcine model, which was video recorded and blindly assessed by experienced surgeons. The primary outcomes were Global Evaluative Assessment of Robotic Skills (GEARS) scores and task time. The study had 90% power to detect a mean difference of 3 points on the GEARS scale, assuming a standard deviation (SD) of 2.65, and 80% power to detect a mean difference of 180 seconds, assuming a SD of 90 seconds.

Measurements and Main Results: There were no differences in demographics and baseline skills between the two groups. No significant differences in task time in seconds or GEARS scores were seen for the final suturing task between the two groups: proficiency based virtual reality simulation training and standard orientation to the robotic console (553 versus 593; $p=0.406$ and 16.0 versus 15.4; $p=.603$). The 95% confidence interval for the difference in mean task times was -57.20 to 137.82, and mean GEARS scores was -3.25 to 2.00.

Conclusion: Based on the results of this study, live suturing task performance was not improved with a proficiency-based virtual reality simulation suturing curriculum compared to standard orientation to the da Vinci robotic console.

20 Plenary 4 - Robotics
(3:25 PM - 5:05 PM)

3:35 PM – GROUP A

Reduced-Port Robotic Surgery for Myomectomy Using Laparoscopic Single Port Platform



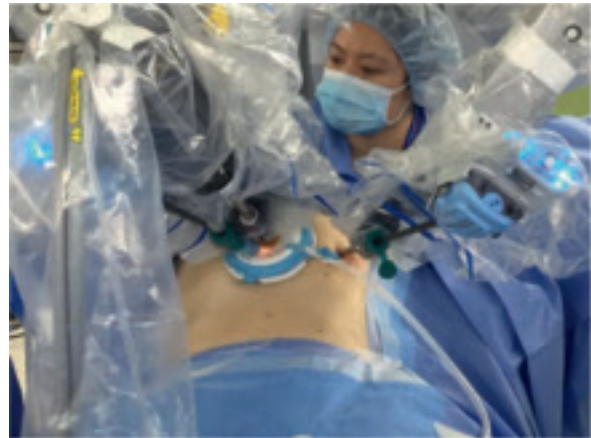
Kim WY, Kim JJ. Department of Obstetrics and Gynecology, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, Seoul, Republic of Korea

Study Objective: To present our initial experience with reduced port robotic surgery (RPRS) for myomectomy using Octo-Port.

Design: Case series.

Setting: University hospital.

Patients: RPRS for myomectomy was carried out on 8 consecutive patients with symptomatic uterine fibroids desiring conservative



minimally invasive robotic surgery from October 2015 to March 2016 by a single surgeon.

Intervention: An 8.5mm robotic camera cannula was inserted through one of the Octo-port channel and 8mm conventional robotic port was inserted into a 10mm channel of the Octo-Port through 3cm trans-umbilical incision. An additional 8mm conventional robotic port was inserted into a usual robotic port site on right abdomen.

Measurements and Main Results: Mean age and body mass index were 41.4 years and 21.7 kg/m², respectively. The median docking time and console time were 17 minutes (range, 8-22 min.) and 119 minutes (range, 44-210 min.). In 4 patients (50 %), location of the largest myoma was ant. uterine wall, and another half was post. Mean myoma size and median weight were 7cm and 108g range, 42-200 g). Median operative blood loss was 175 mL (range 100-700 mL), and mean Hemoglobin change was 2.2 mg/dL. The Procedures were successfully performed via RPRS in 75% of cases; 2 cases required 1 to 2 additional robotic port to return to traditional multiport robotic surgery. There was no major postoperative complication and there have been no postoperative hernias diagnosed.

Conclusion: Our experience shows the feasibility of RPRS for myomectomy using Octo-Port in selected patients.

21 Plenary 4 - Robotics
(3:25 PM - 5:05 PM)

3:45 PM – GROUP A

Robotic Assistance Confers Ambidexterity to Laparoscopic Surgeons



Choussein S,¹ Srouji SS,¹ Wietsma A,² Missmer SA,³ Farland LV,³ Hollis M,² Yu RN,² Pozner CN,⁴ Gargiulo AR.¹ ¹Center for Infertility and Reproductive Surgery, Obstetrics, Gynecology and Reproductive Biology, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts; ²Department of Urology, Boston Children's Hospital, Harvard Medical School, Boston, Massachusetts; ³Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, Massachusetts; ⁴Neil and Elise Wallace STRATUS Center for Medical Simulation, Brigham and Women's Hospital, Boston, Massachusetts

Study Objective: To examine whether the robotic platform can complement fine motor skills of the non-dominant hand, compensating for surgeon's innate difference in dexterity.

Design: Cross-over randomized controlled trial.

Setting: Centers for medical simulation of two academic tertiary care hospitals.

Patients: Three different cohorts were included: 1) surgical novices (no robotic/laparoscopic experience) 2) surgical senior residents and fellows (intermediate robotic/laparoscopic experience) and 3) established laparoscopic/robotic surgeons. The volunteers were solicited from the

Obstetrics & Gynecology and Urology Departments of the aforementioned academic medical centers.

Intervention: Each study group completed three dry lab exercises that are essential components of the Fundamentals of Laparoscopic Surgery (FLS) curriculum, on a standard laparoscopic box trainer and in a robotic dry lab set-up.

Measurements and Main Results: Performance was primarily measured as time to completion, with adjustments based on errors. Means of performance for the dominant versus non-dominant hand for each task were calculated and compared with a paired t-test.

A total of 36 subjects were enrolled study-wide (12/group). Overall execution time for all three tasks with the dominant hand was significantly different from that with the non-dominant hand in the laparoscopic setting (439.4s vs. 568.4s respectively; $p=0.004$) while the between-hand performance difference was nullified with the robotic system (374.4s vs. 399.7s; $p=0.18$). Evaluation of performances for each individual task also revealed a statistically significant disparate performance between hands for all three tasks when the laparoscopic approach was utilized ($p<0.001$, $p<0.02$, $p<0.03$ respectively); no between-hand difference was observed when the tasks were performed robotically. The performance advantage of robotic technology was most profound for novices.

Conclusion: Robot-assisted laparoscopy eliminates the operative handedness observed in conventional laparoscopy, allowing for virtual ambidexterity at all levels of surgical training. Further investigation is warranted in order to define the ultimate clinical value of this particular robotic attribute with respect to actual operative outcomes and patient safety in the surgical learning curve.

22

Abstract Withdrawn

23 Plenary 4 - Robotics (3:25 PM - 5:05 PM)

4:05 PM – GROUP B

Robot-Assisted Sacrocolpopexy for the Treatment of Pelvic Organ Prolapse; a Prospective Cohort Study Evaluating Functional and Sexual Outcome



Schraffordt Koops SE,¹ Lenters E,¹ O'Reilly BA,² van Zanten F.¹ ¹Meander Medical Centre, Amersfoort, Utrecht, Netherlands; ²University College Cork, Cork, Ireland

Study Objective: The popularity of robot-assisted sacrocolpopexy (RASC) for the treatment of female pelvic organ prolapse (POP) is increasing. The advantages of laparoscopic interventions are maintained with the use of the robot and a long learning curve is evaded. As the list of publications on RASC is growing¹, the anatomic results, recurrences and complications are becoming clear. However, reports on urinary function after RASC are rare and only few studies report on sexual function¹. This study assesses prospectively safety, quality of life, micturition and sexual function.

¹Robot-assisted Sacrocolpopexy for Pelvic Organ Prolapse: A Systematic Review and Meta-analysis of Comparative Studies. Serati et al. European Urology 2014.

Design: Prospective cohort study.

Setting: Large teaching hospital with a tertiary referral function for patients with gynecological prolapse.

Patients: All patients (N= 165) undergoing RASC between 2011-2013 were enrolled.

Intervention: Standard RASC, using the da Vinci Si-HD[®], suspension with prolene mesh.

Measurements and Main Results: The simplified Pelvic Organ Prolapse Quantification (POP-Q), was used. Pre- and/or postoperative questionnaires using the Urinary Distress Inventory (UDI-6) [5], POP/Urinary Incontinence Sexual Questionnaire (PISQ-12) and Pelvic Floor Impact Questionnaire (PFIQ-7) were completed.

Table 1. Patient demographics and surgical details (total n=165).

Mean age (range)	62.4 (36-85)
Mean BMI	25.8
Mean para (range)	2.8 (1-6)
Postmenopausal %	79.8
History (%)	
Hysterectomy	40.5
Oophorectomy	6.8
Previous POP/incontinence surgery	42.4
Other abdominal surgery	35.6
Technique used (n)	
Sacrocolpopexy (prior hysterectomy)	66
Supracervical hysterectomy, sacrocervicopexy	93
Hysteropexy	5
Concomitant surgery %	57
Concomitant rectopexy %	37.4
Concomitant TVT-O %	9.8
Mean docking time, minutes (range)	26 (10-89)
Mean total operation time, minutes (range)	187 (103-344)
Sacrocolpopexy (n=19)	163
Supravaginal hysterectomy with sacrocervicopexy (n=28)	177
Sacrocolpopexy with rectopexy (n=17)	162
Supravaginal hysterectomy, sacrocervicopexy with rectopexy (n=24)	198
Total Mean blood loss, milliliters (range)	66 (5-400)
Conversion % (n)	1.8 (3)
Intra-operative complications % (n)	5.5 (9)
Postoperative complications during hospital stay % (n)	5.3 (7)
Clavien-Dindo Classification grade 1	85.7 (6)
Clavien-Dindo Classification grade 2	14.3 (1)
Clavien-Dindo Classification grade 3-5	0 (0)
Postoperative pain scores; VAS (range)	2.93 (0-7)
Mean length of hospital stay, nights (range)	2.55 (1-6)

Median follow-up was 12 months. The POP-Q improved significantly ($p<0.001$) for all four anatomic landmarks. Urinary incontinence (UDI-6 score 4,2 vs 2,4 $p<0,0005$) scores improved significantly at 12 months.

Table 2. Anatomical, micturition and quality of life results.

	Pre-operative	12 months	P value
	Mean (range)	Mean (range)	
Anatomical			
POP-Q - A	2.5	1.5	<0.0005
POP-Q - B	2.1	1.3	<0.0005
POP-Q - C	2.7	1.1	<0.0005
POP-Q - D	1.6	1.2	<0.001
	Mean (range)	Mean (range)	
Micturition			
UDI-6* total	4.2 (0-15)	2.4 (0-12)	<0.0005
Irritative	1.6 (0-6)	0.8 (0-5)	0.042
Stress	1.3 (0-6)	0.8 (0-4)	<0.0005
Obstructive/discomfort	1.4 (0-6)	0.8 (0-5)	<0.0005
PFIQ-7	85.4	20.5	0.07
PISQ-12 total	30.3	33.7	0.62
Sexual active %	54.7	47.7	0.67
Dyspareunia %	33.6	17.2	0.17

* Utomo E. et al. Validation of the Urogenital Distress Inventory (UDI-6) and Incontinence Impact Questionnaire (IIQ-7) in a Dutch population. Neuro-urology Urodyn. 2015 Jan.

The quality of life score improved postoperative and a decrease in dyspareunia was reported. Nine intra-operative complications were identified, mostly due to adhesions (n=3) or bladder lesions (n=3). After one year of follow-up there was no mesh erosion.

Conclusion: This is the largest cohort, reporting prospectively on RASC. At one year follow-up the POP-Q for all four anatomic landmarks and the urinary incontinence scores improved significantly. A positive effect on the quality of life and dyspareunia was observed. No mesh erosions were seen.

24 Plenary 4 - Robotics (3:25 PM - 5:05 PM)

4:15 PM – GROUP B

The Feasibility and Identifying Factors and Outcomes of Robotic-Assisted Hysterectomy in an Outpatient Setting



Lim PC,¹ Kang EY,¹ Kraeden U.² ¹Robotic Surgery, Intuitive Surgical, Reno, Nevada; ²Biostatistic, Intuitive Surgical, Sunnyvale, California

Study Objective: The aim of this study is to report the feasibility and identify factors and outcomes of robotic hysterectomy in an outpatient setting.

Design: Retrospective: Patients were dichotomized based on length of stay (LOS). Group A: LOS < 12 hours and Group B LOS > 12 hours. Intraoperative and postoperative outcomes: estimated blood loss (EBL), conversion, emergency rooms visits (ERV), and readmission (RA) were analyzed. Both univariate and multivariate linear regression analysis were performed to identify potential confounding factors such as age, BMI, benign or malignant conditions, operative time (OT), surgical start time (SST), lymph node dissection (LND), and surgeons experience (SE) that attributed to LOS.

Setting: Academic affiliated hospital.

Patients: Robotic-assisted hysterectomy (RAH) for benign and malignant conditions in the outpatient setting performed by gynecologic surgeons.

Intervention: Robotic hysterectomy and or lymph node dissection.

Measurements and Main Results: 1050 patients underwent RH from 01/2012 to 10/2015. Group A was 59.7% (606/1050) with average LOS (9.2 hours+1.7), Group B was 40.3% with average LOS (42.1hours + 59.1). Average EBL=77ml. Conversion to open rate was 0.38% (4/1050). ERV= 6.2% (65/1050) and RA=3.1% (33/1050).

In a univariate analysis, age, BMI, OT, SST, LND, cancer cases vs benign were found to be associated with prolonged LOS > 12 hours.

In a multivariable logistic regression model SE was 3.346 times more likely to have a patient with a prolonged LOS > 12 hours.

Conclusion: RH is feasible with an acceptable postoperative outcome. Age, BMI, operative time, surgical start time, lymph node dissection, cancer vs. benign appears to be contributing factors to allow for discharge within the same day. While surgical experience (high volume surgeons) was associated with prolong LOS. Identifying these factors may allow for possible saving opportunities for robotic surgery.

25 Plenary 4 - Robotics (3:25 PM - 5:05 PM)

4:25 PM – GROUP C

Feasibility of Robotic-Assisted Urinary Diversion and Its Surgical Outcomes and Complications



Lim PC, Kang EY. Robotic Surgical Institute/Gynecology Oncology, Renown's Regional Medical Center, Reno, Nevada

Study Objective: To report on the feasibility of robotic-assisted urinary diversion and its surgical long term outcomes and complications.

Design: Prospective data was collected from 2009 to 2015 patients who underwent robotic-assisted ileal conduit (RAIC) and robotic-assisted continent urinary diversion (RACUD).

Setting: Academic affiliated hospital.

Patients: 19 patients who underwent anterior or total pelvic exenteration that required urinary reconstruction and underwent robotic-assisted total intracorporeal ileal conduit or continent urinary diversion.

Intervention: 19 patients underwent robotic-assisted urinary diversion as part of the reconstruction procedure following robotic-assisted anterior or total pelvic exenteration.

Measurements and Main Results: Seventeen patients required urinary diversion, 4 patients underwent a robotic-assisted continent urinary diversion (RACUD) and 13 underwent robotic-assisted ileal conduit (RAIC). The mean average age is 58 years old, average BMI 27.4. Average operative time was 257 min. Average EBL was 452 cc. Average days of hospitalization 15 days. Average creatinine level preoperative level was 1.07mg/dl, 6 weeks post operative creatinine level was 1.28 mg/dl and 1 year post surgery creatinine was 1.44. 10/17 (58%) patients have radiological development of hydronephrosis while 9/17 (48%) showed no evidence of hydronephrosis. None of the 10 patients who had hydronephrosis required nephrostomy tube. There was no ureteral anastomotic leak, 1 patient had ureteral strictures which required restenting. 2/17 (11%) patients had UTI while 1/17 (5.8%) had pyelonephritis.

Conclusion: Robotic-assisted urinary diversion is a feasible procedure with acceptable long term outcomes. There were no long term renal function sequelae.

26 Plenary 4 - Robotics (3:25 PM - 5:05 PM)

4:35 PM – GROUP C

Robotic-Assisted Laparoscopic Resection of a Non-Communicating Cavitory Rudimentary Horn



Madueke-Laveaux OS, Rackow BW, Advincula AP. Gynecologic Specialty Surgery, Columbia University Medical Center, New York, New York

Objective: To illustrate the use of robotic-assisted laparoscopy for surgical management of a unicornuate uterus with a non-communicating cavitory uterine horn.

Methods and Procedures: This video illustrates a step-by-step technique for performing a robotic-assisted laparoscopic hemi-hysterectomy for surgical management of a non-communicating cavitory rudimentary horn.

Results: Complete resection of the non-communicating cavitory rudimentary horn using robotic-assisted laparoscopy.

Conclusion: Robotic surgery is a safe and feasible route for surgical management of patients with a unicornuate uterus and non-communicating cavitory horn.

27 Plenary 4 - Robotics (3:25 PM - 5:05 PM)

4:45 PM – GROUP C

Real Time Lymphatic Mapping Primary Sentinel Lymph Nodes (SLN) and Downstream Secondary Fluorescence Nodes for Endometrial and Cervical Cancer by Firefly Fluorescence Imaging with da Vinci Xi System



Lee YS. Kyungpook National University Medical Center, Daegu, Korea

The objective of this video is to demonstrate real time lymphatic mapping primary sentinel lymph nodes (SLN) and downstream secondary fluorescence nodes for endometrial and cervical cancer by firefly fluorescence imaging with da Vinci xi system. Four intracervical injection of indocyanine green (ICG) at 3 and 9 o'clock was performed in all cases before insertion of telescope. Firefly fluorescence imaging with ICG in da

Vinci system is an excellent and safe method for SLN mapping with a very high overall (100%) and bilateral (93%) detection rate. Our results revealed there are important information about conception of primary sentinel node and downstream fluorescence nodes. Which is rather different results to previous others studies. If skipped metastasis is present at endometrial cancer, cervical injection of ICG is inappropriate method to detect sentinel node.

THURSDAY, NOVEMBER 17, 2016

28 Plenary 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(11:00 AM - 12:00 PM)

11:00 AM – GROUP A

Evidence to Justify Retention of Transvaginal Mesh: Comparison Between Laparoscopic Sacrocolpopexy and Transvaginal Elevate Mesh Series



To V, Hengrasme P, Lawless A, Lam J, Lam A. Centre for Advanced Reproductive Endosurgery, Sydney, New South Wales, Australia

Study Objective: To determine if laparoscopic sacrocolpopexy offers better apical support with less erosion rate than transvaginal mesh surgery with Elevate.

Design: Retrospective cohort study.

Setting: Tertiary care referral centre.

Patients: Patients who underwent laparoscopic sacrocolpopexy from 2006 to 2015 were compared with patients who had apical prolapse (POP-Q point C \geq -1) and underwent Elevate mesh placement, without history of sacrocolpopexy.

Intervention: N/A

Measurements and Main Results: Chart review was performed. Comparisons between the two groups were calculated using t test, Fisher exact or Chi square test. 290 patients underwent sacrocolpopexy and 146 patients were included in the Elevate mesh group. The sacrocolpopexy group had a mean age of 59 years old and a BMI of 25.8. Patients in the Elevate group were older with a mean age of 63 and a BMI of 26.3. The majority of both groups presented with pelvic organ prolapse stage III (74.5 and 87%) and their mean POP-Q point C were not significantly different (1.4 vs. 1.2). Operative time was significantly higher in the sacrocolpopexy group (113 vs. 91 minutes), but estimated blood loss was lower (80cc vs. 137cc). Mesh erosion rate at one year was higher in the sacrocolpopexy group (2.8% vs 1.4%), although that difference was not statistically significant. One year objective cure rate, defined as no descent beyond the hymen, was 97.5% in the sacrocolpopexy group and 97.2% in the Elevate group. The overall recurrence (objective, subjective recurrence or reoperation) was also not different between the groups (3.8% vs. 4.8%). 5 patients (1.7%) in the sacrocolpopexy group had recurrence in the apical compartment compared to 3 patients (2.0%) in the Elevate group.

Conclusion: Although apical support appears to be similar between laparoscopic sacrocolpopexy and transvaginal Elevate mesh, erosion rate may be higher with sacrocolpopexy, although that difference was not significant.

29 Plenary 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(11:00 AM - 12:00 PM)

11:10 AM – GROUP A

Superior to the Traditional Treatment, Individual Biofeedback Combined with Electrostimulation Fits Type II Pelvic Floor Muscle Injury Best and Contributes to Sexual Satisfaction

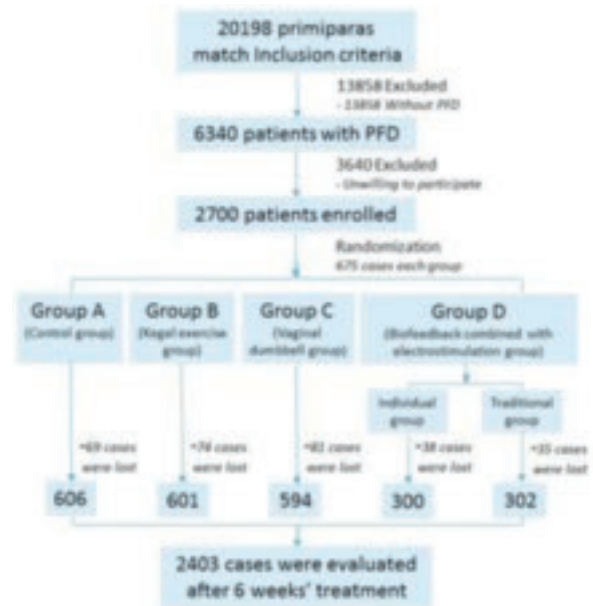


Zhang X, Chen Y, Ding J, Huang J, Hua K. Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China

Study Objective: To compare individual and traditional biofeedback combined with electrostimulation therapy on three aspects:

myodynamia, pelvic organ prolapse (POP) and sexual life. To explore whether different pelvic floor muscle (PFM) injuries need individual therapies.

Design:



Patients: As a multicenter prospective randomized study, 2403 patients 6 weeks after delivery, selected from 5 hospitals of obstetrics and gynecology from October 2012 to December 2014 were in the final analysis.

Intervention: Patients were divided into control group (group A), Kegel exercise group (group B), vaginal dumbbell group (group C) and biofeedback combined with electrostimulation group (group D). Group D was divided into individual and traditional group with each subdivided into type I, type II and type I+II mixed PFM injury groups in further study.

Measurements and Main Results: PFM strength, POP - Q and the PISQ-12 was evaluated before/after 6 months after the treatment. Results showed that biofeedback combined with electrostimulation had advantages over the traditional muscle exercise therapy. Individual group was better than the traditional one in the improvement of muscle strength and sexual life. The therapy fitted Type II PFM injury best. There's no evidence of anatomy changes of postpartum PFM after therapy.

Conclusion: It is of great importance for women with basin pelvic dysfunction, especially type II PFM injury to proactively act on early postpartum intervention by using individual biofeedback combined with electrostimulation in order to promote PFM rehabilitation better.

30 Plenary 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(11:00 AM - 12:00 PM)

11:20 AM – GROUP A

Robot-Assisted Sacrocolporectomy for Multi-Compartment Prolapse of the Pelvic Floor: A Prospective Cohort Study Evaluating Functional and Sexual Outcome



Schraffordt Koops SE,² de Witte CJ,² Consten ECJ,¹ Broeders IAMJ,¹ van Iersel J.¹ ¹Department of Surgery, Meander Medical Centre, Amersfoort, Utrecht, Netherlands; ²Department of Gynecology, Meander Medical Centre, Amersfoort, Utrecht, Netherlands

Study Objective: Sacrocolporectomy (RSCR) with a limited anterior mobilization of the rectum is described in only two studies, neither robot-

Table 1. Patient demographics and surgical details

	Total n = 51
Mean age (range)	56.2 (33.9 – 75.0)
Mean ASA classification (range) [mean BMI]	1.65 (1-3) [27.4]
Mean para (range) [episiotomy/rupture]	2.75 (0 – 6) [27/21]a
History	
Hysterectomy [oophorectomy]	21 (41.2%) [2] (3.9%)
Rectal prolapse surgery	6 (11.8%)
Cystopexy	12 (23.5%)
Colporrhaphia anterior or posterior	22 (43.1%)
Hemorrhoidectomy	8 (15.7%)
Other abdominal surgery	18 (35.3%)
RSCR combined with hysterectomy	30 (58.8%)
Mean docking time, minutes (range)	7 (3 – 15)
Total operation time, minutes (range)	179.3 (76 – 250)
Mean blood loss, millilitres (range)	49.3 (5-200)
Conversion	1 (2%)
Intra-operative complications	1 (2%)
Mean length of hospital stay, nights (range)	2.4 (1-8)

BMI indicates body mass index, ASA: American society of anaesthesiologists. a 15 patients had an episiotomy and a rupture.

assisted. None of these articles, evaluating a multi-compartmental approach explored postoperative functional or sexual outcome.

Objective of this present study was to assess prospectively safety, quality of life, functional and sexual outcomes.

Design: Prospective cohort study, median follow-up 12.5 months.

Setting: Large teaching hospital with a tertiary referral function for patients with combined anorectal/gynecological prolapse.

Patients: All patients undergoing RSCR between 2011 and 2015 were enrolled (N=51)

Table 2. Anatomical, functional and quality of life results

	Pre-operative	12 months	p- value
	mean (range)	mean (range)	
Anatomical			
POP-Q - A	2.29 (1-4)	1.15 (1-3)	< 0.0005
POP-Q - B	2.44 (1-4)	1.06 (1-2)	< 0.0005
POP-Q - C	2.10 (1-4)	1.00 (1-1)	< 0.0005
POP-Q - D	1.69 (1-4)	1.00 (1-1)	< 0.0005
Median (range)		Median (range)	
Functional			
UDI-6 total	27.8 (0-88.9)	22.2 (0-61.1)	<0.0005
Irritative	33.3 (0-100)	16.7 (0-66.7)	0.037
Stress	33.3 (0-100)	16.7 (0-66.7)	0.033
Obstructive/discomfort	33.3 (0-100)	16.7 (0-66.7)	<0.0005
Pescatori incontinence score	4 (0-6)	3 (0-5)	0.002
Wexner incontinence score *		3 (0-17)	n/a
Vaizey incontinence score *		6 (0-21)	n/a
Wexner incontinence score *		7 (0-16)	n/a
Quality of life			
UIQ - 7	16.67 (0-100)	0 (0-80.95)	<0.0005
CRAI - 7	23.81 (0-100)	4.76 (0-57.14)	<0.0005
POPIQ - 7	16.67 (0-76.19)	0 (0-76.19)	<0.0005
PFIQ - 7	47.62 (0-276.19)	14.29 (0-133.33)	<0.0005

n/a : not applicable

Intervention: Ventral mesh rectopexy, no posterolateral rectal mobilization or lateral ligament dissection was performed. The mesh was distally attached by non-absorbable sutures to the ventral aspect of the rectum, the posterior vaginal wall, and proximally to the sacral promontory using titanium tacks. The bladder was dissected from the anterior vaginal wall. A second, cut to fit mesh, was attached to the anterior vaginal wall. Both meshes were connected to create a Y-shaped suspension. The peritoneum was then closed to cover the graft.

Measurements and Main Results: The simplified Pelvic Organ Prolapse Quantification (POP-Q) improved significantly ($p < 0.0005$) for all four anatomic landmarks. Both median fecal (pre- and postoperative Pescatori 4 vs. 3, $p = 0.002$) and urinary incontinence (UDI score 27.8 vs. 22.2 $p < 0.0005$) scores improved significantly at 12 months. In addition, acceptable median Wexner of 3 and Vaizey incontinence of 6 and Wexner Constipation of 7 scores were noted. One patient developed mesh erosion. A positive effect on sexual function, PISQ-12 score 32 vs. 37 ($p < 0.002$) and quality of life for each compartment ($p < 0.0005$) was observed. There were no multi-compartment recurrences.

Conclusion: This is the first publication on functional and sexual outcome after RSCR. RSCR is a safe and effective technique for multi-compartment prolapse in terms of functional outcome, quality of life and sexual function.

31 Plenary 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery (11:00 AM - 12:00 PM)

11:30 AM – GROUP B

Morcellation of Occult Uterine Malignancy at Time of Vaginal Hysterectomy



Wasson MN, Magtibay P, Magrina J. *Gynecologic Surgery, Mayo Clinic Arizona, Phoenix, Arizona*

Study Objective: Determine the incidence and impact of occult uterine malignancy following uncontained vaginal morcellation.

Design: Retrospective cohort study.

Setting: Three academic medical centers.

Patients: All women who underwent vaginal hysterectomy between January 1, 2008 and August 31, 2015 at three institutions were considered for inclusion in the study.

Intervention: Total vaginal hysterectomy with and without morcellation.
Measurements and Main Results: A total of 2296 women underwent total vaginal hysterectomy with (n=611) or without (n=1685) vaginal morcellation performed via cold-knife wedge resection. The incidence of occult uterine malignancy among hysterectomies requiring vaginal morcellation was 0.82% (n=5) and included stage IA, grade I endometrial adenocarcinoma (n=3; 0.49%) and low grade stromal sarcoma (n=2; 0.33%). Demographic data amongst those with occult malignancy included mean age 48.8 years, mean body mass index 32.36 kg/m², and median parity 2. For the 5 patients found to have a malignancy, the indication for hysterectomy was abnormal uterine bleeding. Final pathology revealed mean uterine weight of 231.60 g. One patient with endometrial adenocarcinoma was subsequently treated with pelvic lymphadenectomy and vaginal brachytherapy. No other patients required additional surgical management or adjuvant chemotherapy or radiation therapy. All patients have remained without evidence of disease recurrence and no deaths have occurred. Mean disease free survival has been 33.33 months (range 24-58 months) among patients with endometrial adenocarcinoma and 27.00 months (range 10-56 months) among patients with stromal sarcoma.

Conclusion: Among patients undergoing vaginal hysterectomy with morcellation, the incidence of occult uterine carcinoma is 0.82%. Uncontained vaginal morcellation does not appear to negatively impact patient prognosis.

32 Plenary 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(11:00 AM - 12:00 PM)

11:40 AM – GROUP B

Laparoscopic Vesicovaginal Fistula Repair with Innovative Vaginoplasty



Stepp KJ,¹ McBride JA,² Gulotta C,¹ Kennelly MJ.² ¹Obstetrics and Gynecology, Carolinas Healthcare System, Charlotte, North Carolina; ²Urology, Carolinas Healthcare System, Charlotte, North Carolina

This video illustrates the combined use of cystoscopy, vaginoplasty, and laparoscopy for repair of vesicovaginal fistula repair. Vaginoplasty is facilitated by using a SILS port to maintain distention. Identification of the near-microscopic fistula tract is performed using a ureteroscope and ureteral catheter to help identify the tract during laparoscopy. A biologic graft and fibrin sealant are used to help decrease risk of recurrence.

33 Plenary 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(11:00 AM - 12:00 PM)

11:50 AM – GROUP B

Laparoscopic Uterosacral Vault Suspension



Hudgens JL, Jones K, Russo ML. *Obstetrics & Gynecology, Division of Minimally Invasive Gynecologic Surgery, University of Mississippi Medical Center, Jackson, Mississippi*

The purpose of this video is to present a technique for performing a laparoscopic uterosacral vault suspension at the time of laparoscopic hysterectomy. We will discuss the relevant anatomy and dissection techniques pertaining to the uterosacral ligaments, vesicovaginal space, and pubocervical fascia. We will also demonstrate intracorporeal, extracorporeal, and cinch knot tying techniques. We will also highlight the relationships between various port placement and how the affect suturing as it related to laparoscopic uterosacral vault suspension.

34 Plenary 6 - Reproductive Issues
(12:10 PM - 1:10 PM)

12:10 PM – GROUP A

Factors Affecting Recurrence of Leiomyomas in Older Women (Above Age 40)



Hijaz M, Jankowski J, Sangha R. *Henry Ford Hospital, Detroit, Michigan*

Study Objective: To evaluate the association between route of surgery and myoma weight and recurrence of leiomyomas following myomectomy in women aged 40 and above.

Design: A retrospective chart review.

Setting: Academic affiliated community hospital: Henry Ford Health System.

Patients: 64 women above the age of 40 who underwent uterine myomectomy, regardless of route, between 2003 and 2013.

Intervention: Uterine myomectomy, regardless of route (open, robotic, laparoscopic, hysteroscopic).

Measurements and Main Results: A total of 64 patients age above 40 were evaluated. 23 were open surgeries, 22 were laparoscopic/robotically, 10 hysteroscopically and 9 vaginally. A logistic regression model using route was used to predict recurrence. The open route was used as reference and the recurrence in other routes was compared. There was no association of route of surgery with recurrence ($p = 0.438$). These women were followed for over a 10 year period. Recurrence was evaluated based on leiomyoma weight. Binary logistic regression model using myoma weight to predict recurrence was used. Odds ratio was scaled to 100 grams increase in myoma weight. In this patient population followed over a 10-year period, we noted that for every 100 grams increase in myoma weight, the odds of having a recurrence increased by 25% (OR 1.25, $p = 0.028$).

Conclusion: Recurrence is not associated with route of myomectomy in women aged 40 and older. Fibroid recurrence is associated with

increasing fibroid weight. This would play a role in preoperative counseling those patient with large or multiple uterine fibroids.

35 Plenary 6 - Reproductive Issues
(12:10 PM - 1:10 PM)

12:20 PM – GROUP A

Which Should Be the Preferred Technique During Laparoscopic Ovarian Cystectomy: Hemostatic Sutures or Bipolar Electrocoagulation? A Randomized Controlled Prospective Study of Long-Term Ovarian Reserve



Sahin C,¹ Akdemir A,¹ Ergenoglu AM,¹ Banu O,³ Yeniel AO,¹ Taskiran D,⁴ Sendag F.² ¹Obstetrics and Gynecology, Ege University School of Medicine, Izmir, Bornova, Turkey; ²Obstetrics and Gynecology, Acibadem University Faculty of Medicine, Istanbul, Atakent, Turkey; ³Department of Actuarial, Yasar University, Faculty of Science and Letter, Izmir, Bornova, Turkey; ⁴Department of Physiology, Ege University School of Medicine, Izmir, Bornova, Turkey

Study Objective: The aim of the study was to determine the long-term effects of different laparoscopic hemostatic techniques on ovarian reserve after ovarian cystectomy.

Design: Prospective randomized controlled study, with an follow up 12 months.

Setting: Ege University School of Medicine Department of Obstetrics and Gynecology.

Patients: Ninety patients with unilateral ovarian cysts were recruited and randomly distributed into two groups. A total of 59 patients were completed the study.

Intervention: Laparoscopic stripping cystectomy was performed in all patients. Afterwards, cystectomy hemostasis was achieved via hemostatic suture or bipolar electrocoagulation.

Measurements and Main Results: Serum levels of anti-Müllerian hormone (AMH) were determined preoperatively, as well as postoperatively at 1, 3 and 12 months, and patients were evaluated for residual ovarian volume, antral follicle count and pregnancy. The statistical difference was determined between the two groups in terms of AMH levels at 3 months (hemostatic suture group = 3.17 ± 3.40 vs. bipolar electrocoagulation group = 2.38 ± 2.57 , $p = 0.006$) and 12 months (hemostatic suture group = 3.71 ± 3.09 vs. bipolar electrocoagulation group = 2.78 ± 2.85 , $p = 0.005$). In addition, in the hemostatic suture group, there was no statistically significant difference between preoperative and postoperative AMH levels ($p = 0.165$) and between the postoperative antral follicle count ($p = 0.779$) and the residual ovarian volume ($p = 0.248$), whereas in the bipolar electrocoagulation group, postoperative AMH levels were lower than preoperative levels ($p = 0.028$), and postoperative residual ovarian volumes at 3 and 12 months were lower than those at 1 month ($p = 0.001$). Nonetheless, pregnancy rates were not significantly different ($p = 0.546$).

Conclusion: Bipolar electrocoagulation is more destructive compared with hemostatic suture. However, the ovarian reserve does not decrease further during the follow-up period and does not affect the pregnancy rate.

36 Plenary 6 - Reproductive Issues
(12:10 PM - 1:10 PM)

12:30 PM – GROUP A

Peri-Procedural, Pregnancy and Peripartum Complications in Patients with Laparoscopic or Open Myomectomy



Mára M, Lisá Z, Hlinecká K, Kuzel D. *Obstetrics and Gynecology, General Faculty Hospital and 1st Medical Faculty of Charles University in Prague, Prague, Czech Republic*

Study Objective: Myomectomy has traditionally been presented as a risk factor in perinatology, especially due to the risk of uterine rupture. Our goal was to evaluate the frequency of serious peri-procedural, pregnancy

and perinatal complications of women with laparoscopic (LM) or open myomectomy (OM).

Design: Prospective cohort single-institution study with duration of follow-up between 1 and 14 years.

Setting: Center for Gynecological Endoscopy and Minimally Invasive Surgery in tertiary care, University Teaching Hospital.

Patients: All women with reproductive plans and symptomatic intramural uterine fibroid/s larger than 4 cm treated with LM or OM in our center were prospectively followed. Patients were instructed to wait with conception for at least 6 months following myomectomy. In case of gestation the course of pregnancy and labor have been analyzed with focus on clinical complications.

Intervention: Laparoscopic or open myomectomy.

Measurements and Main Results: 1452 women (1224 LM and 228 OM) entered the study between the years 2002 and 2015. To our best knowledge 546 pregnancies and 352 deliveries (including 12 twins) have occurred in 424 post-myomectomy women. The incidence of complications was as following: 1.9% of unexpected histological result (mostly smooth muscle tumors with uncertain malignant potential), 0.8% of surgical revisions, 20.4% of abortions, 1.2% of ectopic pregnancies (all tubal), 80.2% of Caesarian sections (mostly elective), 10.2% of preterm deliveries, 1.5% of fetal malpresentations, and 5.7% of preeclampsia and/or intrauterine growth restrictions. We also observed 8 cases of placenta abnormalities (5 placenta praevia, 2 placenta accreta, and 1 abruption), 3 cases of intrauterine fetal death, 3 women with peripartum hysterectomy, and 1 with uterine rupture in 34th gestational week.

Conclusion: Our results show that the incidence of major obstetric complications following myomectomy does not exceed their frequency in normal population and that the risk of the uterine rupture seems to be very low.

37 Plenary 6 - Reproductive Issues (12:10 PM - 1:10 PM)

12:40 PM – GROUP B

Role of Laparoscopy and Hysteroscopy in the Evaluation of Uterine Scar After Cesarean Section and Its Surgical Correction



Arakelyan A, Adamyan L, Danilov A, Stepanian A, Kozachenko A, Khoroshun N, Khirieva P, Martynov S. Federal State Institution, Research Center for Obstetrics, Gynecology, and Perinatology named after V.I. Kulakov, Moscow, Russian Federation

Study Objective: At the present time there is a general increase in frequency of Cesarean section, prompting an immediate need for the evaluation of uterine scarification.

Design: Prospective study.

Setting: Department of Operative Gynecology of the Federal State Institute, Research Centre for Obstetrics, Gynecology, and Perinatology, named after V.I. Kulakov.

Patients: 42 patients with the uterine scar incompetence were enrolled in the study.

Intervention: Patients were divided in 4 groups for intervention: 1st group: diagnostic hysteroscopy and laparoscopy (9); 2nd group: hysteroscopy, laparoscopic repair of incompetence scar (12); 3rd group: hysteroscopy, laparoscopic excision of incompetence scar margins and its repair (18); 4th group: diagnostic laparoscopy and hysteroscopic resection, coagulation (3).

Measurements and Main Results: Mean age of patients was 29,6+/-3,9 years. 88,1% patients had a history of urgent cesarean section. The thickness of the scar by ultrasound and MRI measured up to 4 mm; the presence of niches was found in all cases. 38 patients had menorrhagia, metrorrhagia, pain, dyspareunia, infertility. Mean operative time was 38+/-12; 109+/-36; 132+/-32; 51+/-14; min, respectively. Intraoperative blood loss was less than 50 ml. No complications were observed. One patient in group 3 underwent reoperation. After the operation all patients of groups 2 and 3 had scars with a thickness of over 6 mm. At the time of writing of this abstract 9 patients have had successful delivery; 7 were pregnant.

Conclusion: Laparoscopic repair of incompetence scar is a minimally invasive and effective treatment. But this issue requires further study: development of criteria for the evaluation of the scar incompetence with the use of ultrasound and MRI, indications for incompetence scar repair, the choice of surgical treatment, and evaluation of results.

38 Plenary 6 - Reproductive Issues (12:10 PM - 1:10 PM)

12:50 PM – GROUP B

Laparoscopic Management of Interstitial Ectopic



Pregnancy: A Novel Technique

Sawant RM,¹ Warty NR,¹ Parikh KP,² Warty TR,¹ Puntambekar SP,²
¹Sanjeevani Endoscopy Centre, Mumbai, Maharashtra, India; ²Galaxy Care Laparoscopy Institute, Pune, Maharashtra, India

Conservative management with preservation of future childbearing is a challenge posed by interstitial pregnancy supplied by anastomosing branches from the ipsilateral ascending uterine and ovarian vessels disallowing the surgeon the luxury of time during surgical intervention.

A ligature taken in the wedge under the junction of the tube with the uterine cornu in the broad ligament will effectively blanch the cornua temporarily. Another purse string ligature around the base of the pregnancy going under the tube and pulled tight drains the remaining vascular supply and offer steady hold stabilising the delicate vascular cornua. A linear cornuostomy extirpation of the pregnancy and destruction of chorion using short bursts of bipolar diathermy is performed. Retrograde milking of the tube is done. Simple sutures adequately close the defect. This method allows a satisfactory extirpation of pregnancy with minimal diathermy usage addressing two main concerns; residual trophoblastic tissue and uterine rupture in future pregnancy.

39 Plenary 6 - Reproductive Issues (12:10 PM - 1:10 PM)

1:00 PM – GROUP B

Laparoscopic Hysterotomy and Evacuation of a Second Trimester Fetal Demise



Lavelanet A, Michelis LD, Schimmoeller N, Hendessi P. Department of Obstetrics and Gynecology, Boston Medical Center, Boston, Massachusetts

In the setting of a uterine anomaly and an undesired pregnancy or a fetal demise, the options of dilation and evacuation or induction of labor may not be possible. Therefore, we will demonstrate another technique: laparoscopic hysterotomy and evacuation. The key principles in performing this procedure include: maintaining hemostasis with the use of vasopressin; creating a posterior hysterotomy to access the pregnancy and facilitate closure; attempt at removal of an intact placenta and fetus with thorough irrigation of the uterine cavity to reduce the risk for retained products of conception; and closure of the hysterotomy in multiple layers, especially in patients desiring future pregnancies. This technique offers patients a minimally invasive surgical approach for evacuation of a demised pregnancy in the setting of uterine anomaly when typical options may not be possible or contraindicated.

40 Plenary 7 - Pelvic Pain (2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Catechol-O-Methyltransferase (COMT) Genetic Polymorphisms in Women with Vulvodynia



Patanwala I,¹ Lamvu G,² Feranec J.² ¹Division of Gynecology Hospitalists, Florida Hospital, Orlando, Florida; ²Department of Surgery, Orlando VA Medical Center, Orlando, Florida

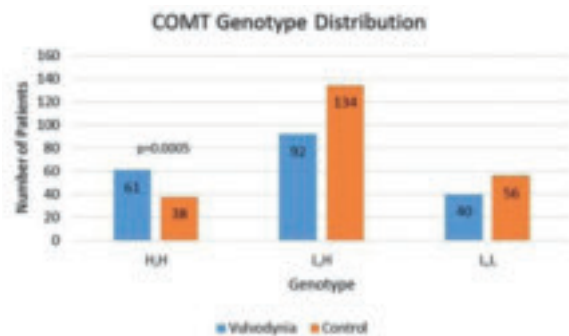


Figure 1. Distribution of genotypes among participants. Significant difference of H,H genotype noted between cases and controls, but no difference in L,L genotype.

Study Objective: To assess whether there is a difference in the genotype for the gene encoding COMT in women with vulvodynia compared to patients without vulvodynia since mutations of COMT have been associated with higher pain sensitivity.

Design: Prospective case-control study.

Setting: Subjects were recruited from three pelvic pain clinics across the United States.

Patients: Women were recruited as cases if they had vulvar or vestibular pain of at least 3 months duration in absence of obvious pathology (infection, inflammation, malignancy, neuropathic). Women were included as controls if they had no vulvar or vestibular pain and had never had a period of painful intercourse for 3 months or longer. A total of 494 women were enrolled in the study: 220 women with vulvodynia and 274 controls.

Intervention: N/A

Measurements and Main Results: Buccal swabs for DNA testing were collected from both patients with vulvodynia and controls. The DNA was tested for presence of genetic polymorphisms of the COMT gene. The L allele is associated with a COMT mutation that causes heightened pain sensitivity, whereas the H allele is the wild-type form. There was no significant difference between vulvodynia and controls in prevalence of L,L genotype and actually the H,H genotype was more prevalent in the vulvodynia group (31.4%) compared to the control group (18.2%) with $p=0.0005$, OR 2.293, CI (1.445,3.639). However, among patients with vulvodynia, those who had the L,L genotype were more likely to have

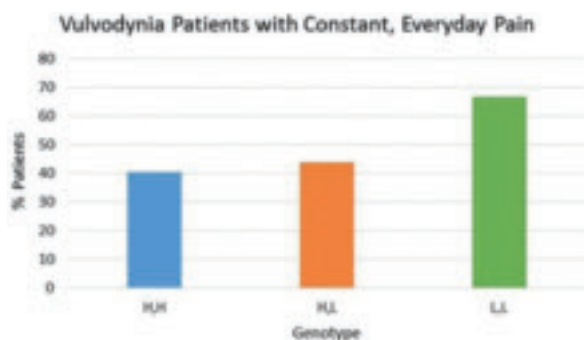


Figure 2. Prevalence of Constant, Everyday Vulvodynia Pain Among COMT Genotypes. Patients with vulvodynia and L,L genotype are significantly more likely to have constant, everyday pain ($p = 0.0251$).

constant, everyday pain compared to those who had either the H,H or L,L genotype ($p = 0.0251$).

Conclusion: Higher pain sensitivity in certain vulvodynia populations may be associated with COMT mutations, but overall we found no difference in the prevalence of the mutated form of COMT among women with and without vulvodynia.

41 Plenary 7 - Pelvic Pain (2:15 PM - 3:15 PM)

2:25 PM – GROUP A

Diagnosis of Occult Hernia in Women with Unexplained Chronic Pelvic Pain



Aoun J,¹ Shaw J,² Eisenstein D,¹ Tsafirir Z.³ ¹Ob/Gyn/MIGS, Henry Ford Hospital, West Bloomfield, Michigan; ²Wayne State University, Detroit, Michigan; ³Gynecology Oncology, Sourasky Medical Center, Tel Aviv, Israel

Study Objective: To determine the frequency of ultrasound diagnosis of occult hernia in a female clinic population with unexplained pelvic pain.

Design: Retrospective cohort study (Canadian Task Force classification II-3).

Setting: Pelvic pain clinic at a university-affiliated tertiary medical center in Southeast Michigan.

Patients: Female patients with unexplained chronic pelvic pain and physical exam positive for focal groin tenderness without evidence of hernia seen between January 2005 and July 2012.

Intervention: Patients underwent a standardized ultrasound of the inguinal and upper thigh soft tissue anatomy at rest and with provocative maneuvers. A single provider performed all ultrasounds.

Measurements and Main Results: A total of 96 women were included. Fifty-one patients (53%) had an ultrasound suggestive of occult hernia. Among them eight patients had two hernias. Sixty-three percent were inguinal hernias (51% direct and 12% indirect), 29% were femoral, 5% spigelian, and 2% umbilical. All patients with positive ultrasound findings were referred to general surgery. Sixty-nine percent of patients (35/51) underwent surgical evaluation. The ultrasound diagnosis of occult hernia was correctly confirmed surgically in 97% of patients (34/35). Patients who underwent surgical repair had higher pain metrics on their Brief Pain Inventory ($p = 0.01$). Patients with unexplained pelvic pain and evidence of occult hernia on ultrasound were significantly older (41 years vs 34 years, respectively, $p = 0.005$) and more likely to have a history of arthritis as compared to patients with similar pain profile and without evidence of hernia on ultrasound ($p = 0.02$).

Conclusion: In this retrospective analysis of women with unexplained chronic pelvic pain and focal groin tenderness, we found evidence to support that the diagnosis of hernia on soft tissue ultrasound was found in half of the cases, and that such results were highly correlated with surgical findings.

42 Plenary 7 - Pelvic Pain (2:15 PM - 3:15 PM)

2:35 PM – GROUP A

Pre-Operative Risk Factors for Increased Postoperative Pain After Benign Hysterectomy



Abualnadi NM, Mowers EL, Kamdar NS, Morgan D, As-Sanie S. Obstetrics and Gynecology, University of Michigan-Ann Arbor, Ann Arbor, Michigan

Study Objective: Determine pre-operative risk factors associated with increased pain after benign hysterectomy. Determine if elevated pain after benign hysterectomy is associated with post-operative complications.

Design: Retrospective chart review study of a Michigan multi-center prospective database from July 1st, 2012 through July 2nd, 2014. Cases were abstracted from an all-payer quality and safety database maintained by the Michigan Surgical Quality Collaborative (MSQC).

Setting: Statewide group of 52 hospitals that voluntarily report peri-operative surgical outcomes.

Patients: During the study period 10,937 women underwent hysterectomy for benign indications. Abdominal, laparoscopic and vaginal hysterectomies were included. Hysterectomies for obstetric indications or cancer were excluded.

Measurements and Main Results: Among the 10,937 patients studied, 64.2% (n= 7,020) underwent abdominal hysterectomy while the remainder underwent either a vaginal (12.0%, n= 1,312) or laparoscopic (23.8%, n=2,605) approach. Pain was measured by visual analog scale (VAS) scores on post-operative day one. The percentage of patients with VAS score ≥ 7 was greater in patients undergoing abdominal hysterectomy (15.8%) compared to vaginal or laparoscopic hysterectomy (13.0%, $p<0.001$). Factors associated with elevated VAS scores included decreasing age ($p<0.001$), white race ($p<0.001$), tobacco use ($p<0.001$), non-private insurance ($p<0.001$), history of chronic pelvic pain ($p<0.001$), and prior pelvic surgery ($p<0.001$). Endometriosis and BMI were not significant. Patients with elevated pain scores were more likely to be re-admitted within 30 days of surgery ($p<0.001$) and present to the ED within 30 days of hysterectomy ($p<0.001$).

Conclusion: A greater percentage of patients have VAS scores greater than or equal to 7, thus preventing discharge after abdominal hysterectomy than after minimally invasive approaches. Pre-operative characteristics associated with increased pain after benign hysterectomy include younger age, white race, tobacco use, non-private insurance, a pre-operative indication of chronic pelvic pain, and a history of prior pelvic surgery. These patients were more likely to present to the ED and be re-admitted within 30 days of hysterectomy.

43 Plenary 7 - Pelvic Pain (2:15 PM - 3:15 PM)

2:45 PM – GROUP B

Correlation Between Frequency of Urinary Symptoms and Clinical and Image-Based Indexes of Interstitial Cystitis in a Prospective Cohort of Patients with and without Interstitial Cystitis



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Study Objective: To examine the correlation between frequency of urinary symptoms and clinical suspicion indexes of interstitial cystitis (IC) as well as cystoscopic findings after cystoscopy with hydrodistension (CwHD).

Design: Prospective interventional cohort study with blinded image review.

Setting: Participants were recruited from an academic urogynecologic and minimally invasive gynecologic practice.

Patients: All participants in the study are patients scheduled to have routine gynecologic or urogynecologic procedures involving cystoscopy. 224 of the 269 women initially enrolled in this study are included in this interim analysis. All 224 participants had complete data sets and met all criteria.

Intervention: Patients scheduled for cystoscopy or cystoscopy with hydrodistension were all consented for CwHD. Participants completed questionnaires including the IC Symptom Index (ICSI). Originally scheduled procedure (cystoscopy vs CwHD) and treating physician expectancy of IC served as clinical suspicion indexes. A panel of three urogynecologists evaluated de-identified picture sets.

Measurements and Main Results: Statistical analysis comparing ICSI components with indexes of IC was performed using SPSS version 23.0 for Windows.

There is significant correlation between ICSI bladder burning/pain/discomfort component and indexes other than image review diagnosis (initially scheduled procedure $P<0.001$, and physician expectancy $P<0.001$, physician diagnosis $P<0.01$, image review diagnosis $P=0.28$). Urinary frequency and urgency also reached statistical significance for association with clinical suspicion indexes. While we found statistically significant relationships between ICSI score and indexes of clinical suspicion, no significant association was found between ICSI score and image-based diagnosis.

Conclusion: We found a strong relationship of frequency of burning/pain/discomfort score with suspicion indexes and physician diagnosis of IC, but not image review diagnosis. In this patient population with high prevalence of urinary symptoms, individual urinary symptoms and ICSI score correlate poorly with cystoscopic findings.

Better diagnostic tools are needed for interstitial cystitis and this ongoing study is aiming to address that need.

44 Plenary 7 - Pelvic Pain (2:15 PM - 3:15 PM)

2:55 PM – GROUP B

Laparoscopic Ovarian Vein Ligation for Treatment of Pelvic Congestion Syndrome



Vilasagar S, Carrillo JF. *Minimally Invasive Gynecologic Surgery & Chronic Pelvic Pain, University of Rochester, Rochester, New York*

Pelvic congestion syndrome is one of many disorders that can contribute to chronic pelvic pain. This video illustrates the laparoscopic technique of ovarian vein ligation, including how to dissect this retroperitoneal space and identify the structures near the ovarian vessels. We review a case of a patient diagnosed with right sided pelvic congestion syndrome on transcervical pelvic venography after she experienced aching discomfort that started during pregnancy. Pelvic venography is the diagnostic study of choice for this disorder, providing dynamic images of ovarian varicosities using fluoroscopy. After confirmation of pelvic congestion syndrome on venography, she underwent laparoscopic right ovarian vein ligation for treatment of this disorder. Ovarian vein ligation is performed by retroperitoneal dissection of the infundibulopelvic ligament. The two ovarian veins are isolated, sealed, and transected. The ovarian artery is also identified, though not transected. There are reports of pain improvement in 75% of women following ovarian vein ligation.

45 Plenary 7 - Pelvic Pain (2:15 PM - 3:15 PM)

3:05 PM – GROUP B

Presacral Neurectomy: Relevant Anatomy and Strategies for Success



Stuparich MA, Mansuria S. *Obstetrics, Gynecology & Reproductive Sciences, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania*

Presacral neurectomy is a conservative surgical procedure that severs the superior hypogastric plexus, which is the collection of afferent pain fibers arising from the midline pelvic organs. This procedure can be performed laparoscopically and is indicated for the treatment of pelvic pain due to endometriosis that is refractory to medical therapy. Appropriate patient selection is crucial to optimize operative success and should include patients with midline pelvic pain who desire conservative surgery. Indeed, detailed anatomic knowledge of the presacral area is imperative in order to avoid ureteral or catastrophic vascular injury. Presacral neurectomy has been studied in a long term randomized controlled trial by Zullo et al in 2003 and has an excellent cure rate with approximately 83% of women in the study reporting relief of dysmenorrhea at 24 months after the procedure.

46 **Plenary 8 - Basic Science/Research/Education**
(3:25 PM - 5:05 PM)

2:15 PM – GROUP A

Improving Cognitive Surgical Knowledge in Ob/Gyn Residents Using an Interactive Computer-Based Laparoscopic Hysterectomy Trainer



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Study Objective: Create two valid and reliable assessment tools; utilize them to determine if use of the Laparoscopic Hysterectomy Trainer (LHT-Simpraxis[®]) by Ob/Gyn residents improves their cognitive surgical competency.

Design: Two phased, multi-center, prospective, randomized, controlled study.

Phase One: Development and validation of two interactive on-line tests (A,B) that assess knowledge of laparoscopic hysterectomy procedure. Question types included: multiple choice; interactive video; fill in the blanks. Tests were administered to upper level residents and faculty (RF) using crossover design.

Phase Two: Postgraduate year one Ob/Gyn residents (PGY1) were randomized into Control or Intervention groups. Both groups completed on-line pre-test and standard site-specific resident curriculum. Intervention group additionally utilized the LHT-Simpraxis[®]. After two months both groups completed post-test.

Setting: Five university-affiliated Ob/Gyn residency programs.

Patients: Phase One: Sixty RF.

Phase Two: Sixty-one PGY1 residents.

Intervention: PGY1 intervention group self-trained using interactive computer-based LHT-Simpraxis[®].

Measurements and Main Results: Phase One:

Sixty RF completed tests A,B. Forty took A first; twenty took B first. There was no significant difference in scores between the 2 versions, establishing test reliability (linear regression $p=0.565$; t -test $p=0.366$). RF test A scores (77%) were significantly higher than PGY1 score (47%), ($p<0.001$, 95% CL 141.53, 180.13), establishing construct validity.

Phase Two:

Control (C) ($n=31$) and Intervention (I) ($n=30$) groups have equal bell shape distributions and standard deviations, allowing assumption of equal variance. There was no significant difference in pre-test scores between groups, (C=49%, I=43%; $p=0.089$). Intervention group scored significantly better on post-test, C=59%, I=69% (t -test: $p<0.001$, 95% CI -108.8, -48.4). There was a significant difference in post- vs. pre-test scores between groups C and I, ($p<0.0002$, 95% CI -80.10, -26.55).

Conclusion: Two reliable and valid on-line tests have been developed that can be utilized independently to assess cognitive surgical knowledge of the laparoscopic hysterectomy procedure.

Use of the interactive computer-based LHT-Simpraxis[®] significantly improves PGY1 residents' surgical knowledge of laparoscopic hysterectomy procedure.

52 **Plenary 8 - Basic Science/Research/Education**
(3:25 PM - 5:05 PM)

3:35 PM – GROUP A

Evaluation of MRI Fibroid Reporting



Alammari R,¹ Brook O,² Neo D,¹ Ricciotti H,¹ Hur H-C.¹ ¹Obstetrics and Gynecology, Beth Israel Deaconess Medical Center, Boston, Massachusetts; ²Radiology, Beth Israel Deaconess Medical Center, Boston, Massachusetts

Study Objective: To survey provider satisfaction with current MRI reporting of uterine fibroids and evaluate information providers deem relevant for fibroids.

Design: Survey.

Setting: Academic tertiary hospital.

Patients: Obstetrician-Gynecologists and radiologists were surveyed. Individuals treating fibroids (fibroid surgeries or uterine artery embolizations) were classified as fibroid-providers. All others were classified as fibroid-reporters.

Intervention: Our survey assessed provider demographics, satisfaction with current MRI reporting, and information providers value for fibroids. We compared the FIGO fibroid classification system to our clinically modified classification system in order to propose an improved structured reporting system.

Measurements and Main Results: The response rate was 68% (75/113 gynecologists, 18/23 radiologists). We identified 58 fibroid-providers (50 gynecologists, 8 radiologists) and 32 fibroid-reporters (22 gynecologists, 10 radiologists). Among fibroid-providers, radiologists (75%) were more satisfied with current MRI reporting compared to gynecologists (32%), which may suggest radiologists are reporting findings of interest to them. More gynecologists than radiologists felt fibroid number (93% vs 72%), size (96% vs 72%), type (93% vs 72%) and location (86% vs 67%) were important to report. In addition, more gynecologists (58%) than radiologists (22%) were not satisfied with how fibroids were classified on MRI reports. The majority of gynecologists preferred our clinically modified classification system over FIGO (71% gynecologists, 50% radiologists). This difference between specialties was less pronounced among fibroid-providers (68% gynecologists, 62.5% radiologists), suggesting providers who treat fibroids, regardless of medical specialty, favor clinical classification systems. Among radiologists, more fibroid-providers than fibroid-reporters specified uterine size (100% vs 70%), fibroid number (88% vs 60%), fibroid type (88% vs 60%), and junctional zone (100% vs 60%) were important.

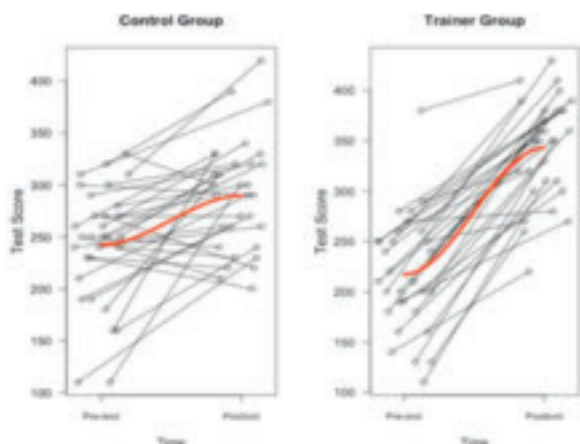


Fig. 1. LOESS curves of pre- and post-test differences in Control and Trainer groups.

Conclusion: Gynecologists are less satisfied with MRI fibroid reporting in our institution than radiologists. Surveying both specialties can facilitate more effective improvements in fibroid reporting via a structured reporting system to improve provider satisfaction and enhance patient care.

48 Plenary 8 - Basic Science/Research/Education (3:25 PM - 5:05 PM)

3:45 PM – GROUP A

Trends in Gynecologic Surgery Malpractice Claims Involving Major Patient Injury, 2010 - 2014



Matthews LR, Alvi FA, Milad M. *Ob/Gyn, Northwestern University
Feinberg School of Medicine, Chicago, Illinois*

Study Objective: To describe a large database of closed medical professional liability (MPL) claims involving gynecologists in the United States and assess the average indemnity payments made on these claims as compared to other specialties.

Design: Retrospective review of the Physician Insurers Association of American (PIAA) database.

Setting: Academic University Hospital.

Patients: Data was abstracted from the Data Sharing Reports (DSRs) of the PIAA for claims and lawsuits closed between 2010 and 2014. Data from 20 insurance carriers were included.

Intervention: A search was performed on all medicolegal claims data in gynecologic surgery using the PIAA data-sharing project. The database was able to identify medical professional liability trends in gynecologic surgery between 2010 and 2014.

Measurements and Main Results: Between 2010 and 2014, the most frequent and most expensive gynecology claims related to “operative procedures on the uterus”, of which 28% resulted in an average indemnity payment of \$279,384. The second most frequent gynecologic claims related to “operative procedures on the fallopian tubes and ovaries, exclusive of sterilization”. The most prevalent and most expensive medical factor in obstetrics and gynecology claims was “improper performance of a procedure”. This was cited as the primary issue in 37% of claims; 34% resulted in an average indemnity of \$422,926. The most prevalent and most expensive gynecologic outcome of claims was reported as “accidental puncture or laceration during a procedure”. The average indemnity payment for obstetrics and gynecology claims was 27% higher than that for other medical specialties.

Conclusion: Litigation claims in gynecologic surgery most frequently result from intraoperative factors and have a higher average indemnity payment than other medical specialties. Further studies should be conducted to corroborate our findings and improve quality of care for gynecologic patients.

49 Plenary 8 - Basic Science/Research/Education (3:25 PM - 5:05 PM)

3:55 PM – GROUP B

Postoperative Pain Management in Benign Laparoscopic Gynecologic Surgery: A Systematic Review



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Veterans Affairs Medical Center, Orlando, Florida

Study Objective: Our primary objective was to determine if there is enough evidence within the benign gynecology literature to make recommendations for postoperative pain control that can be used specifically in patients undergoing minimally invasive benign hysterectomies.

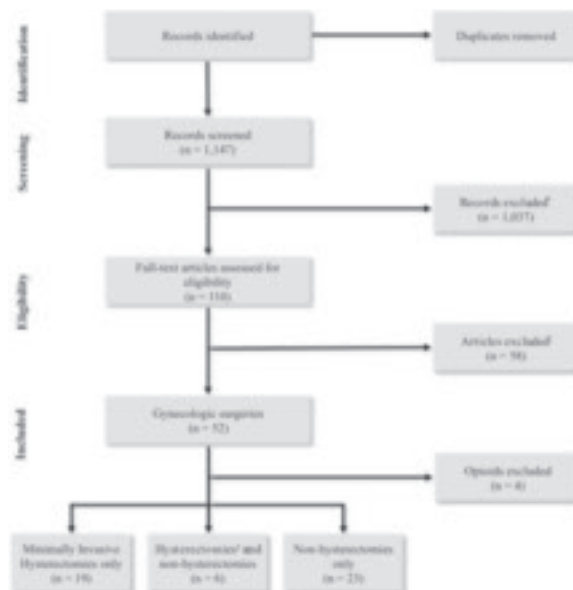


Figure 1. Study selection. Adapted from PRISMA 2009 flow Diagram * Either not relevant to study subject matter or did not involve any gynecological patients † General commentaries, laparotomy only, intrauterine surgeries only, oncology only, non-gynecologic populations only, surgical approach only comparisons ‡ Includes both minimally invasive hysterectomies as well as TAH

Design: This is a systematic review with no time limitations on studies analyzed.

Setting: N/A

Patients: PubMed and Cochrane databases were queried with MeSH terms combinations: “postoperative pain,” “perioperative pain,” “postoperative analgesia,” “pain management,” “pain control,” “minimally invasive gynecologic surgery,” “laparoscopic hysterectomy,” “gynecology.” The Journal of Minimally Invasive Gynecology (JMIG) website was also queried. Our search was restricted to postoperative pain control trials in minimally invasive gynecological surgeries for benign indications and excluded studies evaluating women undergoing tubal ligations or intrauterine surgeries.

Initially 1,147 studies were identified and after filtering according to our inclusion criteria, 110 full-text articles were assessed. We analyzed 48 studies that met all of the study inclusion parameters.

Figure 1 details our study selection process.

Intervention: N/A

Measurements and Main Results: Both IV acetaminophen and ketorolac show promising benefit regarding postoperative pain control in women undergoing minimally invasive hysterectomies. Neuroleptics and preoperative administration of dexamethasone show some benefit while local anesthetics either instilled intraperitoneally or injected subcutaneously into the port sites seem to yield little benefit for this population.

Conclusion: There is little research in the area of postoperative pain control for women undergoing minimally invasive hysterectomies. Convincing conclusions are difficult to draw from the current evidence, because as a whole it is insufficient and contradictory. The same problem exists even when the scope is extended to include minimally invasive gynecological procedures other than hysterectomies. There is a clear need for additional high-quality research evaluating both single analgesic efficacy as well as multimodal approaches for postoperative pain control in this area.

Table 1. Summary of findings.

	Minimally Invasive Hysterectomy				Non-Hysterectomy Gynecologic Laparoscopic Procedures			
	Benefit	Small Benefit	No Benefit	No Evidence	Benefit	Small Benefit	No Benefit	No Evidence
Local Anesthesia								
SubQ			✓*		✓†			
IP			✓		✓			
SubQ + IP			✓		✓			
SubQ + IP + Other				✓		✓*		
Blocks								
TAP			✓					✓
Rectus Sheath				✓		✓*		
Neuroleptics								
IV Acetaminophen	✓	✓				✓*		✓
NSAIDs								
Ketorolac	✓					✓*		
Diclofenac				✓		✓*		
Parecoxib				✓		✓*		
Dexamethasone								
		✓						✓
Other								
Ketamine				✓	✓*			
Nefopam		✓*						✓
Dexmedetomidine			✓*					✓
Heated/Humid Gas								
				✓		✓		

* Only one study found † Pre-incision only SubQ, Subcutaneous IP, Intraperitoneal TAP, Transversus abdominus plane NSAIDs, Non-steroidal anti-inflammatory drugs

50 Plenary 8 - Basic Science/Research/Education (3:25 PM - 5:05 PM)

4:05 PM – GROUP B

Simulator-Based Multi-Modal Task Decomposition of Robotic Surgical Technique for Vaginal Cuff Closure 

Mattingly P,¹ Tanaka A,¹ Julian D,¹ Skinner A,² Smith R.¹ ¹Florida Hospital Nicholson Center, Celebration, Florida; ²AnthroTronix, Inc., Silver Spring, Maryland

Study Objective: To identify the explicit cognitive and psychomotor steps necessary to complete a robotic vaginal cuff closure, particularly those difficult to master, using a task decomposition. The purpose was to enable exact step replication and outcomes for learners and create an expert model of performance to objectively compare novice performance.

Design: Technique analysis.

Setting: Surgical education and simulation center.

Patients: Expert surgeons, expert simulation educators, expert cognitive psychologists.

Intervention: Expert surgeons performed a vaginal cuff closure on the RobotiX Mentor, a virtual reality (VR) simulator of the da Vinci robot, allowing a repeatable testing environment. The steps were performed

deliberately while psychologists recorded details of each action of the surgeon and robotic instruments, as well as deviations that may be considered alternative solutions or erroneous paths. The decisions required to progress the task forward were also captured.

Measurements and Main Results: The results were constructed into flow charts demonstrating the sequence of actions and decisions surgeons must make. This analysis found three primary steps required to perform the task. The results identified a standard path of 33 actions that experts follow to accomplish the cuff closure. The decomposition found eight actions as reasonable alternatives and 11 relevant decision points required. An example of the decomposition can be seen in Figure 2.

Conclusion: To our knowledge, this is the first multi-modal task analysis for a robotic surgery task, as represented in a VR simulator. These results provide surgical educators with the explicit steps a trainee must master to accurately perform a cuff closure. This process may also be used to create task specific checklists for evaluation by an instructor. These results are the basis for computer algorithms, which will provide a task specific scoring system of the exercise and an intelligent, automated instruction for learners using the simulation.



51 Plenary 8 - Basic Science/Research/Education (3:25 PM - 5:05 PM)

4:15 PM – GROUP B

Why Did Current Fellows Choose a Fellowship in Minimally Invasive Gynecology? A Qualitative Evaluation



Dave A, Yi J. Mayo Clinic, Phoenix, Arizona

Study Objective: Summarize and assess qualitative perceptions of AAGL Fellowship in Minimally Invasive Gynecologic Surgery (FMIGS) Program Directors (PD), Associate Program Directors (APD) and first-year fellows

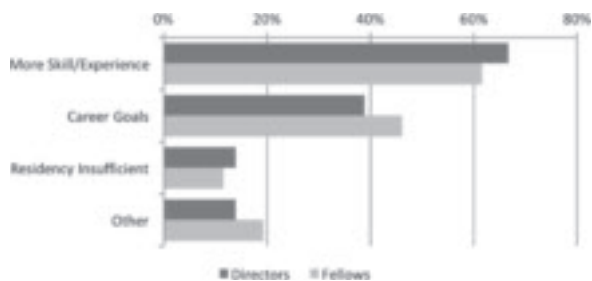


Fig. 1. Reasons for Pursuing AAGL Fellowship. Note: 37% of PDs/APDs' and 33% of fellows' responses fell into more than one category.

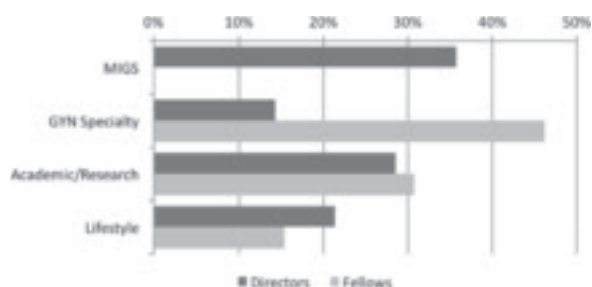


Fig. 2. Specific Career Goals. Subcategories of post-fellowship career goals among fellow (n=12) and PDs/APDs (n=14).

(F1) about fellows' reasons for choosing an AAGL fellowship.

Design: Anonymous electronic survey (Google Forms, Mountain View, CA).

Setting: National survey.

Patients: PDs, APDs, and F1s of the AAGL FMIGS.

Intervention: Participants were contacted through AAGL-maintained listservs, and completed surveys about their perceptions of F1s readiness for fellowship training. They were also presented with an open-ended query regarding the reason the participant believed the F1 chose an AAGL fellowship. F1s were asked about their own reason. The query required a response in order to complete the survey. Responses were iteratively reviewed by the primary author to identify common themes.

Measurements and Main Results: Response rates to the survey instrument were 50% (37/74) and 66% (26/39) for PDs/APDs and F1s, respectively. Responses were categorized into four themes, in order of prevalence: 1) desire for more skills/experience, 2) career goals, 3) insufficient residency training, and 4) other reasons including program reputation, improving outcomes and addressing specific subjects such as urogynecology or pelvic pain. Two responses from PDs/APDs and one response from a fellow were too vague to be categorized. 37% of PD/APD and 33% of F1 responses contained more than one common theme. Within the "career goals" theme, four separate goals were identified with at least 2 respondents. These were 1) pursue MIGS, 2) pursue gynecology as a specialty 3) academia/research and 4) lifestyle concerns.

Conclusion: Current FMIGS fellows chose to pursue fellowship for a variety of reasons with the desire for more skills/experience being the most common. Program directors' perceptions as to why fellows pursue fellowship were concordant with the fellows' stated responses. Understanding why fellows pursue post-residency training will help improve the quality of the education of FMIGS fellowships.

47 Plenary 8 - Basic Science/Research/Education (3:25 PM - 5:05 PM)

4:24 PM – GROUP C

Meta-Analysis and Systematic Review to Determine the Optimum Imaging Modality for the Detection of Posterior Vaginal Fornix Deep Infiltrative Endometriosis



Gerges B,¹ Nadim B,¹ Martins W,² Condous G.¹ ¹Acute .aecology, Early Pregnancy and Advanced Endosurgery, Nepean Hospital, Nepean Medical School, University of Sydney, Kingswood, NSW, Australia; ²Medical School of Ribeirao Preto, Department of Obstetrics and Gynecology, University of Sao Paulo, Sao Paulo, Brazil

Study Objective: To review the accuracy and determine the optimum imaging modality for the detection of posterior vaginal fornix deep infiltrative endometriosis (DIE) in women with a clinical history of endometriosis.

Design: A systematic review was conducted using MEDLINE, Embase, PubMed and Google Scholar to identify studies published between January 1990 and March 2016. Studies were considered eligible if they were prospective and used any imaging modality preoperatively to assess for the presence of DIE, specifically the posterior vaginal fornix, which was then correlated with the laparoscopic gold standard. Posterior vaginal fornix DIE was defined as any vaginal site. We restricted the eligibility to studies having at least 10 affected and 10 unaffected women.

Setting: N/A.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: The electronic searches retrieved 1034 records. After excluding the records that were clearly not eligible by reading title and abstracts, we completely evaluated 106 study groups for eligibility: 55 were excluded because they were related to studies that included less than 10 affected/unaffected women; and 12 were excluded due to potential redundant information with regards to the same population. We included 22 study groups in the analyses and the main results are reported on Table 1.

Table 1. Diagnostic test accuracy of imaging techniques in assessing posterior vaginal fornix DIE.

Method	Studies	N	Affected	Sens.	95%CI	Heterog.	Spec.	95%CI	Heterog.
MRI	4	295	126	74%	57-91	Very high	93%	88-99%	High
MRI with gel	3	129	39	90%	81-99%	Low	100%	98-100%	Low
SVG	3	300	61	71%	42-100%	Very high	99%	96-100%	Low
TRU	2	232	64	71%	66-76%	Very high	100%	96-100%	Low
TVS	9	739	218	62%	45-79%	Very high	94%	90-98%	Very high
TVS with WC	1	90	69	97%	90-99%	N/A	100%	85-100%	N/A

MRI = Magnetic resonance imaging, SVG = Sonovaginography, TRU = Transrectal ultrasound, TVS = Transvaginal ultrasound, WC = Water contrast

Conclusion: All assessed methods have good accuracy for diagnosing DIE of the posterior vaginal fornix. However, it seems like using gel/water as contrast improves the sensitivity without reducing the specificity and should be considered when assessing women with suspected DIE in this region.

53 Plenary 8 - Basic Science/Research/Education
(3:25 PM - 5:05 PM)

4:35 PM – GROUP C

Tissue Extraction: A Simulation Model and Technical Pearls



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²Obstetrics & Gynecology, Columbia University Medical Center, New York, New York

As a consequence of concerns for power morcellation, multiple tissue extraction techniques have been developed. In this video, the ExCITE (Extracorporeal C-Incision Tissue Extraction) technique is described. For any surgical technique especially if unfamiliar, simulation is important as it allows for learning, practicing and understanding the nuances of a technique in a safe environment. Simulation also allows for troubleshooting challenges and to identify techniques to improve efficiency before going to the operating room.

The objectives of the video are to:

- 1) Demonstrate how to build a cost-effective tissue extraction simulation model for learning and teaching.
- 2) Review tips and tricks for the ExCITE technique.

54 Plenary 8 - Basic Science/Research/Education
(3:25 PM - 5:05 PM)

4:45 PM – GROUP C

Teaching Vaginal Hysterectomy Using Vaginal Hysterectomy Task Trainer



Lerner V, Malacarne D, Lam C. *Ob/Gyn, NYU School of Medicine, New York, New York*

The video demonstrates the use of a vaginal hysterectomy training model created using low cost, easily accessible materials. While no commercial task trainers for teaching vaginal hysterectomy are available at this time, several educators have attempted to construct such models themselves. The use of simulation task trainers allows not only for teaching how to perform vaginal hysterectomy but also serves an effective assessment of surgical skills and a greater understanding of anatomy. This video was viewed by those participating in the validation of our model as a demonstration. The purpose of this video is to highlight key components of a vaginal hysterectomy. Instrument handling and assistant use are also highlighted to familiarize learners with these components.

WEDNESDAY, NOVEMBER 16, 2016

55 Open Communications 1 - Robotics
(11:00 AM - 12:00 PM)

11:00 AM – GROUP A

Mapping of Sentinel Lymph Nodes by Firefly Fluorescence Imaging with da Vinci Xi System for Endometrial and Cervical Cancers



Lee YS, Lee YH. *Kyungpook National University Medical Center, Daegu, Korea*

Study Objective: We evaluate the detection rate and metastasis of primary sentinel nodes (SLN) and downstream secondary fluorescence nodes for

endometrial and cervical cancer by firefly fluorescence imaging with da Vinci xi system.

Design: Canadian Task Force II-1.

Setting: Between Sep. 2015 and Feb. 2016 at Kyungpook national university medical center, all operation were done by Single gynecologic surgeon by Firefly fluorescence imaging with ICG in da Vinci system (Xi)

Patients: A total of 27 patients were included in the study (13 endometrial and 14 cervical cancers). Mean age was 55 years Mean BMI was 25.5.

Intervention: All patients had inframesenteric paraaortic lymphadenectomy but 11 patients had infrarenal paraaortic lymphadenectomy.

Measurements and Main Results: Total obtained nodes count were 43.4 (range 18-61). Five patients had node metastasis with sentinel node. And primary SLN was identified in 27 cases (100%), with bilateral pelvic mapping in 25 (93%). An aortic 2ndary SLN was identified in 20 (74%) of the 27 mapped cases as not primary but 2ndary fluorescent nodes. The most frequent site of primary SLN was obturator nodes, external iliac medial node, presacral nodes, internal iliac node, in the order. And frequent site of downstream 2ndary fluorescent staining node was external iliac lateral nodes, inframesenteric nodes, right paraaortic nodes. Positive SLNs were identified in 19% of patients (5/27). Four had secondary paraaortic node metastasis both in patients with positive pelvic SLN. Three patients (11%) had metastatic node outside to metastatic primary SLN and downstream fluorescence nodes (3/27).

Conclusion: Firefly fluorescence imaging with ICG in da Vinci system is an excellent and safe method for SLN mapping with a very high overall (100%) and bilateral (93%) detection rate. Our results revealed there are important information about conception of primary sentinel node and downstream fluorescence nodes. Which is rather different results to previous others studies.

56 Open Communications 1 - Robotics
(11:00 AM - 12:00 PM)

11:07 AM – GROUP A

The Effect of Increased Surgical Volume on Surgical Outcomes in Robotic Myomectomy



Ton JB, Abi-Khalil E, Shu M, Marfori C, Robinson J, Moawad G. *Obstetrics and Gynecology, George Washington University Hospital, Washington, District of Columbia*

Study Objective: Robotic experience is dependent on the number of cases performed and most studies estimate surgical proficiency to be reached after 50 to 70 cases. The goal of this study is to examine the effect of increased surgical experience on various outcomes in robotic myomectomy.

Design: A retrospective chart review.

Setting: University-affiliated urban teaching hospital.

Patients: Patients undergoing robotic myomectomy for benign disease by a minimally invasive gynecologic surgeon between 2012 and 2015.

Intervention: Elective robotic myomectomy.

Measurements and Main Results: 134 patients who underwent a minimally invasive robotic myomectomy between 2012 and 2015 were identified. The comparison groups were 70 surgeries performed between 2012-2013 when the surgeon was considered a novice surgeon, versus 64 performed from 2014-2015 when the surgeon was considered proficient. Intra-operative outcomes included estimated blood loss (EBL), operative time (OR time), and length of stay (LOS). Body mass index, history of endometriosis, history of prior laparotomy as well as fibroid number and weight were similar between the two groups, indicating the same complexity level of cases in the two groups. Significant difference in surgical outcomes between the two groups were in the following groups: 1.16 hours less operative time (4.27 vs. 3.11 hours, p=0.0001), 130ml difference in estimated blood loss (397 vs. 266ml, p=0.0005) and more than double the number of patients going home on the same day of surgery (31.4% vs 65.6%, p=0.001).

Conclusion: Operative time, estimated blood loss and length of stay were significantly different before and after surgical proficiency was attained, making surgical expertise a major factor in improving short-term surgical outcomes in robotic myomectomy.

57 **Open Communications 1 - Robotics**
(11:00 AM - 12:00 PM)

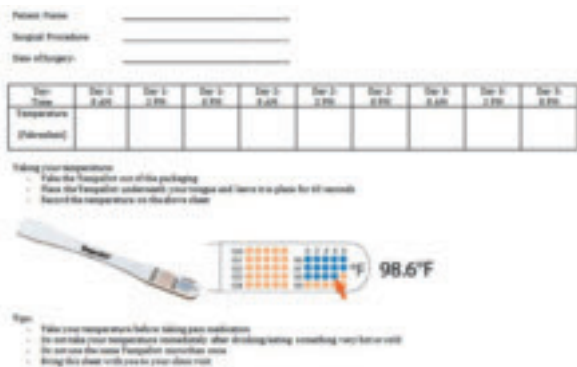
11:14 AM – GROUP A

Febrile Morbidity After Robotic versus Abdominal Myomectomy



Garg D, Tang N, Homel P, Ricardo M, Bral P. *Obstetrics and Gynecology, Maimonides Medical Center, Brooklyn, New York*

Study Objective: The occurrence of post-operative fever after myomectomy without an apparent infectious etiology has been reported in previous studies. Post-operative febrile morbidity (T= 100.4° F in the first 72 hours after surgery) increases the number of patient visits and decreases patient satisfaction. We compared robotically-assisted



Temperature after Robotic vs. Abdominal Myomectomy

Temperature of >100.4° F	Robotic myomectomy (n=42)	Abdominal myomectomy (n=57)	P value
Any fever	3 (7.1%)	14 (24.6%)	0.03
First 24 hrs	1 (2.4%)	7 (12.3%)	0.13
First 48 hrs	1 (2.4%)	6 (10.5%)	0.23
First 72 hrs	1 (2.4%)	3 (5.3%)	0.64

However, number of fibroids removed, size of the uterus, and weight of the specimen removed were also significantly higher for the abdominal group

Characteristics of the Study Population

Variable	Robotic myomectomy (n= 42)	Abdominal myomectomy (n= 57)	Mean difference	95% CI	p-value
Age	37.82 ± 5.50 ^a	38.23 ± 5.93	-0.42	-2.82, 1.99	NS
BMI	28.93 ± 5.56	29.01 ± 5.65	-0.09	-2.43, 2.26	NS
Number of myomas	2.23 ± 2.00	6.86 ± 4.54	-4.62	-5.97, -3.28	< 0.05
Total weight of specimen (gms)	259.42 ± 223.01	525.72 ± 581.07	-266.30	-455.33, -77.27	0.007
Size of largest myoma (cm)	7.95 ± 3.18	8.81 ± 4.28	-0.86	-2.42, 0.69	NS
Size of smallest myoma (cm)	1.69 ± 1.86	1.49 ± 1.45	0.20	-0.49, 0.90	NS
Location of Myomas					
Intramural	29 (57 %) ^b	54 (61%)			NS
Submucosal	0 (0 %)	6 (7%)			NS
Subserosal	22 (43 %) ^c	28 (32%)			NS
Size of the uterus	14.75 ± 3.79	20.23 ± 7.18	-5.45	-8.09, -2.87	< 0.05
Operative time (min)	3.88 ± 1.32	3.50 ± 0.93	0.38	-0.08, 0.84	NS
Estimated blood loss (ml)	308.16 ± 383.27	615.63 ± 655.11	-307.47	-520.78, -94.16	0.005

^aMean ± standard deviation.

^bFrequency (percent).

^csum of frequencies > sample size due to multiple myomas per patient.

Moreover, controlling for these factors, resulted in no significant difference between two procedures (p = 0.20).

laparoscopic myomectomy with abdominal myomectomy with regard to the incidence of febrile morbidity in the immediate postoperative period. The time frame of 72 hours after surgery was selected as it is the usual length of time after abdominal myomectomy that patients are inpatients before discharge, and robotically-assisted laparoscopic myomectomies are usually discharged on postoperative day zero.

Design: Prospective cohort study from October 2014 to February 2016.

Setting: Maimonides Medical Center, Community based hospital.

Patients: Forty- two patients who had undergone robotically-assisted laparoscopic myomectomy were compared to fifty- seven patients who had undergone abdominal myomectomy.

Intervention: Robotically-assisted laparoscopic myomectomy or abdominal myomectomy.

Measurements and Main Results: The primary outcome was the difference between surgical approaches in post-operative febrile morbidity. Within 72 hours after surgery, 7% patients in robotic- assisted laparoscopic myomectomy group had fever with a maximum temperature of 100.4° F compared to 25% of those in the abdominal myomectomy group (P= 0.03); with a maximum temperature of 101.9° F

Conclusion: Higher post-operative temperature profiles were found in abdominal myomectomies than in robotically-assisted laparoscopic myomectomies. This finding should be considered in light of potential differences in the risk of febrile morbidity as deciding the approach of myomectomy which could be based on the number and size of the fibroids and the size of the uterus.

58 **Open Communications 1 - Robotics**
(11:00 AM - 12:00 PM)

11:21 AM – GROUP A

Robotic Secondary Debulking Surgery in Combination with Minimally Invasive Hyperthermic Intraperitoneal Chemotherapy (HIPEC) in Recurrent Ovarian Carcinoma



Estape RE, Schroeder ED, Estape RA, Diaz JP. *Gynecologic Oncology, Miami Cancer Institute - Baptist Health South Florida, Miami, Florida, Uganda*

Study Objective: We aimed to evaluate the oncologic outcomes of hyperthermic intraperitoneal chemotherapy (HIPEC) following robotic cytoreduction for recurrent ovarian cancer.

Design: In a single institution, pilot study, patients underwent optimal cytoreductive surgery in combination with HIPEC followed by consolidation chemotherapy from September 2011 to September 2015. Optimal cytoreduction was defined as no lesion >0.5 cm. Adverse and

oncologic outcomes were measured. Standard statistical analysis was utilized.

Setting: Single institution in Miami, Florida with very high volume gynecologic oncology practice.

Patients: Thirty patients with a median age of 57 years (range 20 - 86, years) were identified. The median number of chemotherapy regimens prior to HIPEC was 3 (range 1-12, prior regimens). A median of 2 platinum containing regimens was administered prior to HIPEC (range 0-5, regimens). Median CA-125 at time of HIPEC was 218 U/mL (range 4 - 8543, U/mL). Nineteen (63%) patients underwent a robotic optimal cytoreductive surgery. The following cytotoxic agents were utilized during HIPEC: carboplatin 16 (53%), mitomycin 7 (23%), cisplatin and paclitaxel 4 (13%), paclitaxel 2 (7%), cisplatin 1 (3%). All patients received consolidation chemotherapy following their cytoreduction and HIPEC.

Intervention: Robotic cytoreductive surgery of any visible lesion. HIPEC with different choice of drugs for 90 minutes at conclusion of robotic surgery. All HIPEC done through minimally invasive ports with Performer HT system from Rand.

Measurements and Main Results: Perioperative complications are listed on table 1. At a median follow-up of 14.5 months (range 1-32 months), the median progression-free survival free was 10.2 months. The 5 year-overall survival rate was 53%.

Perioperative Complications

Complication	6 (14%)
Fever	2 (6.7%)
Ileus	1 (3.3%)
Cellulitis	1 (3.3%)
UTI	1 (3.3%)
30-day Mortality	1 (3.3%)

Conclusion: In select patients robotic cytoreductive surgery in combination with HIPEC resulted in encouraging survival outcomes. The optimal candidate and chemotherapy regimen have yet to be defined.

59 Open Communications 1 - Robotics (11:00 AM - 12:00 PM)

11:32 AM – GROUP B

A Comparison of Robotic Single Port versus Robotic Multiport Hysterectomy and Sentinel Lymph Node Mapping for Endometrial Cancer



Moukartzel L, Sinno A, Tanner E. Kelly Gynecologic Oncology Service, Johns Hopkins University, Baltimore, Maryland

Study Objective: To compare operative time and surgical outcomes for highly selected patients undergoing robotic laparo-endoscopic single-site (R-LESS) versus multiport robotic total laparoscopic hysterectomy (TLH) with sentinel lymph node (SLN) mapping for low risk endometrial cancer at an academic university hospital.

Design: Retrospective case control study.

Setting: Academic university hospital.

Patients: All patients with a BMI less than 30kg/m² and a diagnosis of complex atypical hyperplasia (CAH) or low grade (1 or 2) endometrial cancer undergoing robotic TLH and SLN mapping without pelvic lymphadenectomy according to an institutional algorithm between 2012 and 2016 were included.

Intervention: Patients underwent either multiport robotic TLH or R-LESS TLH with SLN mapping.

Measurements and Main Results: Twenty seven patients were identified meeting inclusion criteria, including 14 patients that underwent R-LESS TLH with SLN mapping and 13 patients that underwent multiport robotic TLH with SLN mapping. Mean operative and console times were equivalent with the R-LESS and multiport approaches (193 versus 188 minutes, P=0.79 and 132 versus 149 minutes, P=0.12; respectively). Estimated blood loss was also equivalent (61 versus 97 mL; P=0.34). Mean uterine weights and prior pelvic surgery rates were equivalent between both cohorts (128 versus 95 grams, P=0.11 and 36% versus 54%,

P=0.45; respectively). Successful bilateral SLN mapping occurred in 10 R-LESS procedures (71%) and 10 multiport procedures (77%; P=1.0). No intraoperative or 30-day complications were encountered and all patients were discharged within 23 hours of surgery.

Conclusion: For patients with a low BMI and a diagnosis of either CAH or low grade endometrial cancer undergoing TLH and SLN mapping, robotic laparo-endoscopic single site surgery appears to result in equivalent outcomes versus a multiport approach. Further research is needed to determine the benefits of R-LESS procedures in the gynecologic oncology setting.

60 Open Communications 1 - Robotics (11:00 AM - 12:00 PM)

11:39 AM – GROUP B

Robotic Hysterectomy vs. Open Hysterectomy in the Obese Patient



Henderson SD,¹ Borodulin O,¹ Gerkin RD,² Mourad J.¹ ¹Obstetrics & Gynecology, Banner - University Medical Center Phoenix, Phoenix, Arizona; ²Graduate Medical Education, Banner - University Medical Center Phoenix, Phoenix, Arizona

Study Objective: To determine if a robotic approach to hysterectomy in the obese patient is associated with improved outcomes.

Design: Retrospective cohort study.

Setting: Academic teaching hospital.

Patients: Patients with a Body Mass Index (BMI) \geq 30 kg/m² undergoing hysterectomies via a robotic or open abdominal route for benign disease between January 2013 and August 2015.

Measurements and Main Results: A total of 77 patients with a BMI \geq 30 kg/m² underwent hysterectomy for benign disease during the study period - exclusive of hysterectomy for pelvic mass, reconstructive procedures or suspected malignancy - 48 via a robotic-assisted laparoscopic approach and 29 via an open abdominal approach to hysterectomy. Demographics did not differ between the two groups and each group had a similar proportion of women with BMI > 40 (56.3% vs. 62.1%, p=0.642). There was no difference between the two groups in regards to postoperative complications, intraoperative complications, admission rates, or readmissions. Women who underwent an open approach were more likely to have increased blood loss (p<0.001), increased length of hospital stay (p<0.001) and increased uterine weight (p=0.001). On regression analysis, increased operative time was predicted by uterine weight (>250 grams), not by BMI or type of physician performing the procedure. Further, increased blood loss during surgery was independently predicted by uterine weight, increasing BMI and an open approach to surgery.

Conclusion: Obese women who underwent hysterectomy for benign disease in a robotic manner had decreased blood loss and shorter hospital stays compared to women who underwent hysterectomy via an open abdominal approach, with no change in complication rates and independent of BMI. Surgical planning for the obese woman should include consideration for a minimally invasive procedure.

61 Open Communications 1 - Robotics (11:00 AM - 12:00 PM)

11:46 AM – GROUP B

Robot-Assisted Nerve Sparing Radical Hysterectomy in Japan



Ito H, Hasegawa T, Moritake T, Kato R, Isaka K. Obstetrics and Gynecology, Tokyo Medical University, Tokyo, Japan

Study Objective: The aim of this study was to compare robot-assisted nerve sparing radical hysterectomy (RA-NSRH) to abdominal nerve sparing radical hysterectomy (NSRH) in the treatment of cervical cancer.

Design: Retrospective cohort comparative study.

Setting: Department of Obstetrics and Gynecology, Tokyo Medical University.

Patients: From November 2010 to December 2015, a total of 78 patients underwent NSRH for cervical cancer with clinical stage IA2 to IIA in our hospital. Prospective analyses of 29 patients undergoing RA-NSRH were compared to 49 patients undergoing NSRH.

Intervention: The median age for RA-NSRH and NSRH group was 47 (31-71) and 41 (26-71) years old, respectively. The histological type for RA-NSRH group was 17 cases of squamous cell carcinoma and 12 of adenocarcinoma, and NSRH was 31 of squamous cell carcinoma, 15 of adenocarcinoma and three of others.

Measurements and Main Results: The mean blood loss for RA-NSRH and NSRH group were 92 ± 126 and 991 ± 874 g ($p < 0.001$), respectively; the mean operative time was 417 ± 67 and 309 ± 65 min ($p < 0.001$); the mean period of hospital stay was 6.6 ± 1.2 and 33.8 ± 20.8 days ($p < 0.001$); the mean number of lymph nodes was 35 ± 14 and 49 ± 17 ($p = 0.001$). The bladder function for RA-NSRH group was restored 100%, NSRH restored 79.3% within three months. The incidence of postoperative complications was less in RA-NSRH (10.3%) as compared with NSRH (20.4%). There was no case of recurrence in RA-NSRH, and were seven cases of recurrence (two cases of IB1, five cases of IB2) in NSRH.

Conclusion: As for the robot-assisted surgery, it was thought that there was an advantage to reduce postoperative complications in addition to decreasing the blood loss and shortening the period of hospital stay. About the postoperative long-term outcome, we are chasing it sequentially.

62 Open Communications 1 - Robotics (11:00 AM - 12:00 PM)

11:53 AM – GROUP B

Effect of Volume on Surgical Outcomes in Robotic-Assisted Laparoscopic Hysterectomy



Aguirre AG,¹ Mourad J,¹ Gerkin R.² ¹Obstetrics and Gynecology, Banner University Medical Center Phoenix, Phoenix, Arizona; ²Graduate Medical Education Research, Banner University Medical Center Phoenix, Phoenix, Arizona

Study Objective: Evaluate the relationship between surgical volume and outcomes of patients who have undergone robotic-assisted laparoscopic hysterectomy for benign indications.

Design: Retrospective chart review of all patients who underwent robotic-assisted total laparoscopic hysterectomy by five different surgeons over two years within the same private practice. Surgeons were divided into low volume (<50 hysterectomies/yr) and high volume (>50 hysterectomies/yr). Demographic data (age, parity, BMI, Previous laparoscopy/laparotomy), operative findings (fibroids, adhesions, endometriosis, pelvic floor prolapse) were collected to compare primary (operative time and estimated blood loss) and secondary outcomes (length of stay, conversion to laparotomy, readmission, intraoperative complications and postoperative complications). T tests and chi square tests were used to compare continuous and categorical outcomes, respectively.

Setting: Single private practice operating at Banner Desert Medical Center, Mesa, AZ.

Patients: 303 Women who underwent robotic-assisted laparoscopic hysterectomy for benign indications.

Intervention: Patient were divided in to two categories based on their provider. 1. High Volume Surgeons (>50 hysterectomies/yr) 2. Low Volume Surgeons (<50 hysterectomies/yr).

Measurements and Main Results: Operative time for high volume surgeons had a mean value of 114.5 minutes while the low volume group had a mean operative time of 113.2 minutes with a P value of 0.8. Mean EBL in the low volume group was 31.09 mL and 39.5 mL with a P value of 0.2. The only secondary outcomes that were found to be statistically significant were hospital length of stay (0.97 vs 0.8 days, P value 0.006) and uterine weight (159.68 ± 124.47 g vs 211.61 ± 216.21 g, P value 0.01). There were no differences in intraoperative or postoperative complication rates, readmission rates or hospital readmissions.

Primary and Secondary Outcomes in High vs Low Volume Surgeons

	Low Volume	High Volume	P Value
Operative time (min)	113±43.69	114.5±45.36	0.839
Length of Hospital Stay (d)	0.97	0.8	0.006
Uterine Weight (g)	159.68±124.47	211.61±216.21	0.014
Estimated Blood Loss (mL)	31.09 ±32.2	39.54±80.19	0.2
Conversion to Laparotomy	0	2	1
Readmission	3 (4.7%)	29 (12.2%)	0.154
Intraoperative Complications	0 (0%)	4 (1.7%)	0.582
Postoperative Complications	4 (6.3%)	26 (10.9%)	0.35

Conclusion: For this practice of five surgeons, annual volume did not predict a difference in primary outcomes (Operative Time, Estimated Blood Loss). Robotic surgery is a surgical method that is safe for both high and low volume surgeons.

63 Open Communications 2 - Endometriosis (11:00 AM - 12:00 PM)

11:00 AM – GROUP A

Interconnection Between Eutopic and Ectopic Endometrium on Signaling Pathways Level



Aznaurova Y,¹ Garazha A,² Adamyan L,¹ Buzdin A,¹ Stepanian A.² ¹A.I. Evdokimov Moscow State Medical and Dental University, Moscow, Russian Federation; ²First Oncology Research and Advisory Center, Moscow, Russian Federation

Study Objective: To identify all specific changes at the gene expression level and changes of intracellular signaling pathways activity in eutopic and ectopic endometrium and the correlation of molecular abnormalities in these locations in patients with endometriosis.

Design: Retrospective cohort study.

Setting: University-affiliated community hospital.

Patients: 50 women (average age: 32 years) with different forms of endometriosis, which were not treated with hormone medicines before surgery. To date we have fully analyzed the data of 20 patients with collectively 20 eutopic, 20 ectopic, and 5 normal endometrial samples.

Intervention: Laparoscopic removal of ectopic foci and hysteroscopy with endometrial sampling. After that RNA was isolated from the obtained tissue samples. Transcriptome has been investigated by microchip hybridization (CustomArray B3 Synthesizer). The profiles of activation/repression of intracellular signaling pathways (ISP) in the samples studied were calculated using the bioinformatics method Oncofinder.

Measurements and Main Results: We have identified the top-30 most strongly differentially up- and down-activated signaling pathways in endometriosis foci compared to normal endometrium. First we normalized all pathway activation profiles on the normal endometrium sample and then compare eu- and ectopic endometrium with each other. We revealed the correlation between molecular changes in eu- and ectopic endometrium, which at least is 85,21% in cases of endometriotic cyst of the right ovary and 97,80% in case of endometriosis of the peritoneum.

Conclusion: Evaluation of changes in the eutopic endometrium may serve as a marker of tissue condition in ectopic foci of patients with endometriosis. The analysis of changes in the ISP activity in eutopic endometrium can be used as a reliable monitoring method of the effectiveness of the therapy and can be further used for the selection of optimal therapeutic methods. Using such data, it will be possible to track the status of ectopic endometrium by analyzing eutopic endometrium (hysteroscopy versus relaparoscopy).

64 Open Communications 2 - Endometriosis (11:00 AM - 12:00 PM)

11:07 AM – GROUP A

The Systematization to Treat the Parametrium Endometriotic Nodule Safely



Crispi C Jr, Crispi C. *Crispi Institute of Minimally Invasive Surgery, Rio de Janeiro, Brazil*

Study Objective: The objective of this study is evaluate the feasibility of resecting the endometriotic parametrium nodule minimizing the risk of major complications performing our surgical systematization.

Design: Retrospective Cohort Study.

Setting: Private Practice in Rio de Janeiro.

Patients: We have analyzed 470 laparoscopies to treat endometriosis from jan/2015 to february/2016, a total of 74 parametrectomies were percorrem due to deep endometriosis at this location.

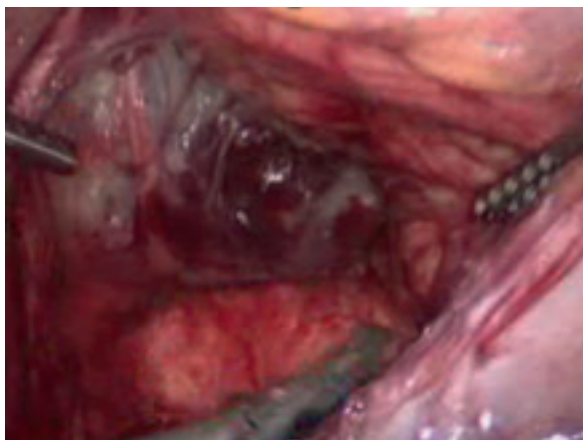
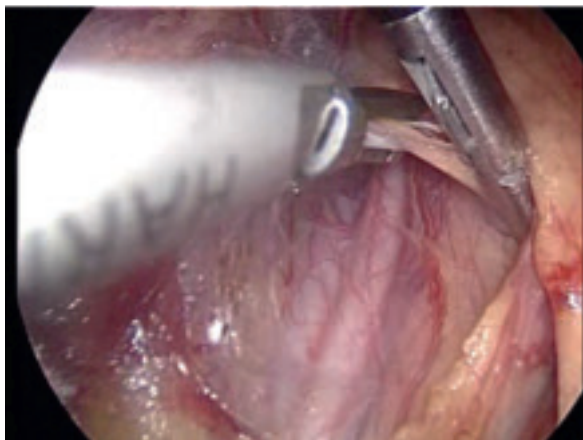
All these patients (parametrium group) were diagnosed with clinical examination and magnetic resonance, the most prevalent symptom was dysmenorrhea, about 30% with infertility.

Intervention: All laparoscopies were performed with cytoreductive plan, to eliminate all endometriotic visible foci.

Before achieving the parametrium nodule, it was always performed our systematization: freeing all noble structures, adhesiolysis, ureterolysis (figure 1) and serve-sparing (figure 2)

We used the harmonic scalpel in all these surgeries.

Measurements and Main Results: From 74 parametrectomies (due to endometriosis), 4 patients had voiding difficulty or acute urinary dysfunction (all reverted with catheterization at the first week), one



iatrogenic ureteral lesion occurred at the time of ureterolysis, reverted with termino-terminal anastomosis and double J catheter insertion (60 days). One patient maintained leg paresthesia for 6 months, reverted with physiotherapy.

No severe nerve dysfunction or fistulas were found.

Conclusion: Resecting endometriotic nodule is always a challenge due to the complex anatomical structures contained there, achieving this area after performing our systematization appears to be the safe way to avoid major complications.

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11:14 AM – GROUP A

Microparticle Levels After Ovarian Cystectomy versus CO₂ Fiber Laser Vaporization (AcuPulse DUO, Lumenis) in the Laparoscopic Treatment of Ovarian Endometriomas. Results of a Preliminary Trial



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Study Objective: The aim of our study was to quantify inflammation determining micro particles (MP) levels in patients with ovarian endometriomas who will undergo surgery using excisional technique or CO₂ laser ablation.

Design: Prospective randomized clinical trial. Twelve patients with ovarian endometriomas were recruited until February 2016 and underwent surgery using excisional technique (Group 1; n=7) versus AcuPulse 40WG CO₂ laser (Lumenis) (Group 2; n=5).

Inclusion criteria were: age between 18-40 years, unilateral endometriomas ≥ 3 cm. Exclusion criteria were: previous pelvic surgery, chronic illnesses, history of cancer, suspected malignancy.

Setting: Tertiary referral hospital in Barcelona.

Patients: Patients with ovarian endometrioma and surgical indication were selected.

Intervention: Endometrioma was surgically removed according to a randomizing list: CO₂ fiber laser vaporization versus conventional excision. A blood sample was obtained before surgery and after surgery. MPs were measured by capture on immobilized annexin V, which is the most common marker used to detect and quantify MP.

Measurements and Main Results: There were no statistically differences in age, body mass index and smoking habit. Both groups showed similar MP levels before surgery (nM Phosphatidylserine equivalent [mean \pm SD]: Group 1: 26.2 \pm 5.4; Group 2: 22.6 \pm 4.5; p=0.3). After surgery Group 1 showed higher MP levels although there were no statistical significant differences (nM Phosphatidylserine equivalent [mean \pm SD]: Group 1: 43.5 \pm 10.8; Group 2: 28.2 \pm 12.6; p=0.09).

Conclusion: The preliminary results of this trial showed that patients in group 1 had a trend to higher MP levels compared to patients in group 2 suggesting less inflammatory response after laparoscopic CO₂ laser vaporization of endometriomas compared to excisional technique.

66 Open Communications 2 - Endometriosis (11:00 AM - 12:00 PM)

11:21 AM – GROUP A

Reproductive Outcome in Postoperative Deep Infiltrating Endometriosis



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Study Objective: To summarize and analyze clinical characteristics and reproductive outcome in postoperative deep infiltrating endometriosis.

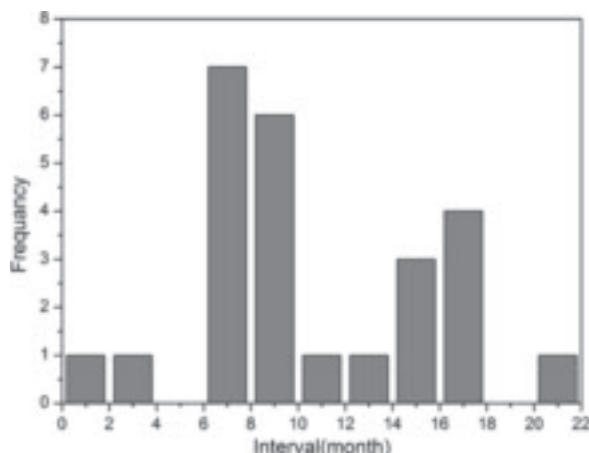


Figure 1. The Distribution of interval between operation and pregnancy

Design: Retrospective cohort study.

Setting: Tertiary-care university medical centre

Patients: 40 patients of productive age diagnosed of deep infiltrating endometriosis, undergone resection surgery and wished to conceive in our hospital from January 2009 to December 2014. Any plausible infertility factor or abnormality of partner's semen analysis were excluded.

Intervention: Clinical characteristics and reproductive outcome were followed up and analyzed.

Measurements and Main Results: Average patient age was 30.93 ± 3.50 years. The average age was significantly younger in pregnancy group than in non-pregnancy group. Average follow up time was 21.56 ± 10.06 months. There were 23 pregnancies (57.5%) with 18 (78.3%) spontaneous pregnancy and 5 (21.7%) in-vitro fertilization (IVF). 22 patients (95.65%) were term deliveries except one missed abortion. The interval between operation and pregnancy was 8.64 ± 1.08 (CI95% 6.38-10.89) months.

There was no difference in number and size of lesion, lesion location (rectum, rectovaginal septum or utero-sacral ligament), lesion involvement (ovary/adomyosis), lesion residual, operation type, operation time, blood loss, postoperative usage of GnRHa (gonadotropin releasing hormone agonist, GnRHa) and level of preoperative CA125 between pregnancy and non-pregnancy groups.

Conclusion: In our study, the postoperative pregnancy rate of deep infiltrating endometriosis is 57.5%. The average age in pregnancy group was much younger than non-pregnancy group. Shaving and full-thickness disc excisions were both feasible and effective. We encourage patients conceive as soon as possible especially for elder patients with large and multiple lesions. However, more cases should enroll and additional studies are required.

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11:32 AM – GROUP B

Pelvic Floor Dysfunction at 3- and 4-Dimensional Transperineal Ultrasound in Patients with Deep Infiltrating Endometriosis



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Study Objective: To compare static and dynamic pelvic hiatal area of women with deep infiltrating endometriosis (DIE) to asymptomatic control women using 3-D and 4-D transperineal ultrasound.

Design: Prospective, case-control study between March 2015 to November 2015.

Setting: Tertiary level referral Center of minimally invasive gynaecologic surgery, Sant'Orsola Hospital, Bologna University.

Patients: Consecutive women with clinical suspicion of DIE (study group) or other benign gynaecological diseases (control group) scheduled for laparoscopic surgery were invited to participate to the study. Approval of

Table 1. Clinical Characteristics of Pregnancy and Non-Pregnancy of Postoperative Deep Infiltrating Endometriosis

	Non-pregnancy	Pregnancy	OR(95% CI)	P value
Age (years)	38.17 ± 6.62	31.08 ± 3.23	1.24 (1.12-1.38)	<0.01
Number of lesions (N)	1.47 ± 0.74	1.28 ± 0.57	1.57 (0.37±6.70)	0.41
Size of lesions (cm)	2.53 ± 1.42	2.21 ± 1.62	1.15 (0.73 ±1.80)	0.53
General surgeon assisted (N%)	9 (52.94%)	8 (36.36%)	1.19 (0.54 ±7.14)	0.3
Operation time(min)	151.65 ± 110.22	118.48 ± 70.29	1.00 (0.98±1.03)	0.46
Blood loss(ml)	178.23 ± 253.58	156.08 ± 175.88	1.00 (0.99±1.00)	0.42
Lesion residual	1 (5.9%)	2 (8.7%)	0.66 (0.05±7.89)	0.74
Lesion involvement				
Ovarian endometriosis	11 (64.71%)	13 (56.52%)	1.41 (0.38±5.13)	0.6
Adenomyosis	3 (17.65%)	3 (13.04%)	1.43 (0.25±8.13)	0.4
Postoperative GnRHa(N%)	13 (76.47%)	19 (82.61%)	0.68 (0.31±6.92)	0.31
Dosages of postoperative GnRHa (N)	3.88 ± 2.55	3.13 ± 1.84	0.84 (0.14±3.24)	0.63
Preoperative CA125	99.30 ± 104.71	88.34 ± 92.97	1.18 (0.87±1.60)	0.27
Lesion Location				
Rectovaginal septum(N%)	10 (58.82%)	12 (50%)	1.43 (0.41±5.0)	0.18
Rectum(N%)	6 (35.29%)	9 (37.54%)	2.71 (0.63±11.78)	0.57
Utero-sacral ligament(N%)	6 (35.29%)	9 (37.54%)	0.91 (0.25±3.31)	0.85
Surgical procedures			4.02 (0.50±32.25)	0.19
Shaving excisions(N%)	14 (82.35%)	22 (95.65%)		
Full-thickness disc excision(N%)	3 (17.65%)	1 (5.45%)		

Although not significant, the number and size of lesions were much higher in non-pregnancy group than pregnancy group. For evaluation of life quality, there was significant improvement ($p < 0.05$) in postoperative scores of SF-12 and CMSS compared with preoperative in both groups. But for sexual life quality, there was no obvious difference of FSFI scores.

the protocol was obtained from the local ethics committee (196/2015/O/Sper).

Intervention: Before surgery, a 3-D and 4-D transperineal ultrasound was performed in order to evaluate pelvic hiatal area at rest, pelvic floor contraction and on maximal Valsalva manoeuvre.

Measurements and Main Results: Sixty-eight patients were enrolled in the study. At laparoscopy, 34 had a diagnosis of DIE (study group) and 34 had a diagnosis of other benign diseases (control group). At rest, women with DIE showed a smaller pelvic hiatal area compared with control group (study group 11,2±2 cm² vs control group 13,2 ± 2,2 cm², p<0,001). Furthermore, during Valsalva manoeuvre a smaller pelvic hiatal area was observed in women with DIE (study group 13,6 ± 2,6 cm² vs control group 17,3 ± 4,6 cm², p<0,001). During pelvic floor contraction, no significant difference was detected between the two groups (study group 9,2 ± 1,7 cm² vs control group 9,3 ± 1,5 cm², p=0,6).

Conclusion: From our results, 3-D and 4-D transperineal ultrasound suggest an increase of pelvic floor muscle tone in women with DIE compared to control women. In women with DIE, 3-D and 4-D transperineal ultrasound could represent an easy, feasible, non-invasive method to detect pelvic floor hypertone.

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11:39 AM – GROUP B

Visual Diagnosis of Endometriosis Using Fluorescence Imaging and Indocyanine Dye (ICG Dye) with a Robotic Surgical Platform

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Study Objective: With excisional surgery for endometriosis, the ability to visualize all manifestations of lesions and resect is critical to prevent recurrence of symptoms. Visual diagnostic accuracy is variable using 2D white light imaging and although improved by 3D/HD with a robotic surgical system, it may still remain challenging. Fluorescence imaging + ICG dye may allow for more accurate visual diagnosis of endometriosis. The purpose of this study was to evaluate and compare the use of fluorescence imaging with ICG dye in comparison to 2D and 3D imaging of endometriosis.

Design: The study is an ongoing prospective study.

Setting: Hospital setting.

Patients: 7 premenopausal patients with symptoms of endometriosis.

Intervention: During surgery, a thorough pelvic evaluation is performed using each mode of visualization detailing the location and estimated size of each suggestive endometrial lesion on a pelvic diagram. All visible lesions are excised and sent for histopathological examination. Quantity of endometrial lesions for each mode of visualization are recorded and differences statistically analyzed. Additional assessments include a 10-item pain scale and a validated quality of life (QoL) questionnaire (RAND-36).

Measurements and Main Results: Quantity of lesions visualized with fluorescence imaging and indocyanine green dye were 2.0X greater (p=0.017) than with robotic-assisted 3D white light imaging and 3.6X higher (p=0.011) than for conventional 2D imaging. Quantities of lesions visualized (mean±SEM) using fluorescence imaging + ICG dye, 2D, or 3D imaging were 13.3±3.0, 6.8±1.9, and 3.7±0.9, respectively. Pain scores were relatively high (5.3±0.5) and QoL scores low.

Conclusion: Preliminary findings suggest significant improvement in visual diagnosing of endometriosis with fluorescent imaging + ICG dye.

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11:46 AM – GROUP B

Prevalence of Sonographic Signs of Deep Infiltrative Endometriosis Among Women Submitted to Routine Transvaginal Sonography

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Study Objective: Estimate the prevalence of sonographic signs suggestive of deep infiltrative endometriosis (DIE) in women submitted to routine transvaginal sonography (TVS) performed by a radiologist trained to detect DIE. Also, we investigated if there were symptoms associated with the incidental finding of DIE.

Design: Observational study.

Setting: Tertiary private hospital.

Patients: Women during menarche undergoing TVS for routine gynecological evaluation, without previous suspicion of DIE.

Intervention: Patients were submitted to TVS without bowel preparation between 11/01/2013 ad 02/29/2016. The uterus, ovaries, retrocervical area, uterosacral ligaments, rectosigmoid transition, vesicouterine pouch and the bladder were systematically evaluated. Hypoecogenic nodules or tissue thickening, with regular or irregular margins, with or without cysts were considered signs of DIE as were cysts with homogeneous hypoechoic content, with or without internal septa and bright focus (endometriomas). All examinations were performed by the same physician using a Toshiba Aplio XG™ or Toshiba Aplio 500™, with an endocavitary probe (8,8 – 3,6 Hz). All women were interviewed before the exam and symptoms (infertility, dysmenorrhea, chronic pelvic pain, dyspareunia and cyclical bowel or urinary symptoms) were recorded.

Measurements and Main Results: 338 women participated in the study. Mean patient age was 35.6 years (range 18-56 years). Signs suggestive of DIE were identified in 26 patients (7.7%) with mean age 38.2 years (range 20-50 years). Lesions were detected in the ovaries (n=8), retrocervical region (n=8), uterosacral ligaments (n=14), and rectosigmoid transition (n=2). Five patients had signs of DIE in more than one site (multiple lesions). Thirteen women were asymptomatic; 11 had dysmenorrhea, 1 had chronic pelvic pain and 1 had infertility.

Conclusion: Sonographic signs of DIE were detected in 7.7% of women in which the disease was previously unsuspected. Approximately half of them were asymptomatic.

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11:53 AM – GROUP B

Sonographic Diagnosis of Endometrioma and Incidence of Other Findings of Pelvic Endometriosis

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Study Objective: To investigate whether or not an ovarian endometrioma is associated to other appearances of pelvic endometriosis such as adhesions and/or deep infiltrating endometriosis (DIE), in order to improve the management of patients with pelvic pain or infertility.

Design: Observational retrospective study on patients with endometriomas by detecting other associated sonographic signs of pelvic endometriosis such as adhesions, tubal pathology, adenomyosis and DIE.

Setting: University hospitals.

Patients: Symptomatic patients who underwent a transvaginal sonography (TVS) and showed an ovarian cyst with typical appearance of endometrioma were included in this study. Patients with previous pelvic surgery and without symptoms were excluded.

Intervention: Mapping of endometriosis by TVS and laparoscopic treatment when indicated for endometriomas and other pelvic endometriosis.

Measurements and Main Results: 226 symptomatic patients ≤ 40 years with at least an ovarian endometrioma with a diameter of ≥ 20 mm were included in this study. Mean age was 32.9 ± 4.9 yrs, mean endometriomas diameter was 35.5 ± 16.5 mm. Bilateral endometriomas were observed in 32 patients (14%). Of the 226 patients 41(18%) showed posterior rectal DIE and 92 (41%) a thickening of at least one uterosacral ligament (USL). 138 patients (61%) showed adhesions and 82 (36%) had myometrial signs of adenomyosis. Only 21 (9%) had a single isolated ovarian lesion with a mobile ovary and without any other ultrasound signs of pelvic endometriomas.

Conclusion: Ovarian endometrioma is a marker for pelvic endometriosis and is rarely isolated. A high percentage of USL involvement has been observed. In a clinical context when there is an ovarian endometrioma an accurate TVS should investigate the extent of the disease to check for other endometriotic lesions in order to choose the most appropriate management to treat patient's pain and infertility not only considering the presence of ovarian lesions.

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11:00 AM – GROUP A

Hysterectomy in Obesity and How Route of Surgery Impacts Outcomes for Benign Disease



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Study Objective: To determine outcomes of hysterectomy for benign disease in the obese patient.

Design: Retrospective chart review.

Setting: Academic teaching hospital.

Patients: Patients undergoing hysterectomies for benign disease between January 2013 and August 2015 with Body Mass Index (BMI) ≥ 30 kg/m².

Measurements and Main Results: A total of 124 patients with a BMI ≥ 30 kg/m² underwent hysterectomy for benign disease during the study period, 96 via a minimally invasive surgical (MIS) procedure (robotic-assisted laparoscopy, laparoscopy or vaginal hysterectomy) and 28 via an open abdominal hysterectomy. Nine of the MIS hysterectomies were converted to open hysterectomies due to difficulties with laparoscopic entry or visualization. Demographics did not differ in regards to age, race or BMI between the two groups. Obese patients who underwent MIS hysterectomy were more likely to have decreased operative time ($p < 0.001$), decreased estimated blood loss ($p < 0.001$), decreased admission rate ($p = 0.01$) and decreased length of hospital stay ($p < 0.001$) compared to patients who underwent open hysterectomy. Patients with large uterine size (uterine weight > 250 g) were less likely to undergo a MIS procedure (24.1% vs. 54.1%, $p = 0.002$), as were patients with a BMI > 40 kg/m² (46.0% vs. 67.6%, $p = 0.032$). On regression analysis, uterine weight was found to be predictive of increased operative time ($p = 0.002$) and increased estimated blood loss ($p = 0.014$), independent of BMI or route of surgery.

Conclusion: Obese patients who underwent hysterectomy for benign disease in a minimally invasive manner had statistically fewer admissions, decreased blood loss, shorter operative time, and decreased length of stay compared to obese patients who underwent open hysterectomy. These findings were independent of uterine weight or BMI, which are significant considerations in surgical planning.

72 Open Communications 3 - Basic Science/Research/ Education (11:00 AM - 12:00 PM)

11:07 AM – GROUP A

Variation in the Gynecologic Aseptic Technique Improves After Standardization and Video-Based Intervention



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Study Objective: Surgical site infections (SSI) are a significant source of postoperative morbidity and mortality; improving aseptic technique will likely decrease rates of SSI. This study aims to assess variation in intraoperative patient preparation for gynecologic cases, and to assess success of a video-based intervention to standardize aseptic technique.

Design: We performed a prospective cohort study examining intraoperative patient preparation of gynecologic cases. Housestaff were surveyed on methods used for preparation between July and August 2014. A departmental aseptic protocol was developed, and housestaff and attending surgeons were shown a short video on proper technique. Follow-up surveys of housestaff were performed between January and April 2016.

Setting: Tertiary medical center with large academic and community presences.

Patients: Benign gynecologic surgical cases were included if both vaginal and abdominal intraoperative preparations were performed. Obstetrics and Gynecology housestaff completed questionnaires collecting date, surgeon, surgery performed, team member completing preparation, sequence of steps, and materials used. Surveys were collected before ($n = 50$) and after ($n = 52$) intervention.

Intervention: Gynecologic Services developed a universal standard protocol for intraoperative aseptic technique based on best practice guidelines. A video explaining and demonstrating proper technique for patient preparation was shown at housestaff didactics and departmental grand rounds.

Measurements and Main Results: After viewing a video standardizing surgical aseptic technique, surgeons performed every step of surgical preparation correctly and in correct order in 94.2% of cases (49 of 52). Preparation of the vagina prior to the abdomen improved to 100% of cases, from 92%. Insertion of the foley in correct sequence of preparation and draping improved from 64% to 98.1% of cases. When a uterine manipulator was used, placement was the final step in 94.7% of cases, compared to 70% prior to intervention.

Patient preparation performed correctly

	Before intervention	After intervention
Vaginal prep prior to abdominal	46/50 (92%)	52/52 (100%)
Foley placed in correct sequence	32/50 (64%)	51/52 (98.1%)
Uterine manipulator inserted last	30/43 (70%)	36/38 (94.7%)

Conclusion: Variation in technique for intraoperative patient preparation decreased after standardization of practice. A short video is a successful way to disseminate knowledge on intraoperative aseptic technique.

**73 Open Communications 3 - Basic Science/Research/
Education**
(11:00 AM - 12:00 PM)

11:14 AM – GROUP A

**Analysis of Risk Factors for Urologic Injuries After
Minimally Invasive vs Abdominal Hysterectomy**



Petersen S, Rubinfeld I, Buekers T, Sangha R. Henry Ford Hospital,
Detroit, Michigan

Study Objective: To determine risk factors for urologic injury in patients undergoing hysterectomy.

Design: Retrospective cohort study.

Setting: Academic Affiliated Community Hospital System.

Patients: All patients undergoing minimally invasive and abdominal hysterectomy between August 2013 and March 2016, after the institution of an electronic medical record.

Intervention: Hysterectomy.

Measurements and Main Results: A total of 2553 hysterectomies were identified. A total of 1814 minimally invasive, and 736 abdominal hysterectomies were analyzed for urologic complications. Rate of urologic injury was 0.95% for abdominal hysterectomy vs 0.83% minimally invasive hysterectomy (p value = 0.75). Intraoperative recognition of injury was 0.81% in open cases vs 0.61% in MIS case (p value = 0.55). BMI was 32.5 for open vs 32.0 for MIS (p value = 0.22). BMI of injured patients was 33.7 vs 32.1 for non injured (p value = 0.35). 67% of patients with injuries after minimally invasive hysterectomy had prior abdominal surgeries, whereas 50% of patients with injuries after abdominal hysterectomy had prior abdominal surgery. 17% vs 30% of patients with injuries after minimally invasive hysterectomy and abdominal hysterectomy respectively had endometriosis. Cystoscopy was completed in 83% of patients with urologic injury after minimally invasive surgery.

Conclusion: Rates of urologic injury at our institution is similar to published data. Body mass index was not a significantly different in patients who had urologic injuries versus those who did not. Intraoperative recognition of injury was higher in abdominal hysterectomy than MIS, however, majority of injuries were diagnosed in the immediate postoperative period.

**74 Open Communications 3 - Basic Science/Research/
Education**
(11:00 AM - 12:00 PM)

11:21 AM – GROUP A

**Systemic Nerve Sparing Radical Hysterectomy Guided
by Pelvic Nerve Plane: An Anatomical and
Immunohistochemical Study**



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Study Objective: Anatomic Research Our aim was to discover the distribution character of hypogastric plexus innervating the bladder, and to provide further anatomic and histologic evidence of nerve plane sparing in radical hysterectomy.

Design: An anatomic research.

Setting: Department of human anatomy, histology and embryology, Peking Union Medical College.

Patients: Ten female fresh cadavers were included in our research, and all come from cadaver donation.

Intervention: Ten female fresh cadavers were dissected with twenty hemipelvises. Ten of the hemipelvises were meticulously dissected and pelvic autonomous nerve plane under the ureter were identified and spared. For the other ten hemipelvises, large sections of the tissue around the parametrium were performed. Histologic and immunohistochemical analysis of nerve plane and its concomitant distribution type with the ureter were performed.

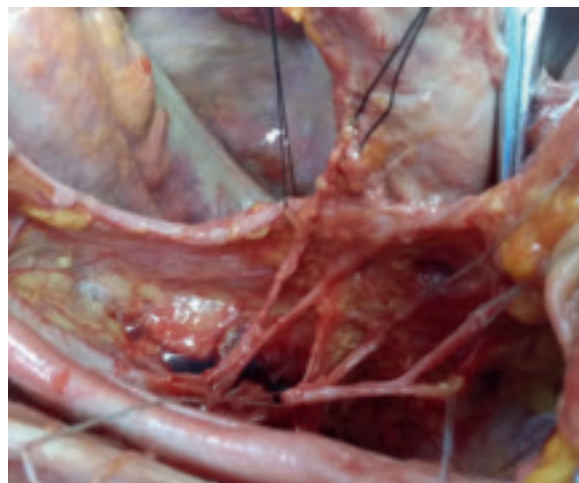


Figure 1.

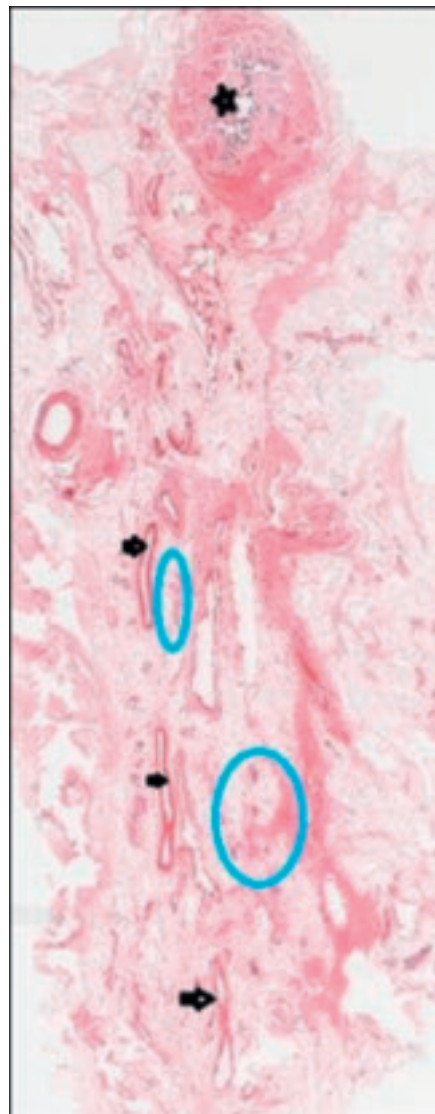


Figure 2.

Measurements and Main Results: Pelvic nerve plane were developed in 9 of 10 hemipelvises (Figure 1), hypogastric nerve distributed from cranial to caudal in the dorsal part of the plane, vesical branches were found in the ventral part of the plane in 7 of 10 hemipelvises, pelvic splanchnic nerve were tiled evenly on pelvic floor laterally to the plane.

Histologic findings showed that abundant nerve fibers existed in the pelvic nerve plane (mean scores were 2.3, 1.8-3). (See Figure 2 on the previous page.)

Conclusion: Pelvic autonomous nerve mainly distributed in a plane, and by meticulously developed pelvic spaces and isolated this plane, pelvic autonomous nerve may be preserved systemically and simplified to a large extent in the nerve sparing radical hysterectomy.

**75 Open Communications 3 - Basic Science/Research/
Education
(11:00 AM - 12:00 PM)**

11:32 AM – GROUP B

**Redesigning Gynecology Surgical Instrumentation:
Promoting Cost-Effectiveness and Eliminating Waste**



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Study Objective: To determine the cost-savings after reevaluation and reduction of non-essential instruments in standardized gynecologic surgical trays and custom packs for laparoscopy, laparotomy, and vaginal surgery cases.

Design: Observational Study (Canadian Task Force Classification III).

Setting: University Medical Center.

Patients: Not applicable.

Intervention: Using the Lean Principle of 5S, we convened a multidisciplinary team of surgeons, nurses, operating room staff, and central sterile supply (CSS) representatives to review existing gynecologic surgical instrument trays. Non-essential instruments were removed from the trays and new standardized trays were developed. Additionally, the custom packs were evaluated and redesigned to eliminate waste.

Measurements and Main Results: The updated and standardized surgical trays were trialed in the operating rooms. A survey was created to monitor usability of the new trays and to ensure that all essential and required instruments were included. Through this multidisciplinary approach, gynecologic surgeons were able to remove 18.7% of instruments from the existing trays. This leads to approximately 9,000 fewer instruments being sterilized annually with an estimated cost avoidance of \$457,762 in future instrument purchases. An additional \$29,592 annually was saved by eliminating unused components from the custom packs.

Conclusion: There are often many unused and unnecessary instruments and supplies included in surgical trays and custom packs. Our study demonstrates that a reduction and standardization of surgical instrumentation can lead to significant operative cost-savings in a large academic medical center.

**76 Open Communications 3 - Basic Science/Research/
Education
(11:00 AM - 12:00 PM)**

11:39 AM – GROUP B

**Construct Validity of a Simple Laparoscopic Ovarian
Cystectomy Model**



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Study Objective: To determine construct validity of a simple laparoscopic ovarian cystectomy model.

Design: Prospective blinded observational study.

Setting: Academic teaching hospital.

Patients: A total of 26 postgraduate year 1 - 4 Gynecology and Obstetrics residents (15 junior residents, PGY 1 - 2 and 11 senior residents, PGY 3 - 4).

Intervention: We developed a simple low-cost laparoscopic ovarian cystectomy simulator and incorporated it into our simulation curriculum. The simulation was directed at junior residents with instruction and immediate feedback one time during the academic year. At the end of the year residents of all levels were video-recorded using this model. A blinded evaluation of these videos was later scored by two experienced laparoscopists using a modified Global Rating Scale. IRB approval was previously obtained.

Measurements and Main Results: Each resident received a unique identification number and the simulated laparoscopic ovarian cystectomy procedure was filmed during the end of the year assessment. Two evaluators scored the video of each resident with a modified Global Rating Scale, judging on 5 of the 7 applicable domains (respect for tissue, time and motion, instrument handling, flow of operation and knowledge of specific procedure). The average of the two ratings from the evaluators was computed for each domain and comparison was made using the Mann-Whitney U test. Inter-rater reliability was calculated using Kendall's Tau coefficient. Construct validity was determined by comparing the rank scores of the junior to senior residents on each domain. Construct validity and inter-rater reliability was demonstrated in all of the measured domains except for respect for tissue.

Demonstrated construct validity

Domain	Junior	Senior	p value
Respect for Tissue	2.30 ± .45	2.60 ± .88	.643
Time and Motion	1.97 ± .83	2.80 ± .72	.048
Instrument handling	2.00 ± .89	2.85 ± .47	.026
Flow of operation	2.16 ± .86	3.25 ± .82	.031
Knowledge of procedure	2.23 ± .80	3.35 ± .91	.012

P-values determined using Mann-Whitney U test

Conclusion: This simple low cost model can be used to teach laparoscopic ovarian cystectomy. Construct validity discriminating between junior and senior residents is also demonstrated using this model. This has implications for simulated assessment of technical skills.

**77 Open Communications 3 - Basic Science/Research/
Education
(11:00 AM - 12:00 PM)**

11:46 AM – GROUP B

**Long Non-Coding RNA TC0101441 Predicts Poor
Prognosis and Promotes Cell Metastasis by**



**Upregulating KISS-1 to Induce EMT in Epithelial
Ovarian Cancer**

Qiu J-j, Hua K-q. *Obstetrics and Gynecology, Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China*

Study Objective: We have previously identified a new long non-coding RNA (lncRNA, TC0101441) in epithelial ovarian cancer (EOC) using microarrays. In this study, we aimed to investigate its expression pattern, clinical significance and explore its biological function and underlying mechanisms in EOC aggressiveness.

Design: Retrospective study, in vitro and in vivo study.

Setting: Obstetrics and Gynecology Hospital of Fudan University

Patients: EOC patients admitted to the Obstetrics and Gynecology Hospital of Fudan University between 2005 and 2008.

Intervention: N/A.

Measurements and Main Results: lncRNA-TC0101441 expression in EOC tissues and its correlation with clinicopathological factors and

prognosis was examined. A series of in vitro and in vivo assays were performed to elucidate the function and mechanism of lncRNA-TC0101441 in EOC aggressiveness.

lncRNA-TC0101441 levels were overexpressed in EOC tissues compared with normal controls, and the overexpression was highly correlated with the International Federation of Gynecologists and Obstetricians stage, histological grade, lymph node metastasis, and reduced overall survival (OS) and disease-free survival (DFS). A multivariate analysis showed that lncRNA-TC0101441 expression is an independent prognostic factor for OS and DFS. The depletion of lncRNA-TC0101441 in EOC cells prevented cell migration/invasion in vitro and tumor metastasis in vivo, while lncRNA-TC0101441 overexpression enhanced EOC cell invasiveness in vitro and tumor metastasis in vivo. Mechanically, the pro-metastatic effects of lncRNA-TC0101441 were linked to the induction of epithelial-mesenchymal transition (EMT). Importantly, KISS-1 gene was identified as a downstream target of lncRNA-TC0101441 in EOC metastasis. Knockdown of KISS-1 eliminated the augmentation of EOC cell migration, invasion and EMT by lncRNA-TC0101441 overexpression. lncRNA-TC0101441 overexpression in EOC cells substantially enhanced the enrichment of SP-1 on the promoter of KISS-1, and KISS-1 upregulation by lncRNA-TC0101441 was partly dependent on SP-1.

Conclusion: lncRNA-TC0101441 could promote EOC metastasis by upregulating KISS-1 through SP-1 to induce EMT, and lncRNA-TC0101441 could represent a novel prognostic marker and potential therapeutic target for EOC.

78 Open Communications 3 - Basic Science/Research/ Education (11:00 AM - 12:00 PM)

11:53 AM – GROUP B

Surgical Education Safety in Robotic Platform Training: Including Intra Operative Dual Console Handoffs



Breen MT. *Womens Health, UT Dell School of Medicine, Austin, Texas*

Study Objective: To assess safe practice and safety training techniques on a dual console training platform using intraoperative handoffs for reduction elimination of near misses and adverse safety events.

Design: Retrospective analysis of pre and post implementation of handoff techniques mirrored after aviation safety guidelines. Lickert scale assessment of learner and instructor educational and training perceptions as well as complication assessment and near miss evaluations.

Setting: Robust robotic program for the training of obstetrics and gynecology residents on Dual consoles. 2 dual consoles used. Benign and malignant dual console cases utilized.

Patients: Private patients all informed of resident participation as well as clinic patients managed primarily by resident staff with faculty supervision.

Intervention: No anticipated interventions as this technique has been in place for safety for approximately 12 months from a surgical safety initiative.

Measurements and Main Results: Analysis shows a decrease in both adverse events and complications as well as near misses. Both comparison against accepted validated and reported complication rates nationally as well as this institutions own experience pre and post implementation. Results support the ease of adaptation as well as the validity of the technique at 3 month and 6 month observational of continued implementation.

Conclusion: Patient safety handoffs are commonplace and standard of care in labor and delivery settings and call checkouts. The operating room has not universally adopted these techniques. Robotic surgery mirrors aviation with two surgeons able to fluidly transfer controlling instruments back and forth. Aviation validated safety models require a verbal declaration and confirmation of such transfers. This study validates the ease of intraoperative handoff of dual console instruments. This technique can be adopted and used uniformly on dual consoles nationally to enhance patient safety and residency training.

79 Open Communications 4 - New Instrumentation or Technology (12:10 PM - 1:10 PM)

11:00 AM – GROUP A

Post-Market Evaluation of Intraoperative and Clinical Outcomes After Radiofrequency Volumetric Thermal Ablation of Symptomatic Myomas



Williams N,¹ Lefholz K,² Crump N.³ ¹The Gynecology Institute of Chicago, Chicago, Illinois; ²Matlock Ob/Gyn, Arlington, Texas; ³Department of Obstetrics and Gynecology, University of Chicago Medicine and Biological Sciences, Chicago, Illinois

Study Objective: To evaluate the intraoperative and near-term clinical outcomes after laparoscopic ultrasound-guided radiofrequency volumetric thermal ablation (RFVTA, the Acessa™ Procedure) of uterine myomas as conducted by practicing gynecologic surgeons.

Design: Post-market, multicenter, retrospective chart review.

Setting: Community and University Hospitals in the United States.

Patients: Seventy-two self-referred women desiring uterine-conserving treatment of their symptomatic myomas.

Intervention: Laparoscopic ultrasound-guided RFVTA.

Measurements and Main Results: Three practicing gynecologic surgeons completed 72 consecutive RFVTA procedures from February 2014 to February 2016 (patient mean age: 44.1±6.1 years). The most prevalent presenting complaints were heavy menstrual bleeding (79.2%; n=57), pelvic discomfort/pain (61.1%; n=44), dysmenorrhea (31.9%; n=23), and increased abdominal girth (30.6%; n=22). Thirty-four patients had had prior procedures for their myoma symptoms, including: myomectomy (abdominal, n=7 and laparoscopic, n=3), endometrial ablation (n=4), uterine artery embolization (n=3), and dilation and curettage (n=2). Total number of treated myomas was 272; the median number per patient was 3 (range, 1–21). The mean myoma diameter was 3.75±2.5 cm (median, 3.5; range, 0.5–15 cm) (n=134) and estimated mean blood loss was 91.3±12.3 mL (n=55). There were no reported device-related adverse events. Three patients (4.2%) were hospitalized: conversion to laparotomy to excise several large (>10 cm pedunculated subserosal myomas) (n=1); blood in urine (n=1); low SpO₂ (89%) (n=1). Early postoperative assessment (within 10 days) showed statistically significant reduction in myoma symptoms from baseline: heavy menstrual bleeding, 18.8% (difference of 60.4%, p<.001); pelvic discomfort/pain, 4.3% (difference of 56.8%, p<.001); dysmenorrhea, 1.4% (difference of 30.5%, p<.001); and increased abdominal girth, 4.3% (difference of 26.3%, p<.001). Thirty-three patients returned for a 3-month follow-up: four patients (12.1%) reported heavy menstrual bleeding; however, no other myoma symptoms were reported. No re-interventions were reported.

Conclusion: Early post-market results after RFVTA indicate the procedure's safety and effectiveness as conducted by practicing gynecologic surgeons for the treatment of their patients' symptomatic myomas.

80 Open Communications 4 - New Instrumentation or Technology (12:10 PM - 1:10 PM)

12:17 PM – GROUP A

Uterine Pressure Monitoring During Hysteroscopy: Achieving Set Pressure with Internal Intrauterine Pressure Monitoring



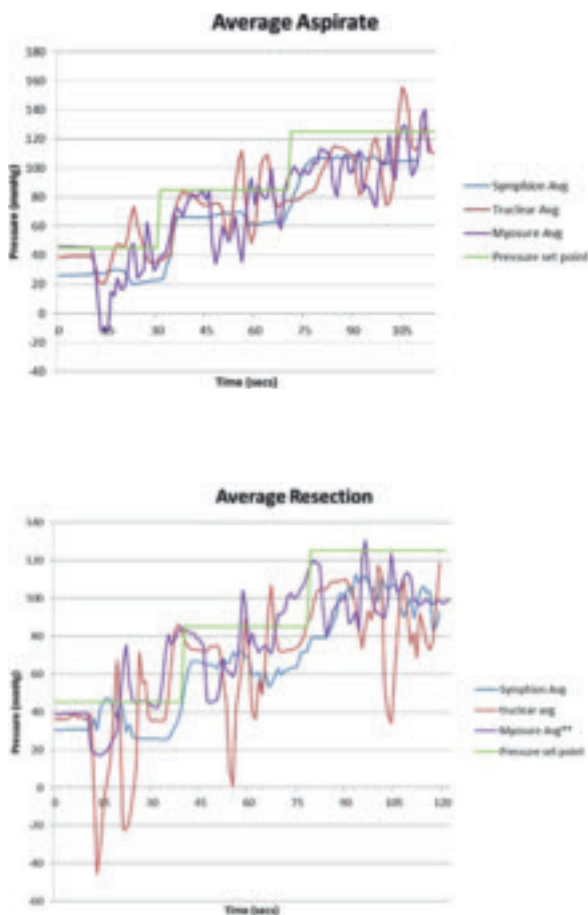
Stockwell EL, Pedroso J, Volker WK. *Ob/Gyn, Las Vegas Minimally Invasive Surgery (LVMIS), Las Vegas, Nevada*

Study Objective: To compare the accuracy of three commonly used operative hysteroscopic intrauterine pressure monitors in static, aspiration, and resection modes.

Design: Prospective study.

Setting: Benchtop research.

Patients: NA.



Intervention: Intrauterine pressure and accuracy was compared utilizing Boston Scientific Symphion™, Hologic Myosure™, and Smith & Nephew Truclear™ systems in three modes (static, aspiration, and resection) at different pressure settings. This was performed using a silicone uterine model, manometer to measure continuous intrauterine pressure, and porcine heart tissue to represent intrauterine fibroid material. Each arm was performed three times, each time with a new device, and results were averaged.

Measurements and Main Results: All devices responded accurately to the pressure set point when in static mode. While aspirating, Myosure™

surpassed the pressure set point more than Truclear™ or Symphion™. Myosure™ averaged the largest deviation from the set point. Elsevier: please spread this chart across 2 columns.

Elsevier: please spread this chart across 2 columns.

Conclusion: All systems provided accurate fluid delivery in response to set pressure in static mode. In dynamic operative conditions (aspiration or resection), ability to control pressure across the systems varied significantly. The Symphion(TM) system had the least amount of variability when responding to pressure and most consistently remained at or below target set pressure. The Myosure(TM) and Truclear(TM) Systems demonstrated more deviations to set pressure for longer durations of time. As the distance of the pressure sensor from the operating device is thought to be an important factor in accurately and rapidly responding to measured pressure, the more consistent pressure achieved with the Symphion(TM) system may be attributed to its internal intrauterine pressure monitor as opposed to the external pressure monitors used in the Myosure(TM) and Truclear(TM) systems.

81 Open Communications 4 - New Instrumentation or Technology
(12:10 PM - 1:10 PM)

12:24 PM – GROUP A

Intrauterine Sonography Guided Transcervical RF-Ablation of Symptomatic Uterine Fibroids – Results of a New Therapeutic Option in a Single Institution



Bends R,¹ Toub D,² Mueller-Lung U,³ Roemer T.¹ ¹Department of Gynecology and Obstetrics, Evangelisches Krankenhaus Köln-Weyertal, Cologne, NRW, Germany; ²Gynesonics, Redwood City, California; ³Department of Radiodiagnosis Köln-Weyertal, Cologne, NRW, Germany

Study Objective: To report the results of intrauterine sonography-guided transcervical radiofrequency ablation of uterine myomata in the initial 25 patients treated in Cologne, Germany.

Design: Case series with up to four years of follow-up.

Setting: A community hospital in Cologne, Germany.

Patients: Women with symptomatic uterine fibroids who desired treatment with the Sonata® System from 2011 through 2015.

Intervention: Radiofrequency ablation of uterine fibroids (FIGO types 1, 2, 3, 4, 2-5) with the Sonata-System. Transcervically inserted, an integrated ultrasound probe enables intrauterine imaging of fibroids, followed by RF-ablation using needle electrodes within the device. Patients desirous of fertility were included.

Measurements and Main Results: 25 patients were treated through 2015. In 5 patients, RF-ablation was combined with standard surgical techniques so as to permit treatment of type 0 or purely subserous myomata; in 20 cases

Average of each brand of device tested in aspiration mode

	Number of times above set point	Total time above pressure set point (secs)	Max above set point (mmHg)	Average above set point (mmHg)	Max below set point (mmHg)	Average below set point (mmHg)
Myosure™	9	23	17.7	4.3	57.8	23.7
Truclear™	5	22	13.1	13.1	50.6	18.8
Symphion™	0	0	0	0	61.8	21.3

During resection, Truclear™ surpassed the pressure set point more than Myosure™ or Symphion™. Myosure™ spent the most time above the pressure set point. Truclear™ averaged the largest deviation from the pressure set point.

Average of each brand of device tested in resection mode

	Number of times above set point	Total time above pressure set point (secs)	Max above set point (mmHg)	Average above set point (mmHg)	Max below set point (mmHg)	Average below set point (mmHg)
Myosure™	6	28	39.0	16.4	44.9	18.7
Truclear™	7	14	40.8	18.3	90.8	26.7
Symphion™	2	4	2.3	1.0	46.7	21.5

RF-ablation was the sole treatment modality. Predominantly type-2 fibroids were ablated, but intramural and transmural myomata were also ablated. The mean diameter of treated fibroids was 2.2 cm \pm 1.5 cm (range 1.0 cm - 8.0 cm). There were no severe adverse events and no cases reminiscent of postembolisation syndroms were encountered. Postablation contrast-enhanced MR was performed in 17 patients and demonstrated significant ablation volumes within targeted fibroids. Scans performed up to six months after ablation revealed fibroid volume reduction. Follow-up evaluations revealed considerable symptom relief. Long-term results of the treated patients and additional treatments from 2016 are pending.

Conclusion: Initial results of transcervical RF ablation of uterine fibroids from a single institution in Cologne demonstrate consistent and sustained symptom relief.

82 Open Communications 4 - New Instrumentation or Technology

(12:10 PM - 1:10 PM)

12:31 PM – GROUP A

Ultrasound Evaluations After Radiofrequency Volumetric Thermal Ablation of Symptomatic Myomas



Lefholz K, Matlock Ob/Gyn, Arlington, Texas

Study Objective: To evaluate the 3-month postoperative transvaginal ultrasound results and the 3-month clinical outcomes after laparoscopic ultrasound-guided radiofrequency volumetric thermal ablation (RFVTA, the Acessa™ Procedure) of uterine myomas.

Design: Post-market, single-center, retrospective chart review.

Setting: Community hospital in the United States.

Patients: Nine self-referred women desiring uterine-conserving treatment of their symptomatic myomas.

Intervention: Laparoscopic ultrasound-guided RFVTA.

Measurements and Main Results: One gynecologic surgeon completed 9 RFVTA procedures on an outpatient basis from March 2015 to December 2015. Patient characteristics were: mean age, 43.5 \pm 7.7 years; mean number of myomas on transvaginal ultrasound (TVUS), 6.1 \pm 3.1, largest myoma diameter (TVUS), 6.6 \pm 2.4 cm. Four of the nine patients (44%) had prior procedures for their myoma symptoms: hysteroscopy with dilation and curettage (n=1), abdominal myomectomy (n=2), and uterine artery embolization (n=1). The most prevalent presenting complaints were heavy menstrual bleeding (100%; n=9), dysmenorrhea (89%; n=8), pelvic discomfort/pain (78%; n=44), and increased abdominal girth (67%; n=6). Total number of treated myomas was 55 and there were no reported device-related adverse events. At the 3-month postoperative visit, all of the patients reported being symptom-free. TVUS indicated a 48.9% reduction in uterine volume from baseline (95% CI, 24.9, 72.9); likewise at 3 months, there was a 48.9% reduction in the number of myomas imaged (95% CI, 11.2, 86.7). No re-interventions for myoma symptoms have been reported.

Conclusion: Early results after RFVTA indicate the procedure's safety and effectiveness for the treatment of a small cohort of patients' symptomatic myomas; these patients will be followed to 6 and 12 months.

83 Open Communications 4 - New Instrumentation or Technology

(12:10 PM - 1:10 PM)

12:42 PM – GROUP B

Improvement in Health Utility After Transcervical Radiofrequency Ablation of Uterine Fibroids with the Sonata System



Huirne J,¹ Brooks E.² ¹Obstetrics and Gynecology, Vrije Universiteit Medisch Centrum, Amsterdam, Netherlands; ²Decision Driver Analytics, Asheville, North Carolina

Study Objective: To establish the improvement in patient health utilities following treatment of symptomatic uterine fibroids with the Sonata™ System.

Design: Prospective, multicenter, multinational, single-arm trial.

Setting: Academic and community hospitals in the United Kingdom (UK), The Netherlands and Mexico.

Patients: Forty-nine women with heavy menstrual bleeding secondary to fibroids who met study inclusion criteria.

Intervention: Transcervical, intrauterine ultrasound-guided radiofrequency ablation with the Sonata System performed on up to 5 fibroids per subject, with individual fibroid diameter ranging from 1-5 cm.

Measurements and Main Results: The EQ-5D-3L descriptive system was utilized to collect patient health status at baseline and at 3 months, 6 months, and 12 months post-procedure. Patient-reported health states at each time point were converted to a single summary index of health utility ranging from 0 (death) to 1.0 (perfect health) using value sets derived using the time-trade off (TTO) methodology; 6 missing values in the UK cohort were imputed using the method of last observation carried forward (LOCF). In the overall cohort, patient health utility increased from a mean of 0.75 at baseline, to means of 0.84, 0.85, and 0.91 at 3 months, 6 months, and 12 months, respectively. The change from baseline at 12 months was statistically significant (P = 0.0001). When stratified by country, the 12-month improvement in health utility remained significant for both the Mexican (n = 22) and Dutch (n = 21) cohorts (P = 0.004 and 0.003, respectively), but not for the UK cohort (n = 6; P = 0.751).

Conclusion: Transcervical radiofrequency ablation of uterine fibroids with the Sonata System resulted in statistically significant 12-month improvements in health utility for the overall patient cohort and for the Mexican and Dutch subpopulations. The overall patient health utility at 12 months (0.91) approached "perfect health" (1.0) in the TTO methodology.

84 Open Communications 4 - New Instrumentation or Technology

(12:10 PM - 1:10 PM)

12:49 PM – GROUP B

Early Results of the SONATA Study: Sonography-Guided Transcervical Ablation of Uterine Fibroids



Roy K,¹ Levine D,² Chudnoff S,³ Mihalov L,⁴ Guido R,⁵ Garza-Leal JG.⁶ ¹Arizona Gynecology Consultants, Phoenix, Arizona; ²Mercy Clinic Minimally Invasive Gynecology, St. Louis, Missouri; ³Montefiore Medical Center, Bronx, New York; ⁴Virginia Mason Medical Center, Seattle, Washington; ⁵Magee-Womens Hospital, Pittsburgh, Pennsylvania; ⁶Hospital Universitario "Dr. José Eleuterio González" de Universidad Autonoma de Nuevo León, Monterrey, Nuevo León, Mexico

Study Objective: To establish the safety and effectiveness of the Sonata™ System in the treatment of symptomatic uterine fibroids.

Design: Prospective, longitudinal, multicenter, single-arm trial.

Setting: Up to 27 clinical sites in the US, Europe and Mexico.

Patients: 147 women with heavy menstrual bleeding secondary to fibroids; a minimum PBAC score of 150 is required for subject inclusion. A sample of 125 subjects is sufficient to detect a reduction in menstrual blood loss at 12 months with a lower confidence limit of \geq 45% and an assumed 60% subject success rate.

Intervention: Transcervical, intrauterine ultrasound-guided radiofrequency ablation performed on up to 10 fibroids per subject ranging from 1-5 cm in diameter as determined by transvaginal sonography. Anesthesia is at the discretion of each investigator and choices include conscious sedation, regional anesthesia and general anesthesia.

Measurements and Main Results: The study is in progress and the current status of the study will be presented. The co-primary endpoints are menstrual blood loss reduction and absence of surgical reintervention. Additional assessments include the UFS-QOL, EQ-5D and Overall Treatment Effect questionnaires, as well as patient satisfaction, safety and reduction in perfused and total fibroid volume.

Conclusion: The SONATA Study is an ongoing clinical trial in the US, Europe and Mexico to confirm safety and efficacy of a new transcervical device that ablates uterine fibroids with radiofrequency energy with built-in intrauterine sonography guidance.

85 Open Communications 4 - New Instrumentation or Technology
(12:10 PM - 1:10 PM)

12:56 PM – GROUP B

Augmented Reality in a Tumor Resection Model



Chauvet P,¹ Collins T,² Debize C,² Bartoli A,² Canis M,¹ Bourdel N.¹

¹Department of Gynecological Surgery, Centre Hospitalier Universitaire, Clermont-Ferrand, Auvergne, France; ²Alcov ISIT, Clermont-Ferrand, Auvergne, France

Study Objective: To develop a new model of the laparoscopic experimental tumor and to evaluate the accuracy of tumor resection, with the use of Augmented Reality.

Design: Prospective, experimental study.

Setting: International Laparoscopic Surgery Centre.

Patients: Porcine (Landrace/Large White-Pietran) kidneys.

Intervention: Alginate was injected ex vivo into the parenchyma of porcine kidneys (2 to 3 pseudotumors). Alginate easily allowed creating 1-3 mm pseudotumors. Kidneys were then imaged by MRI (T1-weighted) in three plans. We improved MRI settings to have a 0,4mm resolution, and pseudotumors were easily identified.

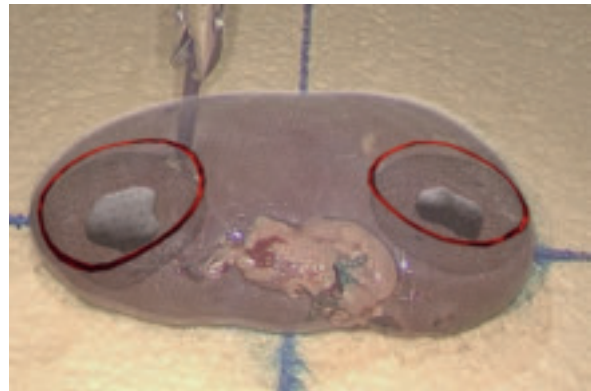


Measurements and Main Results: Augmented Reality (AR) is a technology that can allow a surgeon to see sub-surface structures in an endoscopic video. In our technique, three phases are necessary: Phase 1: segmentation phase: using the MRI images, the kidneys and pseudotumors' surface are delimited to construct a 3D mesh model. Phase 2: the intra-operative shape on the kidney is determined. Phase 3: fusion phase: pre-operative and intra-operative models are fused with the

laparoscopic view. This blending gives the impression that the kidney is semi-transparent and the surgeon can see the exact location of the tumor inside it.

On this 2D image, to improve the depth localization of the tumor the AR software allows to display in real-time kidneys' surface meshes in addition to tumors meshes. Our software also allows displaying the resection margins defined preoperatively by the surgeon (5mm margins in our model).

30 tumors were resected using AR. The mean tumors volume was 0,17cm³ +/-0,12. Our preliminary results showed macroscopically tumor-free margins, for all tumors except one.



Conclusion: Our AR system allows to the accurate localization of very small tumors. Crucial information (resection margins, vascularisation...) can be displayed. Our system could be used in various laparoscopic surgical procedures.

86 Open Communications 4 - New Instrumentation or Technology
(12:10 PM - 1:10 PM)

1:03 PM – GROUP B

Experimental Investigation of the Effects of 3 Different Electrosurgery Units' Monopolar and Bipolar Current Modalities on Uterus



Usta T, Ozkaynak A, Cakir OO, Kahraman A, Karacan T, Kaya E.
Obstetrics & Gynecology, Bagcilar Education and Research Hospital, Istanbul, Bagcilar, Turkey

Study Objective: To investigate effects of 3 different electrosurgical generators on uterine tissue.

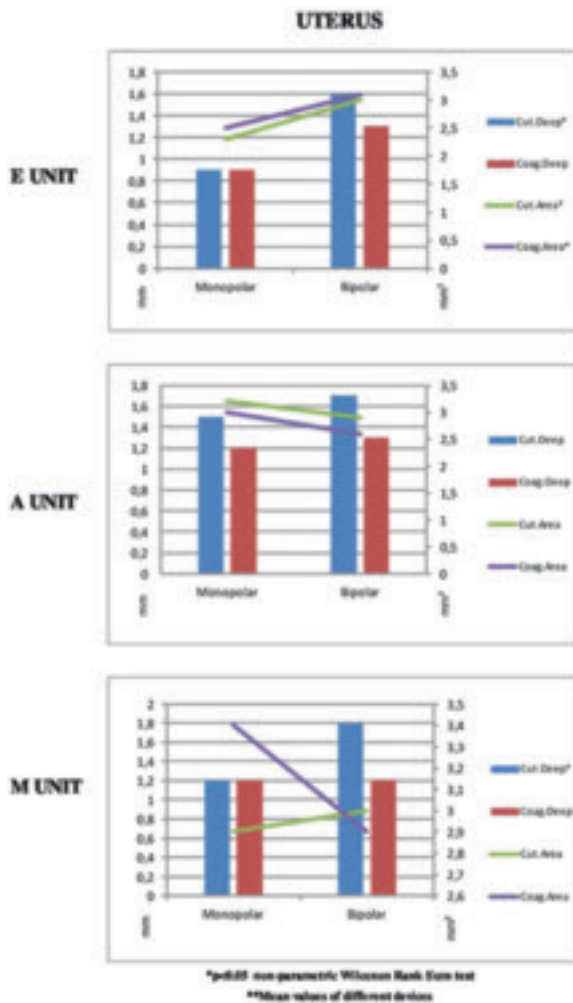
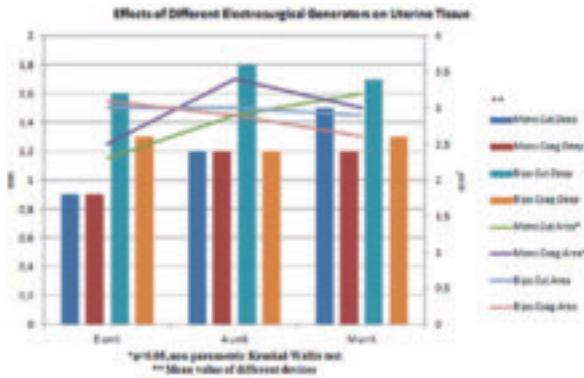
Design: Double-blind experimental prospective study.

Setting: Training and Research Hospital.

Patients: N/A.

Intervention: The experiment conducted on female Wistar Hannover rats. The number required to obtain valid results were 10 rats. Alsa Excell 350 MCDSe (Alsa Apparecchi Medicali S.R.L, Italy) (A unit), Meditom DT-400P (Daiwha Corp. Ltd. Seoul, Korea) (M unit) and ERBE Erbetom VIO 300D (ERBE Elektromedizin GmbH, Tübingen, Germany) (E unit) electrosurgery units were used. 3 different electrosurgery units' monopolar and bipolar current modalities were used to investigate the effects on rat uterus. Spread and maximum depth of thermal injury on tissue, applied only 3 seconds, assessed among each device's different energy modalities. [monopolar cutting area and depth: (mono.cut.area, mono.cut.deep), monopolar coagulation area and depth: (mono.coag.area, mono.coag.deep), bipolar cutting area and depth: (bipo.cut.area, bipo.cut.deep), bipolar coagulation area and depth: (bipo.coag.area, bipo.coag.deep)]. Monopolar pencil and bipolar forceps were used.

Measurements and Main Results: Mono.cut.area and mono.coag.area current forms' effects on uterine tissue of all 3 devices were statistically significant ($\chi^2=11.838$, $p=.003$ ve $\chi^2=8.540$, $p=.014$).



When compared with other devices, A unite created the largest and deepest thermal injury on tissue. Among 3 devices, bipolar cutting current form was the modality with deepest tissue injury. Additionally, bipolar current forms were related with deeper tissue injury than monopolar current forms.

Conclusion: Every device has a different effect on uterine tissue in spite of the use of same power unite (watt) and same instruments. In contrast to literature reports, bipolar current forms were observed to create deeper tissue injury when compared with monopolar current forms.

87 Open Communications 5 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:10 PM – GROUP A

Evolution of a Safer Laparoscopic Entry Utilizing a Novel Stepwise Closed Technique



Vilos GA,¹ Vilos AG,¹ Abu-Rafea B,¹ Ternamian A.² ¹Obstetrics and Gynecology, Western University, London, Ontario, Canada; ²Obstetrics and Gynecology, University of Toronto, Toronto, Ontario, Canada

Study Objective: Since over 50% of major laparoscopic injuries occur during the initial entry resulting in significant morbidity, mortality and medicolegal issues our objective was to describe a simple stepwise technique to minimize major intra-abdominal injuries during closed laparoscopic access.

Design: Prospective study involving 5000 women who underwent laparoscopy using a novel stepwise approach to closed entry technique, including measurements of umbilical displacement (116), and number of entry attempts (283) in 399 women.

Setting: University affiliated teaching hospital.

Patients: Women undergoing laparoscopic surgery for various gynecologic pathology.

Intervention: Our novel stepwise approach includes: 1) manual displacement of the umbilicus caudally, 2) incise umbilicus at base longitudinally with No. 12 blade, 3) insert Veress needle perpendicularly, 4) use Veress initial pressure (VIP < 10 mmHg) as an indicator of correct Veress placement, 5) insufflate to 25mmHg pressure (HIP-25), 6) use EndoTip (Ternamian) trocar-less cannula for visual entry.

Measurements and Main Results: In 116 consecutive women, the mean (+/- SD) umbilical displacement was 6.1(1.3)cm, (range 2-9cm) and correlated with height (r = -0.3, p=0.001) and BMI (r = 0.29, p=0.001). In a randomized comparison of 283 women (umbilicus-146, LUQ-137), successful Veress placement for 1st, 2nd, 3rd attempt was for umbilical (82.8%, 7.6%, 2.8%) and LUQ (90.5%, 8.0%, 0.75%), respectively (Cochran-Armitage Trend test 0.003). Conversion from umbilicus to LUQ and LUQ to umbilicus occurred in 10(6.9%) and 1(0.75%) cases, respectively (x2 = 0.025). Entry was successful in all cases with the EndoTip cannula at a transient intraperitoneal pressure of 25 mmHg.

Conclusion: With this novel technique, we have encountered no major injuries to bowel or vessels in over 5000 laparoscopic entries.

88 Open Communications 5 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:17 PM – GROUP A

The Recent Trends Towards Minimally Invasive Surgery for Hysterectomy Performed for Uterine Cancer and Its Association with Body Mass Index and Perioperative Morbidity



Al Sawah E, Salemi JL, Anthony IN, Hoffman M, Mikhail E.¹ ¹Obstetrics and Gynecology, University of South Florida/Morsani College of Medicine, Tampa, Florida

Study Objective: To study temporal trends of hysterectomy routes performed for uterine cancer, and its relationship with body mass index (BMI), and perioperative morbidity.

Design: A retrospective review of the American College of Surgeons-National Surgical Quality Improvement (ACS-NSQIP) database during 2005-2013 was conducted. Clinical eligibility criteria were identified using appropriate ICD-9 and CPT codes. The surgical route was classified into four groups; total abdominal hysterectomy (TAH), total vaginal hysterectomy (TVH), laparoscopic assisted vaginal hysterectomy (LAVH), and total laparoscopic hysterectomy (TLH) including both conventional and robotically-assisted. Patients were then sub-grouped according to BMI.

Setting: NA.

Patients: A total of 7199 patients were included in the analysis.

Intervention: NA.

Measurements and Main Results: The proportion of TAH decreased from 67% in 2008 to 22% in 2013, whereas the proportion of TLH has increased

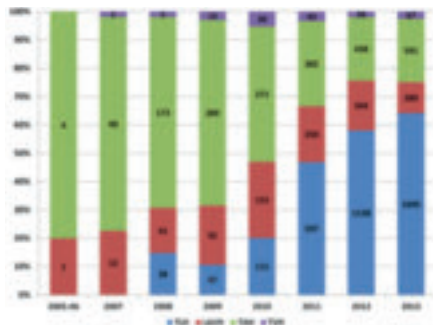


Figure 1. Frequency and proportion of different types of hysterectomies performed among patients with a diagnosis of uterine cancer, ACS NSQIP, 2015-2013 TAH = total abdominal hysterectomy; TVH = total vaginal hysterectomy; LAVH = laparoscopic vaginal hysterectomy; TLH = total laparoscopic hysterectomy

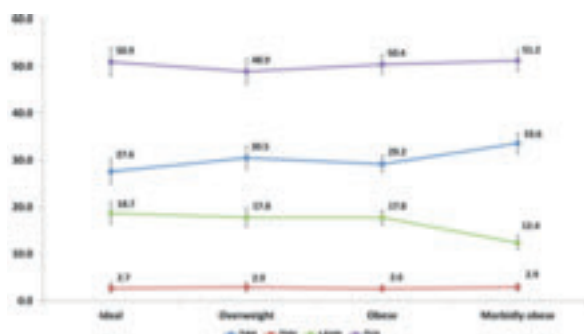


Figure 2. Rates of different types of hysterectomy performed among patients with a diagnosis of uterine cancer, by patient body mass index, ACS NSQIP, 2005-2013 TAH = total abdominal hysterectomy; TVH = total vaginal hysterectomy; LAVH = laparoscopic vaginal hysterectomy; TLH = total laparoscopic hysterectomy

from 15% in 2008 to 64% in 2013. The utilization of the vaginal routes was substantially lower; the proportion of LAVH ranged from 11-27% while the proportion of TVH was consistently 5% or less throughout the study period. TLH was the most commonly performed route regardless of BMI, with proportions of 50.9%, 48.9%, 50.4% and 51.2% in ideal, overweight, obese, and morbidly obese patients, respectively.

The median operative time for TAH was 2.2 hours compared to 2.7 hours for TLH ($p < 0.01$). The median length of stay for TAH was 3 days compared to 1 day for TLH ($p < 0.01$). The percentage of patients with a composite adverse outcome (including transfusion, deep venous thrombosis, and infection) was 17.1 versus 3.7 for TAH and TLH respectively ($p < 0.01$).

Conclusion: During the last decade, TLH has been more frequently performed in women with uterine cancer, regardless of BMI. TLH offered a significant decrease in hospital stay and perioperative morbidity despite an increase in length of operative time.

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12:24 PM – GROUP A

New Case-Complexity Score for Benign Laparoscopic Hysterectomy



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Study Objective: Devising a score using preoperative variables and concomitant intraoperative procedures that would adequately reflect case complexity.

Design: Retrospective cohort analysis.

Setting: Urban teaching university hospital.

Patients: 196 patients receiving robotic or laparoscopic hysterectomy for benign indications by fellowship trained minimally invasive gynecologists.

Intervention: Robotic or laparoscopic hysterectomy.

Measurements and Main Results: The regression model predicting operative time using age, race, uterine weight, history of myomectomy, ovarian cystectomy, lysis of adhesions, ureterolysis, excision of endometriosis, and uterine artery ligation was significant ($F=16.90$, $p < .0001$) with $R^2 = .31$. The variables that were significantly independently associated with operative time included log uterine weight ($p < .0001$), history of myomectomy ($p=.014$), ovarian cystectomy ($p=.061$), lysis of adhesions ($p=.013$), and excision of endometriosis ($p=.027$). Parameter estimates for each of these predictors were used to calculate a complexity score. This score was strongly correlated with operative time (Pearson $r = .55$, $p < .0001$). The association of the new complexity score with estimated blood loss (EBL) (Spearman $r = .32$, $p < .0001$), length of stay (LOS) (Spearman $r = .15$, $p=.038$), and cost decile (Spearman $r = .21$, $p=.0035$) were all significant. The Spearman r 's for the uterine weight > 250 g criterion with operative time, EBL, LOS, and cost decile were .41, .20, .07, and .15.

Conclusion: In addition to uterine weight, history of myomectomy and several concomitant procedure variables (ovarian cystectomy, lysis of adhesions, excision of endometriosis), significantly affect complexity. The current model ($<$ or > 250 g) does not adequately reflect case complexity.

90 Open Communications 5 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:31 PM – GROUP A

The Effect of Operative Time on Outcomes in Minimally Invasive and Abdominal Myomectomy: An Analysis of the American College of Surgeons' National Surgical Quality Improvement Program (ACS NSQIP)



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Study Objective: To determine the effect of operative time (ORT) on perioperative morbidity following minimally invasive (MIS) and abdominal myomectomy, and to elucidate whether there is an ORT at which MIS myomectomy becomes inferior to abdominal myomectomy.

Design: Retrospective cohort (Canadian Task Force classification II-2).

Setting: ACS NSQIP database.

Patients: Women undergoing myomectomy from 2005 to 2014 were identified by CPT code.

Intervention: Myomectomy cases were stratified by approach and 90 minute intervals. Outcomes were analyzed by ORT and approach.

Measurements and Main Results: At total of 6417 myomectomies were identified, of which 2644 (41.2%) were MIS, 3747 (58.4%) were abdominal, and 26 (0.4%) were conversions. The rates of pulmonary complications, venous thromboembolic events, sepsis, hemorrhage, reoperation, and hospital stay > 3 days increased with ORT. Longer ORT was associated with African American race, higher body mass index (BMI), lower preoperative hematocrit, hypertension, older age, large and/or numerous fibroids, and an MIS approach. Overall morbidity was greater in abdominal cases (15% vs. 6%), with the highest rates in converted cases (23%; $p < .0001$). Women undergoing MIS were more likely to be Caucasian, older, have a lower BMI, higher hematocrit, and were less likely to have hypertension or large and/or numerous fibroids. After adjusting for confounders, mean ORT in minutes (95% confidence interval (CI)) was 112.9 (110.25-115.62) for abdominal, 154.33 (150.25-158.51) for MIS, and 156.10 (126.88-192.06) for conversions. An MIS approach was protective against complications until cases reached ≥ 270 minutes, at which point the

odds of complications increased compared to abdominal cases < 90 minutes (OR 3.67 95% CI (2.38-5.64), $p < .0001$). Of MIS cases, 88% were completed in < 270 minutes.

Conclusion: ORT was predictive of complications for both MIS and abdominal myomectomies. MIS procedures had superior outcomes up to 4.5 hours. Careful patient counseling and preparation to increase surgical efficiency should be prioritized for either approach.

91 Open Communications 5 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:42 PM – GROUP B

Improving Operative Room Costs and Efficiency Through Review of Surgeon Preference Cards



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Study Objective: To reduce operative costs involved in the purchase, package, and transport of unnecessary supplies by improving the accuracy of surgeon preference cards.

Design: Quality improvement.

Setting: Gynecologic surgery suite at an academic medical center.

Patients: Twenty-one sub-specialist and generalist gynecologic surgeons.

Intervention: The preference cards of up to the five most frequently performed procedures per surgeon were selected. A total of 81 cards were distributed to 21 surgeons for review and editing. Changes to the cards were communicated to the OR charge nurse and finalized.

Measurements and Main Results: Fourteen surgeons returned 48 reviewed cards, 39 of which had changes. A total of 109 disposable items were removed from these cards, totaling \$767.67. Four reusable instruments were also eliminated. Twenty-two items were requested by the surgeon to be available, but not routinely placed in the room at the start of each case, totaling \$6,293.54. Total cost reduction was \$7,061.21. The average potential reduction in cost per card was \$147.10 for all supplies. For disposables alone, the reduction was \$16 per card. The return rate of unused supplies to storage decreased from 0.899 to 0.887 per case.

Conclusion: Surgeon preference cards serve as the basis for vital economic decisions about the purchase, storing, packing and transporting of operative instruments and supplies. However, surgeons at our institution are often only passively involved in the management of their case cards, despite having the most immediate knowledge regarding needed instruments. Over time, items are added to cards without considering which items should be removed. A one-time surgeon review of cards resulted in a decrease in the number of disposable and reusable instruments that must be stocked, transported, counted in the OR, or returned, potentially translating into cost savings. Periodic surgeon review of preference cards may reduce waste and provide ongoing cost savings.

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12:49 PM – GROUP B

Lower Limb Compartment Syndrome Associated with Laparoscopic Surgery: What a Gynaecologist Needs to Know



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Study Objective: To conduct a literature review of the risks of lower limb compartment syndrome (LLCS) in patients undergoing laparoscopic

surgery. This is to identify the pathophysiology, risk factors and prevention strategies behind this complication.

Design: Systematic literature review.

Setting: Tertiary referral endometriosis centre.

Patients: Reported cases of lower limb compartment syndrome in patients undergoing laparoscopic surgery.

Intervention: N/a

Measurements and Main Results: The reported incidence of acute limb compartment syndrome in open pelvic surgery is approximately 1 in 3500. The incidence in laparoscopic surgery is unknown and is likely to be higher and compounded by the use of lithotomy position with or without the Trendelenburg position.

Acute lower limb compartment syndrome (LLCS) occurs when an increase in tissue pressure within an enclosed compartment causes a reduction in blood flow to the muscles and nerves within, leading to ischaemia and necrosis, potentially leading to rhabdomyolysis, renal failure, sepsis and even death.

Our literature review identified certain risk factors including prolonged operating time, use of Trendelenburg position, external pressures from compression stockings, intraoperative hypotensions, raised intra-abdominal pressures in laparoscopic surgery and pre-existing vascular disease.

In experimental studies for every centimeter of leg elevation above the right atrium, the mean arterial pressure in the lower limbs is reduced by 0.78mmHG. In addition in a large review of 65 urological cases where LLCS occurred the majority of cases occurred where the procedure lasted > 4 hours.

Conclusion: Laparoscopic gynaecological procedures lasting > 4 hours is common place in a tertiary referral endometriosis centre. Based on our review of literature we would make recommend identification of patients at higher risk of LLCS, avoid prolonged time in lithotomy and introduction of intra-operative breaks to reposition and mobilise the legs at 2-3 hourly intervals, avoid dorsiflexion of the ankle and to raise staff awareness to enable early diagnosis and treatment of this complication.

93 Open Communications 5 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:56 PM – GROUP B

Physician Education Significantly Reduces Cost of Hysterectomy



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Study Objective: To determine if providing surgeons with their instrumentation costs for total laparoscopic hysterectomy (TLH) would reduce costs.

Design: Prospective Cohort Study.

Setting: Academic affiliated community hospital.

Patients: Patients who underwent TLH between April 2014 and March 2015 by a surgeon who had performed at least 10 TLHs during that time and those who underwent TLH with the same cohort of surgeons from July 2015 to September 2015.

Intervention: Itemized cost data from April 2014 to March of 2015 was provided to each surgeon to highlight areas of potential cost savings.

Measurements and Main Results: Thirteen surgeons met inclusion criteria. They performed 271 hysterectomies with an average cost of instrumentation of \$1539.47 +/- \$294.16 and an average operating room time of 178 +/- 26 minutes. Bipolar instrument choice represented 37% of baseline cost, followed by 10% for trocar, 9% for cuff closure, and 8% for uterine manipulator. This same group of surgeons performed a total of 69 hysterectomies in follow up with an average cost of \$1282.62 +/- \$235.03 and average OR time of 163 +/- 50 min. Cost reduction of \$256.85 +/- \$190.69 was obtained ($p=0.022$) with no significant change in operating room time. Bipolar instrument cost decreased by \$130.02 +/-

\$125.02 representing 51% of the cost savings (p=0.021). Trocar, cuff closure and uterine manipulator did not represent significant sources of cost savings on average, but did represent a source of cost savings for some surgeons individually.

Conclusion: Given adequate education about the products available for use in their institution, providers make informed decisions regarding their choice of instrumentation enabling them to directly impact the cost of their total laparoscopic hysterectomies resulting in cost savings.

94 Open Communications 5 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

1:03 PM – GROUP B

Myomectomy Practice Patterns and Outcomes Following the Food and Drug Administration Statement on Morcellation



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Study Objective: To determine the impact of the FDA morcellation statement upon practice patterns and perioperative outcomes in patients undergoing myomectomy.

Design: Retrospective cohort study.

Setting: Single academic institution.

Patients: Patients undergoing myomectomy performed for benign indication from April, 2012 through October, 2015.

Intervention: Patient characteristics, surgical practice patterns, and outcomes were examined over the 15 months immediately preceding and following the FDA power morcellation statement released in April, 2014.

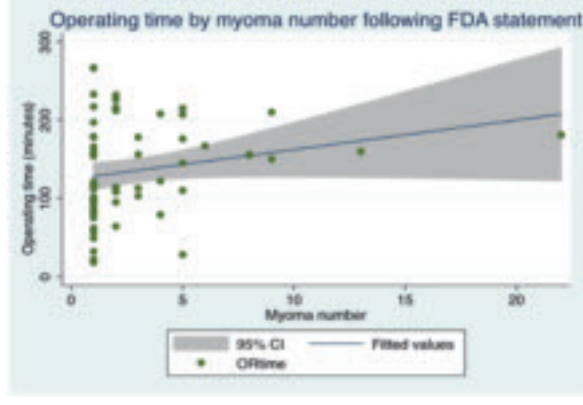
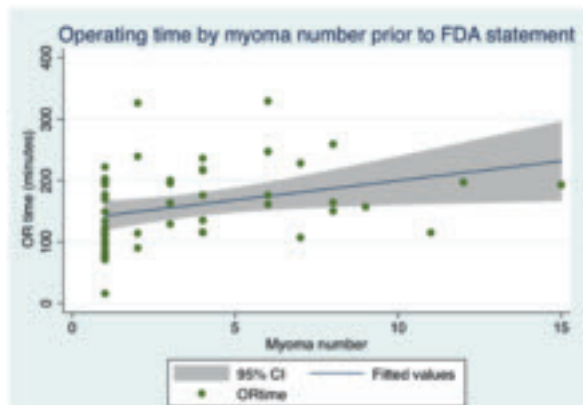
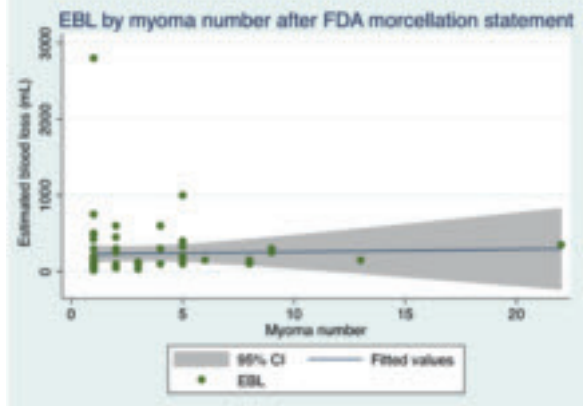
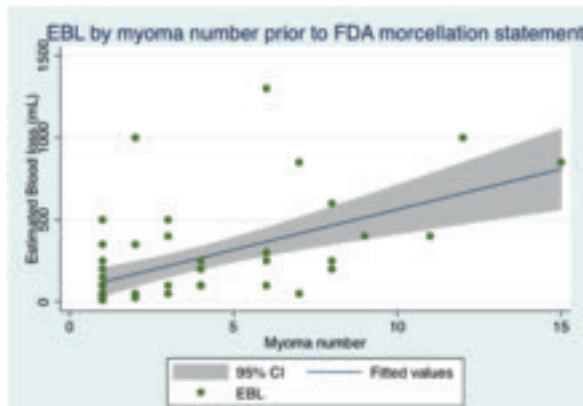
Measurements and Main Results: A total of 118 myomectomies were identified and eligible for inclusion (52 pre-FDA statement, 66 post-FDA statement). Demographic features were similar in both the pre- and post-FDA morcellation statement groups.

Conclusion: Comparison of myomectomy patterns following the FDA statement on power morcellation shows a significant decrease in overall morcellation use and OR time with similar patient outcomes and a trend towards increased abdominal myomectomies. Differing intra-operative blood loss and operative time in the pre vs post-FDA statement groups may be related to changes in surgical approach following cessation of power morcellation.

Patient characteristics

	Pre FDA ban (n=52)	Post FDA ban (n=66)	p value
Age (years)	34.9	36.8	0.18
Body Mass Index (kg/m ²)	30.6	30.1	0.78
Race			
White	22 (42.3%)	34 (51.5%)	0.59
Black	28 (53.9%)	30 (45.5%)	
Asian	2 (3.8%)	2 (3.0%)	
Premenopausal	51 (98.1%)	66 (100%)	0.25
Symptoms			
Bleeding related	36 (69.2%)	50 (74.6%)	0.51
Bulk related	34 (65.4%)	44 (65.7%)	0.97
Infertility related	7 (13.5%)	12 (17.9%)	0.51

When comparing the pre- vs post-FDA statement groups, there is a statistically lower percentage of patients undergoing morcellation of any type, 44.2% vs 27.3% (p=0.05), and a nonsignificant trend in pre- vs post-FDA groups towards more abdominal 57.7% vs 68.2% (p=0.24) and fewer laparoscopic 40.4% vs 21.2% (p = 0.24) surgeries



Perioperative Workup and Outcomes

	Pre FDA ban (n=52)	Post FDA ban (n=66)	Total	p value
Surgical Workup				
MRI	27 (51.9%)	36 (54.5%)		0.78
Endometrial biopsy	5 (9.6%)	14 (21.2%)		0.08
Surgical Approach				
Abdominal	30 (57.7%)	45 (68.2%)	75	0.24
Laparoscopic	21 (40.4%)	12 (21.2%)	35	0.24
Vaginal	1 (1.9%)	7 (10.6%)	8	0.03
Estimated blood loss (mL)	247	233		0.83
Transfusion	2 (3.8%)	0 (0%)		0.18
Morcellation (all types)	23 (44.2%)	18 (27.3%)		0.05
Power	14	3	17	
Hand	9	15	24	
None	29	48	77	
Myoma number removed	3.58	2.82		0.23
Myoma weight (grams)	416.3 (n=35)	421.1 (n=55)		0.23
Malignancy	0 (0%)	2 (3.0%)		0.51
Operative time (minutes)	159.7	135.4		0.047
Operative time excluding vaginal myomectomy	162.7	143.8		0.11
Postoperative				
Length of stay (days)	2.37	2.34		0.89
ER visit/readmission	6 (11.5%)	5 (7.5%)		0.45

Pre- vs post-FDA groups show similar myoma number removed 3.58 vs 2.82 ($p=0.23$) and myoma weight 416.3g vs 421.1g ($p=0.96$), respectively. Operating time is statistically longer in pre- vs post-FDA groups 159.7 vs 135.4 minutes ($p=0.047$), while similar length of hospitalization 2.37 vs 2.34 days ($p=0.89$), and 30 day ER presentation 11.5% vs 7.5% ($p=0.45$). Linear regression demonstrates that estimated blood loss and operating time are positively correlated with the number of myomas removed in the pre-FDA group, though these factors are not significantly correlated in the post-FDA group

95 Open Communications 6 - New Instrumentation or Technology (12:10 PM - 1:10 PM)

12:10 PM – GROUP A

Comparison of Bipolar Electrosurgical Devices for Use in Gynecologic Laparoscopy

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Study Objective: Compared two laparoscopic bipolar electrosurgical devices used in total laparoscopic hysterectomy (TLH). An articulating advanced bipolar device (ENSEAL[®], Ethicon) and an electrothermal bipolar vessel sealer (Ligasure[™], Covidien) were analyzed for differences in surgical outcomes, including ease of instrument use, operative time, estimated blood loss (EBL), additional costs, and perioperative complication rates.

Design: Single institution, single-blinded, randomized controlled trial. Patients followed 1 month postoperatively.

Setting: Division of Minimally Invasive Gynecologic Surgery in a university hospital.

Patients: Eligibility required planned TLH, over 18 years old, and able to give informed consent; exclusions were severe endometriosis, known gynecologic malignancy, and conversion to laparotomy. 178 patients screened, 142 enrolled, 2 withdrawn, and 140 completed the study.

Intervention: Preoperative randomization to articulating advanced bipolar device or electrothermal bipolar vessel sealer.

Measurements and Main Results: Primary surgeon completed an ergonomic assessment tool, raw NASA-Task Load Index (RTLX), to detect differences in workload. Recorded time to ligation of the bilateral uterine arteries (T1), EBL, and complications (including device failure, blood transfusion or other injury). Baseline covariates analyzed using T-test Chi square for normally-distributed data and Mann-Whitney U-test for non-parametric data. Groups matched on age, BMI (body mass index), parity, prior surgery, uterine weight, race, indication, pathology, and comorbidities.

Average RTLX score by Device

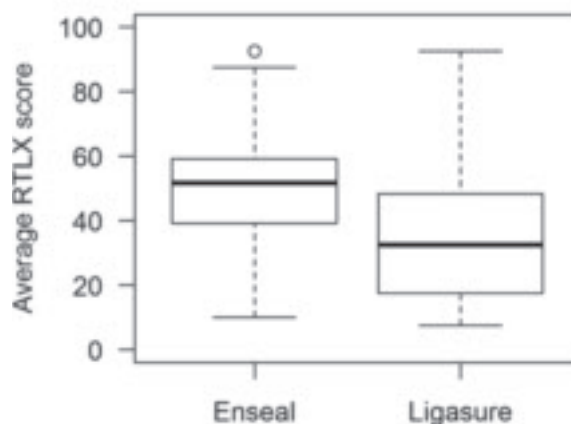


Table 1

	Enseal (n = 70)		Ligasure (n = 70)		Test for Difference	
	Mean +/- Std Dev (%)	Median (IQR)	Mean +/- Std Dev (%)	Median (IQR)	T-test Chi square	Mann-Whitney U-test
Baseline Covariates						
Age	41.6 +/- 6.9		41.3 +/- 7.7		0.8356	
BMI (kg/m ²)	35.6 +/- 10.1		34.3 +/- 9.1		0.4211	
Parity		2 (1-3)		2 (1-3)		0.3445
Prior laparoscopies		1 (0-1)		1 (0-2)		0.1345
Prior laparotomies		0 (0-1)		0 (0-1)		0.2117
Uterine weight (grams)		165 (11.5-289.8)		148.7 (84.2-261.5)		0.3445
Study Objectives						
RTLX average		51.7 (39.6-59)		32.5 (17.7-48.1)		<0.0001
T1 (minutes)	(n=69)	35 (25-48)	(n=70)	30 (22-40.8)		0.0281
EBL (mL)		100 (50-200)		100 (50-150)		0.5823
Any complications	1 (1.4%)		2 (2.9%)		1.0000	
Device failures	10 (14.3%)		0 (0%)		0.0031	

Statistically-significant differences in higher RTLX scores ($p=[t]0.0001$) and device failures ($p=0.0031$) for the articulating device. Noted longer time to ligation of the bilateral uterine arteries ($p=0.0281$) for the articulating device.

Table 2

	Coefficient	LCI	UCI	p-value
Intercept	13.13			
Enseal device	15.04	8.83	21.25	<0.0001
T1	0.23	0.04	0.42	0.0191
Device failures	2.18	-9.87	14.23	0.7215
Uterine weight	0.011	0.000	0.023	0.0485
BMI	0.29	-0.02	0.6	0.0669

RTLX = raw Task Load Index. LCI = lower-end confidence interval. UCI = upper-end confidence interval. T1 = time to ligation of bilateral uterine arteries. BMI = body mass index.

No significant differences seen in EBL or additional costs. Multivariate regression analysis of average RTLX score revealed statistically-significant differences in articulating device ($p<0.0001$) and T1 ($p=0.0162$), however complications were not significant due to confounding with T1.

Conclusion: The articulating advanced bipolar device was shown to have a statistically-significant increase in surgeon-perceived workload and rate of device failure when used in TLH; however, the devices had equivalent outcomes and additional costs.

96 Open Communications 6 - New Instrumentation or Technology (12:10 PM - 1:10 PM)

12:17 PM – GROUP A

Laparoscopic Radiofrequency Volumetric Thermal Ablation (RFVTA) of Symptomatic Myomas and Laparoscopic Myomectomy (LM): Clinical Outcomes at Three Years from a Randomized Trial of Uterine-Sparing Techniques



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Study Objective: Compare subject-reported outcomes at 36 months post RFVTA and LM.

Design: 1:1 Randomized, prospective, single-center, longitudinal analysis of RFVTA to LM at 36 months of follow-up.

Setting: University hospital in Germany.

Patients: Fifty premenopausal women ≥ 18 years old with symptomatic myomas who desired uterine conservation and reproductive function

and who were indicated for surgical intervention for their myoma symptoms.

Intervention: RFVTA or laparoscopic myomectomy.

Measurements and Main Results: Consented subjects were randomized (1:1) intraoperatively to RFVTA or LM after laparoscopic (contact) ultrasound mapping of their myomas. Thirty-five subjects (RFVTA: n=18; LM: n=17) have 36-month postoperative evaluations based on validated questionnaires. Mean transformed symptom severity scores improved (decreased) for the RFVTA subjects by -52.9% from the mean baseline value to 16.8 ± 14.8 [95% CI: 9.5, 24.2]. Over the same period, mean transformed symptom severity scores improved for the LM subjects by -52.1% to 19.7 ± 18.0 [95% CI: 10.1, 29.3]. At 36 months, health-related quality-of-life (HRQL) scores improved (increased) over baseline for RFVTA subjects by 8.2% to 88.2 ± 7.6 [95% CI: 84.4, 92.0] and, for LM subjects, by 24.5% to 85.6 ± 22.6 [95% CI: 73.6, 97.7]. Mean EQ-5D scores improved (increased) from baseline for RFVTA subjects by 18.0% to 84.9 ± 20.4 [95% CI: 76.8–93.0] and for LM subjects by 17.1% to 78.9 ± 21.2 [95% CI: 67.6, 90.2]. There were 4 pregnancies with 3 deliveries and 1 pending of healthy infants in the RFVTA group and 7 pregnancies with 6 deliveries of healthy infants in the LM Group. RFVTA (64.3%) and LM (78.6%) subjects were moderately to very satisfied with their treatment. None of the differences was statistically significant.

Conclusion: Early three-year data suggest the equivalence in the clinical efficacy of RFVTA to laparoscopic myomectomy. Additional study participants will be followed to their 3-year postoperative visit and a final data analysis will be prepared by August 2016.

97 Open Communications 6 - New Instrumentation or Technology (12:10 PM - 1:10 PM)

12:24 PM – GROUP A

Contained Power Morcellation versus Transvaginal Extraction for Myoma Retrieval: A Prospective Comparison of Perioperative Outcomes



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Study Objective: To compare the perioperative outcomes of transvaginal extraction (TVE) and contained power morcellation within an insufflated isolation bag (CPM) for myoma retrieval after laparoscopic myomectomy.

Design: Prospective observational study.

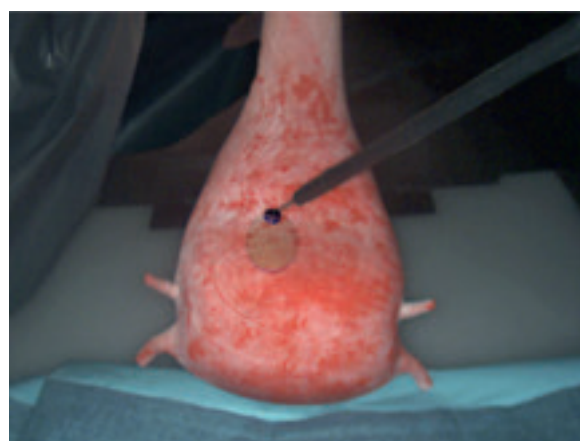
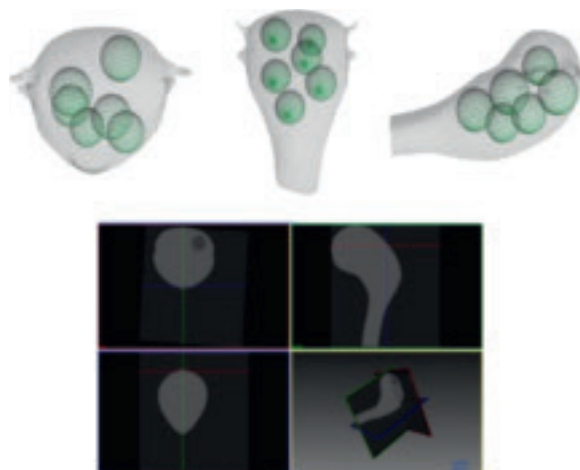
Setting: Tertiary-care university-based teaching hospital and academic affiliated private hospital.

Patients: Seventy-six women undergoing laparoscopic myomectomy between November 2014 and March 2016.

Intervention: Clinical and perioperative outcomes among patients who had TVE were compared to outcomes among patients who had CPM. The specimen retrieval was performed via the vaginal extractor (CCL, Karl Storz Endoskope, Tuttlingen, Germany) or contained power morcellation within the insufflated isolation bag (Versator™ morcellator and Morsafe™ bag, Veol Medical Technologies, Mumbai, India).

Measurements and Main Results: A total of 78 patients were included. CPM used in 28 patients, and TVE in 48. Baseline characteristics were comparable between the groups. Main myoma diameter and total myomectomy specimen weight were significantly different between the groups [mean(sd); 4.9(2) cm in TVE vs. 8.8(3)cm in CPM, $p < 0.001$; 65(72) gram in TVE vs. 95(109) gram in CPM, $p < 0.001$, respectively]. Total operation time was significantly longer in CPM group [mean(sd) in minutes; 88(35) vs. 129(68), $p = 0.009$]. Mean duration required for the placement of the isolation bag into the abdomen was 9.7 minutes. On the contrary, mean duration for the placement of vaginal extractor was fairly lower (0.4 minutes). Blood transfusion was required and in one patient, the isolation bag was disrupted. There was no operation-related complication and case of malignancy. The visual analogue scale pain score and analgesic requirement were significantly higher in the CPM group compared with patients in the TVE group ($p = 0.02$ for both).

Conclusion: TVE can easily be used in nulliparae. For myomas above 8 cm, TVE with morcellator knife can be considered as a feasible retrieval method. Compared to CPM, TVE is associated with shorter operative time and less postoperative pain.



98 Open Communications 6 - New Instrumentation or Technology (12:10 PM - 1:10 PM)

12:31 PM – GROUP A

Augmented Reality Evaluation of Potential Benefits for Myomectomy in an Experimental Uterine Model



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Study Objective: To study the accuracy of myoma localization using a new AR system compared to MRI-only localization.

Design: AR is a surgical guidance technology that enables important sub-surface structures to be visualized in endoscopic images. AR has been used for other organs, but never in gynecology and never with a very mobile organ like the uterus. We have developed a new AR approach specifically for uterine surgery.

Setting: International Laparoscopic Surgery Centre

Patients: 10 residents were asked to localize 6 myomas (Figure 1) (on a uterine model into a laparoscopic box) when either using AR (Figure 2), or in conditions that simulate a standard method (only the MRI was available).

Intervention: Myomas were randomly divided in two groups: Control group (MRI only, AR not activated); AR group (AR activated).

Measurements and Main Results: Software was used to automatically measure the distance between the point of contact on the uterine surface and the myoma. We compared these distances to the true shortest distance to obtain accuracy measures. The time taken to perform the task was measured and an assessment of the complexity was performed. The mean accuracy in the control group was 16.80mm [0.1-52.2] versus 0.64mm [0.01-4.71] with AR. In the control group the mean time to perform the task was 18.68 [6.4-47.1] seconds compared to 19.6 [3.9-77.5] seconds with AR. The mean score of difficulty (evaluated for each myoma) was 2.36 [1-4] vs 0.87 [0-4] respectively for the control and the AR group.

Conclusion: We developed an AR system for very mobile organ. This is the first user study to quantitatively evaluate an AR system for improving a surgical task. AR improves localization accuracy of myomas in our model.

99 Open Communications 6 - New Instrumentation or Technology (12:10 PM - 1:10 PM)

12:42 PM – GROUP B

Gaining Proficiency with New Technology: Ten Surgeons' Early Experience with Laparoscopic Ultrasound-Guided Radiofrequency Volumetric Thermal Ablation of Uterine Myomas (RFVTA, the Acessa™ Procedure)



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Study Objective: To evaluate the intraoperative and near-term postoperative outcomes from laparoscopic radiofrequency volumetric

thermal ablation (RFVTA) of uterine myomas as conducted by gynecologic surgeons new to the procedure and to report on the surgeons' perspectives.

Design: Post-market, prospective, single-arm, multicenter analysis of operative and 4–8 week postoperative outcomes after laparoscopic ultrasound-guided RFVTA of symptomatic myomas and analysis of surgeon responses recorded in procedure evaluation forms.

Setting: Community and University Hospitals in the United States and Canada.

Patients: Forty self-referred premenopausal, menstruating women ≥ 18 years old, having symptomatic myomas <10 cm in greatest diameter (preoperative transvaginal ultrasound) and desiring uterine-conserving treatment.

Intervention: Laparoscopic ultrasound-guided RFVTA.

Measurements and Main Results: Ten gynecologic surgeons without prior RFVTA experience completed 40 RFVTA outpatient procedures; 37 were performed with a trained proctor. Mean procedure time was 1.9 ± 1.0 h and tended to be shorter than the mean procedure time in the pivotal premarket study (2.1 ± 1.0 h). Post hoc analysis showed statistically significant difference in the largest myoma diameters (measured by laparoscopic ultrasound) between this study (6.03 ± 1.77 cm) and the pivotal trial (4.38 ± 1.75 cm) [$p < .001$, t-test and Wilcoxon test]. Estimated mean blood loss for all patients was 53 ± 169 mL (median, 10 mL; range, 0–1000 mL) ($n=35$). Mean hospitalization time (start of anesthesia to discharge from the hospital) was 6.8 ± 3.2 h ($n=34$). There were no device-related adverse events. Two surgical complications occurred: a 1-cm uterine serosal laceration related to uterine manipulation and 1000-mL blood loss due to laceration of uterine-omental adhesions requiring laparoscopic suturing. Five surgeons voluntarily completed the procedure evaluation forms after 2–3 cases and five after 4–5 cases. The surgeons reported no problems with the device.

Conclusion: RFVTA can be safely learned and adopted by gynecologic surgeons under preceptorship after 2–5 cases. Future studies will provide more information on long-term results as well as device-related events for post-market cases.

100 Open Communications 6 - New Instrumentation or Technology

(12:10 PM - 1:10 PM)

12:49 PM – GROUP B

Safety and Efficacy Comparison of Two Different Uterine Manipulators in Total Laparoscopic Hysterectomy



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Study Objective: To evaluate the safety and efficacy of two different uterine manipulators in total laparoscopic hysterectomy (TLH).

Design: Prospective observational study.

Setting: Tertiary-care university-based teaching hospital and academic affiliated private hospital.

Patients: One-hundred and twenty-five women who underwent total laparoscopic hysterectomy, between January 2014 and January 2016.

Intervention: All operations were performed by two expert endoscopic surgeons using one of the following two uterine manipulators: (1) Clermont-Ferrand (CF) (Karl Storz, GmbH and Co, Tuttlingen, Germany) and VECTEC (VT) (VECTEC, Hauterive, France). Lateral movement and elevation of the uterus, visualization of the vaginal fornix, difficulty of insertion, maintenance of pneumoperitoneum and handling were evaluated using visual analog scale (VAS) and graded as either good, fair or poor. Number of insertion attempts, need for switching to an alternative uterine manipulator, and colpotomy time were recorded. The data were re-analyzed by re-watching un-edited videos of the operations and reviewing special laparoscopic hysterectomy files.

Measurements and Main Results: A total of 125 patients were included. The CF was used in 62 patients, and the VT was used in 63. The baseline characteristics of two groups were comparable

Conclusion: VT is associated with better visualization and pneumoperitoneum maintenance while other parameters were similar for both uterine manipulators.

Table-1. Baseline characteristics

	Clermont-Ferrand (n=62)	Vectec (n=63)	p value
Age, years	51.4 \pm 7.7	51.2 \pm 7.2	0.93
Body-mass index, kg/m ²	26.7 \pm 4.4	28 \pm 5.4	0.08
Parity, % Nullipare	13	8	0.36
Cesarean section, % One	38.7	41.3	0.06
Previous abdominal surgery,%	64.5	50.8	0.12
Indication for hysterectomy,% Myoma uteri	68	49	0.25

Values are given as mean \pm sd otherwise indicated.

There were no differences in surgery related outcomes between two groups

Table-2. Surgery related outcomes

	Clermont-Ferrand (n=62)	Vectec (n=63)	p value
Uterine weight, gram	197 \pm 87	160 \pm 82	0.01
Colpotomy time, minute	7.8 \pm 2.4	7 \pm 2	0.10
Estimated blood loss, ml	92 \pm 39.5	84.5 \pm 36.7	0.28
VAS pain score	3 \pm 0.6	4 \pm 0.6	<0.001

Values are given as mean \pm sd otherwise indicated.

Compared with the CF group, the VT group had better visualization for vaginal fornices ($p < 0.001$) and maintenance of pneumoperitoneum ($p < 0.001$). On logistic regression analysis, lateral movement and elevation of the uterus between two groups were not significant, after adjusting for uterine weight (adjusted p value=0.27). Re-attempt for placement or need for switching to an alternative instrument was not required in any of the groups. As an intraoperative complication, two patients (1.2%) had uterine perforation during placement of VT.

101 Open Communications 6 - New Instrumentation or Technology (12:10 PM - 1:10 PM)

12:56 PM – GROUP B

Haptic Feedback in Laparoscopic Graspers Enables Faster and Superior Tissue Recognition



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Study Objective: A new laparoscopic grasper with enhanced haptic feedback has been developed: the Force Reflecting Operation Instrument (FROI). It was previously found that the FROI enables surgeons to handle tissue with a significantly reduced amount of force. The aim of this study was to determine the effect of haptic feedback on discriminative ability and tissue palpation efficiency.

Design: Randomized controlled crossover experiment.

Setting: The experimental setup involved a box trainer in which cylindrical silicones (hardness: Shore 000-35, Shore A 00-20, Shore A 00-50) were presented. Silicones had equal visual properties.

Patients: Surgical experts and assistants participated in this study.

Intervention: Participants were instructed to perform two series of discrimination tasks involving a conventional grasper and a FROI. In each series, six sets of two silicones with different hardness were palpated. Both instruments and silicone order were randomized between participants. **Measurements and Main Results:** Participants had to indicate the most solid silicon and rank their answer certainty on a 5 point scale. Required time and number of active grasping actions were registered. Overall, when using the conventional grasper 80% of comparisons were correctly assessed, whereas the use of the FROI resulted in 87% correct assessments. Statistical analysis through paired samples t-tests revealed significantly improved results for required time and answer certainty when using the FROI compared to the conventional grasper ($p < .01$).

Conclusion: Combined with previous results, the use of enhanced haptic feedback in laparoscopic surgery is expected to have multiple clinical implications such as less complications, shorter operation time and enhanced usability. This study shows promising results for more complex types of surgery in which tissue assessment is highly important. Future studies should validate these results in a clinical setting.

102 Open Communications 6 - New Instrumentation or Technology (12:10 PM - 1:10 PM)

1:03 PM – GROUP B

It's in the Bag: Laparoscopic Approach to Excision of Large Uterine Specimens



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Study Objective: Following the Federal Drug Administration's (FDA) safety communication discouraging the use of the power morcellator at the time of hysterectomy for uterine fibroids we compared the outcomes of women who underwent total laparoscopic hysterectomy (TLH) with contained vaginal extraction (CVE) versus total abdominal hysterectomy (TAH).

Design: Retrospective case series of women who underwent TLH with CVE and TAH with uteri weighing greater than 450 grams.

Setting: Cases were reviewed from April 2014-August 2015 in a community hospital setting. The TLH with CVE cases were performed by one surgeon whereas the TAH cases were performed by multiple surgeons.

Patients: There were a total of 34 patients. Sixteen patients underwent TLH with CVE and eighteen patients underwent TAH. The patients were selected to undergo their route of hysterectomy based up the surgeon's preference.

Intervention: Randomized Controlled Case Series.

Measurements and Main Results: Sixteen women underwent TLH with CVE and eighteen underwent TAH. The most common indications for both procedures were fibroids (100%), pain (50%), and anemia (32%). Of the women undergoing TAH six (33%) had complications and the average length of stay (LOS) was 3.3 days. There were no complications among the TLH with CVE group, and the average LOS was 0.4 days. The average blood loss was 380.6 milliliters (mL) in the TAH group compared to 177.5 mL in the TLH group ($p = 0.003$). Furthermore, the average uterine weight for the TAH group was 794.3 grams and the TLH with CVE group was 744.3 grams ($p = 0.64$).

Conclusion: This case series demonstrates that minimally invasive surgery (MIS) is an option for patients with large uteri when CVE is performed. Contained vaginal extraction offers an alternative to a TAH and should be employed whenever possible.

103 Open Communications 7 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Concomitant Hysteroscopic Myomectomy and Endometrial Ablation for Heavy Menstrual Bleeding



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Study Objective: To compare long-term outcomes of concomitant hysteroscopic myomectomy (HM) and radiofrequency endometrial ablation (REA) versus HM alone in treating heavy menstrual bleeding (HMB).

Design: A retrospective cohort study.

Setting: An academic medical center.

Patients: Women undergoing hysteroscopic surgery for HMB and submucosal leiomyomas between May 2003 and December 2011. Reproductive aged women who were followed for > 6 months postprocedure were eligible.

Intervention: HM followed by REA as a combined procedure versus HM alone.

Measurements and Main Results: The primary outcome was treatment failure, defined as recurrence of symptoms that necessitated reintervention. One hundred eighty three women were included (76 treated with REA-HM, 107 with HM alone). The median age was 46 (interquartile range [IQR] 40-49), median BMI was 25.9 (IQR 23-32.4), and median parity was 2 (IQR 0 - 3). Women were followed for a median of 44 (19.8 - 74) months. On univariate analysis, potential predictors of failure were, age < 45 years (HR 2.01 [1.00-4.00]), BMI > 30 kg/m² (HR 1.77 [0.79-3.94]), grade 2 leiomyomas (HR 1.66 [0.82-3.37]), leiomyoma size > 3 cm (HR 1.95 [0.98 - 3.89]), preprocedure hemoglobin < 12g/dl (HR 2.54 [1.22-5.28]), and incomplete procedure (HR 1.80 [0.91-3.53]); both concomitant treatment and tubal ligation were associated with lower risk of failure (HR 0.21 [0.09-0.50], HR 0.38 [0.09-1.60], respectively). On multivariable analysis, concomitant treatment was significantly associated with lower risk of failure (HR 0.04 [0.003-0.48]).

Conclusion: In women with symptomatic submucosal fibroids, performing REA after hysteroscopic myomectomy appears to improve outcomes with less risk of treatment failure, compared to hysteroscopic myomectomy alone.

Funding support: (in part) from Hologic Inc (unrestricted grant) to maintain database.

104 Open Communications 7 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

2:22 PM – GROUP A

The Contraceptive Efficacy of the Essure Transcervical Sterilization Device

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Study Objective: To evaluate the contraceptive effectiveness of the Essure transcervical sterilization device within a population based cohort.

Design: Retrospective cohort study.

Setting: Northern California Kaiser Permanente Region

Patients: Women with Essure procedures performed between January 2003 and December 2012.

Intervention: The patient charts were reviewed for subsequent pregnancies. Confirmatory low pressure HSG studies and provider documentation was reviewed to determine cause of sterilization failure.

Measurements and Main Results: 5025 Essure transcervical sterilizations were performed during the study period. 86% had confirmatory low pressure HSG study performed. 67 pregnancies were diagnosed. The causes of pregnancy after the Essure procedure included assisted reproductive technology (18), no HSG confirmation (12), patient noncompliance (18), provider error (5), misread HSG (10), and unknown (1). 3 pregnancies with no identifiable cause (true failures) were identified.

Conclusion: Essure is a highly effective method of sterilization. The Essure low pressure HSG confirmation test is a highly reliable test to confirm sterilization. Familiarity and adherence to the FDA protocols for insertion and confirmation will eliminate the majority of unwanted pregnancies following the Essure procedure.

105 Open Communications 7 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

2:29 PM – GROUP A

A Randomized, Controlled, Multi-Center Trial of the Safety and Efficacy of the Minerva Endometrial Ablation System. One-Year Follow-Up Results

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Study Objective: To assess the safety and effectiveness of the Minerva Endometrial Ablation System for the treatment of excessive uterine bleeding in pre-menopausal women.

Design: Multi-center, randomized (2:1), controlled, international study. Canadian Task Force Classification I.

Setting: 13 academic and private medical centers.

Patients: 153 pre-menopausal women symptomatic for menorrhagia secondary to DUB.

Intervention: Enrolled subjects were treated using the Minerva Endometrial Ablation System or Rollerball.

Measurements and Main Results: At 1 year post-treatment study Success (Alkaline Hematin (AH) < 80 ml) was observed in 93.1% and 80.4% with Amenorrhea reported by 71.6% and 49% of Minerva and Rollerball subjects, respectively. The mean procedure times were 3.1 minutes for Minerva and 17.2 minutes for Rollerball procedure. There were no intra-operative adverse events and/or complications reported. The Minerva success and amenorrhea rates were found to be statistically significantly superior when compared to the Rollerball control.

Conclusion: The Minerva System was found to be safe and effective in the treatment of patients suffering from menorrhagia. The procedure is quick, effective, and does not require endometrial pre-treatment, while allowing for high rate of success, amenorrhea and patient satisfaction.

106 Open Communications 7 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

2:36 PM – GROUP A

Increased Fetal Chromosome Detection with the Use of Operative Hysteroscopy During Evacuation of Products for Miscarriage

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Study Objective: To determine if incorporation of hysteroscopy reduced maternal cell contamination when evaluating products of conception for chromosomal abnormalities as a cause of miscarriage.

Design: Retrospective chart study.

Setting: Private, minimally invasive surgery and infertility practice with academic-community hospital affiliation.

Patients: Infertility patients undergoing evacuation of products of conception for documented miscarriages between 2006 and 2016.

Intervention: Suction curettage, diagnostic hysteroscopy with curettage or hysteroscopic biopsy with or without curettage followed by chromosomal analysis of products of conception for determination of fetal genetics.

Measurements and Main Results: A total of 243 charts were analyzed. Patients were categorized based on surgery performed: Group 1 (n=136)- suction curettage only; Group 2 (n=23)- diagnostic hysteroscopy followed by suction curettage; Group 3 (n=84)- hysteroscopy, biopsy of gestational sac, chorionic villi and/or fetus followed by suction curettage. No significant differences were detected between the groups for BMI, ethnicity, gravida, parity, primary infertility, secondary infertility, spontaneous conception, singleton or multiple gestation, and surgical complications. All miscarriages were diagnosed in the first trimester with ultrasound.

Maternal contamination was significantly less in Group 3 (14.3%) versus Group 1 (30.1%) and Group 2 (34.8%), p=0.016. Removing all cases of maternal contamination and chromosome analysis not performed, the fetal chromosome detection rate was significantly higher in Group 3 (84.4%) versus Group 1 (66.6%) and Group 2 (61.9%), p=0.009. Table 1 shows the comparison between the Groups with chromosome detection.

Table 1. Chromosome Detection Group Comparison

Fetal Chromosome Results	Group 1 vs Group 2	Group 1 vs Group 3	Group 2 vs Group 3
Normal	0.972	0.351	0.545
Abnormal	0.699	<0.001*	0.013*
Maternal	0.656	0.008*	0.025*
Contamination			
Not Performed	0.627	0.127	0.372
Chromosome Detection	0.349	0.004*	0.006*

All results reported as p-values; Group 3 had significantly higher abnormal chromosomes detected, lower maternal contamination and higher overall fetal chromosome detection rates.

Conclusion: Obtaining fetal genetics can be useful when planning for a future successful pregnancy. Maternal contamination occurred at a higher rate when all products of conception were evacuated with curettage despite use of diagnostic hysteroscopy to identify intracavitary products of conception. The addition of operative hysteroscopy to biopsy the gestational sac, chorionic villi and/or fetus significantly decreased the risk of maternal contamination and increased the detection of fetal chromosomes for genetic analysis without increasing the risk of surgical complications.

107 Open Communications 7 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

2:47 PM – GROUP B

Is Office Hysteroscopy an Option for Everyone? Factors Associated with Inability to Complete Office Hysteroscopy



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Study Objective: To describe rates of successful office hysteroscopy and factors that contribute to failed office hysteroscopy.

Design: Retrospective cohort study from January 2010 to December 2015.

Setting: Inner-city, Academic, University Hospital

Patients: Women who underwent office hysteroscopy without sedation at an academic faculty practice.

Measurements and Main Results: To date we have reviewed 300 of our 2850 cases. Patients who underwent office hysteroscopy (n=300) were analyzed. The primary outcome was failed office hysteroscopy, defined as inability to visualize bilateral tubal ostia. The secondary outcome was inability to complete intended procedure. Demographic information, delivery mode, menopausal status, cervical stenosis, medical history and surgical history was collected. The median age of our patients was 39 years (34-49) and the average body mass index was 30 (±6.5). There were 19 (6.3%) cases of failed hysteroscopy. The failed cases were due to the following, 10 (53%) ostia obscured by pathology, 5 (26%) patient unable to tolerate cervical dilation, 4 (21%) uterine atrophy/scarring. Twenty-eight (9.3%) procedures were not completed and 25 (8.3%) had repeat procedures. Ability to perform office hysteroscopy was not impacted by BMI (p=0.23), parity (p=0.10), prior cervical surgery (p=0.43), or past medical history. Menopause and older age (41 vs 53) increased the likelihood of failed office hysteroscopy (p<0.05). Zero complications were reported.

Hysteroscopy outcomes based on procedure

Procedure performed	No. of cases performed (%)	No. of failed hysteroscopy (%) n=19	No. of incomplete procedures (%) n=28
Essure	141 (47)	2 (11)	14 (50)
Polypectomy	72 (24)	2 (11)	6 (21)
Diagnostic	67 (22)	11 (58)	6 (21)
Removal of foreign body	15 (5)	3 (16)	2 (7)
Endometrial ablation	3 (1)	0	0
Lysis of adhesions	2 (0.6)	1 (5)	0

*percentiles do not add up to 100 due to rounding

Conclusion: Failure to perform satisfactory office hysteroscopy is rare (6.3%). Even when hysteroscopy does not meet strict criteria to be called satisfactory, the information gleaned may be diagnostic and yield information that guides management. Office hysteroscopy without sedation is a feasible procedure for most women.

108 Open Communications 7 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

2:54 PM – GROUP B

Failed Endometrial Ablation: Who Is at Risk?



Gonzalez Rios AR, Chu Lam MT, Anasti J, Lucente V. Obstetrics and Gynecology, St. Luke's University Health Network, Bethlehem, Pennsylvania

Study Objective: To Determine risk factors related to failed endometrial ablation.

About 20% of women who have their endometrium ablated (EA) undergo subsequent hysterectomy. Thus, the identification of factors that increase the risk of EA failures would be valuable in counseling patients. Through limited chart reviews a few factors have been identified. We, thus, search for additional risk factors by an intense abstraction of the medical record.

Design: Retrospective Chart Review.

Setting: In hospital

Patients: Patient who underwent hysterectomy for failed endometrial ablation, meaning recurrent abnormal uterine bleeding or pelvic pain.

Intervention: None

Measurements and Main Results: A review was conducted on patients that underwent a hysterectomy for failed EA (FEA) in our institution. In addition, a review of randomly selected successful EA (NFEA) for the same period was performed. BMI, post EA weight gain, gravity, parity, c-section, co-morbidities, smoking, gyn surgery, hysteroscopy/D&C at the time of EA, uterine sound length (USL), and pre-operative endometrial biopsy (pEMB) result were compared in separate univariate analysis. To correct for multiple measurements, all comparisons were considered significantly different if p < .002.

Results: During a 10 year period, EA was performed in 785 patients with 202 undergoing subsequent hysterectomy and 271 out of the remaining 583 used as controls. All of the following were significant risk factors: smoking, multiparity, history of c/section, previous gyn surgery, larger USL, lack of a hysteroscopy/D&C at the time of EA. The following factors did not appear significant: BMI, post EA weight gain, and preEMB pathology. Of note, 62% had adenomyosis on uterine pathology.

Conclusion: From our detailed chart review, we have identified several previously unrecognized factors that increase the risk of endometrial ablation failure. Further study of these factors may help in the counseling of patients regarding treatment options for their abnormal uterine bleeding.

109 Open Communications 7 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

3:01 PM – GROUP B

Minitouch: A Less Invasive Method of Outpatient Endometrial Ablation



Karuppsawamy J, Ashton S. Leigh Infirmary, Leigh, Lancashire, United Kingdom

Study Objective: The Minitouch Project aimed to explore patient experiences of the procedure and their outcomes. Minitouch uses microwave energy to reduce the lining of the womb and is advantageous compared to older methods as it can be done as an outpatient with only need for simple pain relief. The procedure itself lasts seconds and due to its minimal invasiveness patients can be discharged home quickly and safely.

Design: N/A.

Setting: Outpatient treatment facility at Leigh Infirmary, part of the Wrightington, Wigan and Leigh NHS Foundation Trust in England, UK.

Patients: Patients who underwent Minitouch ablation procedures.

Intervention: We collected data from electronic patient records pertaining to details of the procedure, and questionnaires from patients which included pain scores. We also investigated if the patient had appropriate follow up and what eventual outcome they had.

Measurements and Main Results: 61 patients underwent Minitouch at Leigh between July 2014 and October 2015. Of those patients 36 have had their 4-6 month follow up, 81% of these patients experienced a favourable outcome of either lighter periods or no periods. Twenty minutes post procedure, 64% of patients rated their pain between 1-3, and 36% between 4-6. No patients rated their pain >6 in the 20 minutes post procedure. The patients were discharged in less than one hour.

Conclusion: The results demonstrate the effectiveness of the Minitouch procedure in improving the symptoms of dysfunctional uterine bleeding. The procedure is tolerated very well by patients in an outpatient setting with minimal analgesia required. It is cost-effective given that these patients do not require admission or recovery ward. The guidelines would benefit from an update in response to this novel technology.

110 Open Communications 7 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

3:08 PM – GROUP B

Predicting the Malignant and Hyperplastic Potential of Polyps. A Logistic Regression Model

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Study Objective: To predict the probability of malignancy or hyperplasia in polyps of post menopausal women undergoing outpatient hysteroscopic resection.

Design: A 5 year prospective cohort study of symptomatic post menopausal women undergoing outpatient hysteroscopic resection for known polyp(s).

Setting: Patients were seen in a purpose built outpatients hysteroscopic suite in a large University Hospital.

Patients: Post menopausal women who presented with vaginal bleeding to the gynaecology outpatient department and who were subsequently found to have endometrial polyp(s) on transvaginal ultrasound scan or diagnostic hysteroscopy.

Intervention: All polyps were removed in the outpatient department with a traditional 8 mm or 10 mm resectoscope. Resection was carried out with monopolar diathermy and glycine following an intra-cervical block. All specimens were volumetrically assessed and weighed before formal histological assessment.

Measurements and Main Results: Data was analysed with SPSS version 20 and a multinomial logistic regression analysis was carried out to assess the relationship between patient age, the volume and weight of the polyp and the dependent variable of hyperplasia or malignancy. 269 patients were included in the analysis. Of the 269 polyps included in the dataset thus far, 21 (7.8%) were endometrial cancers and 33 (12.3%) were hyperplastic. The best fit regression model generated can be used to estimate the probability of hyperplasia or malignancy in the polyp.

Conclusion: The age of the patient and the size/ weight of the polyp can be predictive of the presence of cancer or hyperplasia in the polyp.

Pre-operative ultrasound assessment of the volume of the polyp combined with the patient's age can allow a better estimate of the chance of hyperplasia or malignancy. This information is beneficial for pre-operative patient counselling, and prioritisation of surgical urgency.

111 Open Communications 8 - Laparoscopic Surgeries (2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Influence of Different Pneumoperitoneum Pressures and Level of Neuromuscular Anesthetic Block, Consequences and Benefit of Low Pressure During Laparoscopy

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Study Objective: Deep neuromuscular block during laparoscopy improves surgical space. High pressure of pneumoperitoneum cause post-operative shoulder pain, and should be kept as low as possible. Combination of different level of neuromuscular block and abdominal pressure are presented in 3 studies.

Design: 1 study 14 patients randomized in a cross-over assessor blinded design and 2 studies randomization of 99 laparoscopic hysterectomies.

Setting: Private Hospital

Patients: 1. Abdominal space measurement, 14 patients randomized in a cross-over assessor blinded design

2. Randomization to either deep NMB and 8 mmHg pneumoperitoneum or moderate NMB and 12 mmHg pneumoperitoneum in 99 patients. Pain was assessed for 14 postoperative days.

3. Registration of sudden abdominal contractions during surgery.

Intervention: Laparoscopic surgery.

Measurements and Main Results: Deep NMB enlarged surgical abdominal space.

Shoulder pain occurred in 14 of 49 patients (28.6%) in Group 8-Deep compared with 30 of 50 (60%) patients in Group 12-

No sudden abdominal contractions were detected in the deep NMB group compared to 12 episodes in the standard NMB group ($P < 0.001$).

Conclusion: Patients kept in deep neuromuscular blockade during laparoscopic surgery allows the surgeons to lower pneumo-pressure and have perfect working condition with no contraction. Muscle relaxant is reversed fast with sugammadex. The patients will experience less postoperative shoulder pain and faster recovery.

112 Open Communications 8 - Laparoscopic Surgeries (2:15 PM - 3:15 PM)

2:22 PM – GROUP A

Laparoscopic Repair of Cesarean Section Scar Diverticulum and the Surgical Outcome in 146 Patients

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Study Objective: Herein we described laparoscopic repair of cesarean scar diverticulum (CSD) in a series of 146 patients in our hospital.

Design: Retrospective study.

Setting: Academic hospital.

Patients: From April 2010 to July 2015, 146 patients with CSD in the Obstetrics and Gynecology Hospital of Fudan University underwent laparoscopic repair of CSD.

Intervention: The first 45 patients underwent incomplete excision (only excised the top ceiling of the niche), and the rest 101 patients underwent complete excision. The surgical and pregnancy outcome were followed, and the risk factors for successful healing of the repair were analyzed.

Measurements and Main Results: The patients were followed-up for an average of 41.18 ± 11.15 (6-69) months. Postmenstrual spotting (42 in the incomplete and 97 in the complete group) was the main symptom. The patients in both groups had an obvious shortened period after surgery ($p < 0.001$), and the clinical effective rate (≤ 10 days) was 71.43% and 83.51% ($p = 0.024$). MRI image 6 months after surgery showed there was still small niche in 32.1% and 26.2% of the patients relatively.

Conclusion: Laparoscopic complete excision and repair of CSD may be performed with fair symptom relief and acceptable postoperative anatomic and functional outcomes.

Follow-up Data of the Two Groups

Parameter, mean ± SD or n (range)	Incomplete excision group (n=42)	Complete excision group (n=97)	p value
Duration of menstruation before surgery (d)	15.11±3.64(7-22)	14.51±4.29(7-20)	0.94
Duration of menstruation after surgery (d)	9.02±2.94(4-18)	7.75±2.77(4-18)	0.764
Cured (≤7d)	35.56%	60.98%	0.024
Improved (8d~10d)	35.87%	22.53%	
Uneffective (>10d)	28.57%	16.49%	
Niche detected by MRI 6 months post surgery	32.1%	26.2%	0.092

Abbreviation: SD, standard deviation.

Multivariate logistic regression analysis showed that the thickness of the residual myometrium (Odds ratio 2.959, 95% CI 1.023-8.563) and suturing material (Odds ratio 6.204, 95% CI 1.576-24.422) were independent risk factors for successful healing of the repair. Duration of menstruation before surgery, number of previous cesarean section, duration from symptom to operation, experienced or unexperienced surgeon, complete or incomplete excision of the scar, estimated blood loss and operating time were not related to the surgical effective rate.

Logistic Regression Analysis of Factors Related to Surgical Effect

Variable	OR	95%CI	p value
Duration of menstruation before surgery (>14d VS. ≤14d)	0.607	0.222-1.661	0.331
Thickness of the residual myometrium (≥3mm VS. <3mm)	2.959	1.023-8.563	0.045
Number of previous cesarean section (2 times VS 1 times)	1.295	0.456-3.674	0.627
Duration from symptom to operation (>2year VS. ≤2year)	1.763	0.577-5.388	0.320
Different surgeon (Unexperienced vs. Experienced)	0.771	0.201-2.951	0.704
Estimated blood loss (>60ml vs. ≤60ml)	2.989	0.926-9.651	0.067
Operating time (>90min vs. ≤90min)	0.876	0.318-2.411	0.798
Complete or incomplete excision (Incomplete vs. Complete)	0.987	0.348-2.80	0.980
Suturing material (Delayed absorbable vs. Absorbable)	6.204	1.576-24.422	0.009

Abbreviation: OR, Odds ratio.

Thirty-two patients desired for fertility, and 12 of them got pregnant in 13-32 months after surgery, including 7 term cesarean delivery, 1 preterm cesarean delivery, 1 artificial abortion, 1 cesarean scar pregnancy, and 2 were pregnant when this study was summarized.

113 Open Communications 8 - Laparoscopic Surgeries (2:15 PM - 3:15 PM)

2:29 PM – GROUP A

Minimally Invasive Surgery Survey (MISS): A Survey of Surgical Team Members' Perceptions for Successful Minimally Invasive Surgery (MIS)

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Study Objective: Develop a valid and reliable survey to measure how surgical team members' view successful MIS.

Design: Two MIS surgeons developed questions assessing participants' attitudes for successful MIS. Questions were closed-ended and responses were based on a 5-point Likert scale. Questions were given to four focus groups and revisions resulted in a 52 question set. This was distributed to MIS team members, who participated in MIS during the past 3 months and participated in a minimum of 10 MIS cases. All trial population participants were asked to repeat the questionnaire 4 weeks later to evaluate internal consistency.

Factor analysis with average inter-item correlation and Cronbach's α were performed for internal consistency. Kendall's τ correlation coefficient was performed for test-retest reliability.

Setting: Surveys distributed through three hospitals, (rural, urban/academic, and community).

Patients: N/A

Intervention: N/A

Measurements and Main Results: 250 participants answered the initial questions. 50 were eliminated because they did not meet inclusion criteria or failed to answer all of the questions. The majority of participants were female (68%), and 42.5% were between the ages of 30-39. Factor analysis (total variance =0.89) identified four domains: problem solving and team collaboration (Cronbach's α =0.90), job satisfaction (α =0.81), ancillary/procedural issues (α =0.75), and error detection (α =0.72). Five of the 46 non-demographic questions were eliminated because of low loading. 52 participants repeated the question set at 4 weeks. 30 were eliminated for failing to answer all questions. 22 individuals who repeated the questionnaire were analyzed for test-retest reliability. Thirty-one of the 48 non-demographic questions showed high test-retest reliability (τ >0.4).

Conclusion: MISS questionnaire is a reliable and valid tool that can be used to measure how surgical team members' conceptualize requirements for successful MIS. The questionnaire can be useful to help align surgical team members' goals and expectations, and may help improve quality of care in during MIS.

114 Open Communications 8 - Laparoscopic Surgeries (2:15 PM - 3:15 PM)

2:36 PM – GROUP A

Preoperative Factors That Predict the Need to Morcellate in Total Laparoscopic Hysterectomy



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Study Objective: To determine which preoperative factors best predict the need for uterine morcellation at the time of total laparoscopic hysterectomy and to identify cut-offs that can help guide clinical decision-making.

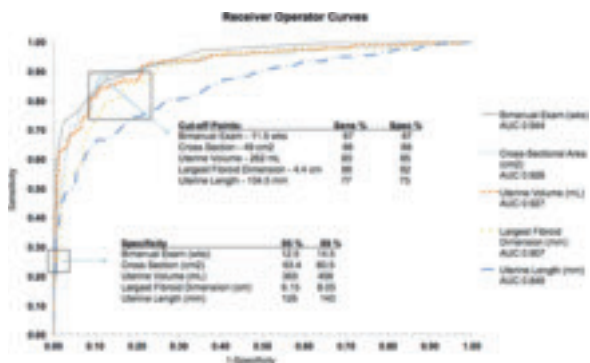
Design: Data were collected from a prospective quality assurance database and reviewed retrospectively. Preoperative factors assessed included uterine volume, cross-sectional area, length, size of largest leiomyoma, and bimanual exam. Receiver-operator curves (ROC) were used to establish cut-offs that maximized sensitivity and specificity for each factor. Univariate and multivariate Poisson regression analyses were used to calculate odds ratios associated with these objective cut-offs.

Setting: Women who underwent total laparoscopic hysterectomy between July 2012 and June 2015 in the Division of Minimally Invasive Gynecology at a tertiary care center with preoperative uterine size assessment were included.

Patients: A total of 420 patients were identified: 223 cases without and 197 cases with morcellation.

Intervention: Laparoscopic hysterectomies with either laparoscopic power, vaginal, or open morcellation via mini-laparotomy were analyzed.

Measurements and Main Results: ROC curves, as depicted in Figure 1, demonstrated maximized sensitivities and specificities with a cross-sectional area of 48.6 cm², largest leiomyoma dimension of 4.4 cm, bimanual exam of 11.5 weeks, and uterine volume of 262 mL. Multivariate Poisson regression analysis revealed that the strongest predictors of morcellation were cross sectional area (adjusted OR 2.94; 95% CI 1.20-7.19), largest leiomyoma diameter (2.06; 1.24-3.41) and bimanual exam (1.88; CI 1.05-3.37).



Conclusion: Uterine cross-sectional area, largest leiomyoma dimension, and uterine size on bimanual exam can all be used to predict the need to morcellate at the time of total laparoscopic hysterectomy.

115 Open Communications 8 - Laparoscopic Surgeries (2:15 PM - 3:15 PM)

2:47 PM – GROUP B

Evidenced-Based Gynecologic Laparoscopy: A Review of the Literature

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Study Objective: The advent of laparoscopy has revolutionized intraperitoneal surgery for all specialties. However, there is a wide variation in practice and the evidence for individual laparoscopic component techniques is qualitatively disparate. This paper reviews the best available evidence on the fundamental aspects of gynecologic laparoscopy. Data from other surgical specialties are included where relevant.

Design: A comprehensive review of Medline, PubMed, The Cochrane Library, and Embase (1970-2016) was performed to identify the best available evidence on the following: 1)pre-operative bowel preparation; 2) intraoperative analgesia; 3)patient positioning; 4)uterine manipulation; 5) entry techniques; 6)insufflation; 7)energy sources; 8)port site closure; 9) post-operative pneumoperitoneum; 10)single-port laparoscopy; and 11) robotic surgery. The reference lists of relevant articles were hand-searched for additional studies.

Measurements and Main Results: Current evidence suggests: no significant benefit of mechanical bowel preparation in laparoscopy for benign gynecologic condition; multimodal analgesia is superior to individual element of analgesia; proper patient positioning is essential to prevent nerve injury; the evidence regarding the efficacy of different types of uterine manipulator is poor; there is no convincing evidence for the use of one entry technique over another; pneumoperitoneum may lead to cardio-respiratory compromise but remains the method of choice; monopolar electrosurgery remains a popular energy source, but no one energy source is superior in all aspects; port and fascial closure is recommended for port sites ≥10mm in diameter; there is conflicting evidence on the use of peritoneal drain to reduce post-operative

pain; and there is limited evidence on the benefits of single-port and robotic surgery at present.

Conclusion: While there is more than one way to perform individual steps of basic laparoscopy, many surgeons may use incorrect and possibly dangerous techniques. The best available evidence on the fundamentals of gynecologic laparoscopy reviewed in this paper provides a reference for laparoscopic surgeons to develop and maintain safe, efficient, and effective laparoscopic techniques.

116 Open Communications 8 - Laparoscopic Surgeries (2:15 PM - 3:15 PM)

2:54 PM – GROUP B

Application of a Three-Port Sealable Morcellation Bag in a Multicenter Setting

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Study Objective: The aim of the study was to determine time requirements and rupture rates of an endobag with three sealable ports for power morcellation.

Design: Multicenter case series.

Setting: Two community hospitals.

Patients: In total, 315 laparoscopic supracervical hysterectomies (SCH) were performed. 189 surgeries were carried out due to abnormal uterine bleeding or symptoms related to fibromyoma, 126 patients were scheduled for a combined prolapse correction procedure including SCH.

Intervention: The body of the uterus was separated from the cervix and placed into a polyurethane endobag. An optic system, a morcellator - either 12 mm or 15 mm - and a grasper were introduced in the bag through three integrated conduits. All conduits were reinforced with build-in strings to allow a tight closure of the bag to reduce the risk of contents loss during morcellation and bag extraction. After the morcellation, all conduits were sealed using the integrated mechanism before the endobag removal.

Measurements and Main Results: No bag related complications were recorded. Four bag perforations (1.27 %) and five ruptures of the closure strings (1.59 %) occurred during the study. 11 surgeons participated in the study. The mean time required to insert the bag into the abdomen, place the specimen into the bag and adjust the trocars was 12.9 min (range, 5-60 min). Mean specimen weight was 127,3 g (range, 9-872 g). Mean morcellation time was 8.7 min (range, 1-140 min), mean weight of remaining tissue and fluid in the bag after the morcellation was 9.2 g (range, 0-66 g).

Conclusion: The study results demonstrate that a morcellation bag with three integrated sealable conduits can be used in clinical routine. Although this measure may reduce the risk of parasitic myomas and malignancy spread, patients should be informed about the residual risk of bag rupture and insufficiency of the closure mechanism.

117 Open Communications 8 - Laparoscopic Surgeries (2:15 PM - 3:15 PM)

3:01 PM – GROUP B

The Impact of Higher Surgical Volume on the Adoption of Outpatient Setting for Minimally Invasive Hysterectomy for Medicare Patients in the U.S.

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Study Objective: To evaluate the impact of higher surgical volume on adoption of outpatient setting for hysterectomy.

Design: This is a retrospective analysis of Medicare claims data for 2012–2014. Patients undergoing open or Minimally Invasive Surgery (MIS) hysterectomy were identified by ICD-9 and CPT codes. Descriptive analytics were performed to identify the proportion of hysterectomies performed in an outpatient setting. Statistical significance was defined by p -value ≤ 0.05 .

Setting: N/A

Patients: A total of 55,562, 53,460 and 53,049 patients were included in the analysis for 2012, 2013 and 2014, respectively.

Intervention: N/A

Measurements and Main Results: In 2014, 2,864 hospitals performed hysterectomies on Medicare patients. 2,367 hospitals performed 30 or fewer procedures in 2014. The top 20% (high volume) and bottom 20% (low volume) of hospitals by volume of hysterectomies were analyzed. In 2014, the 573 high volume hospitals performed 36,093 hysterectomies with 16,828 (47.1%) in the outpatient setting. The 573 low volume hospitals performed 770 hysterectomies with 136 (16.0%) in the outpatient setting ($p < .0001$).

At the high volume hospitals, from 2012–2014, the outpatient procedure (OP) rate increased from 29.4% to 47.1% ($p < .0001$). The Northeast (20.6% to 40%, $p < .0001$) and the West (21.4% to 42.4%, $p < .0001$) had the lowest OP rates though the rate increased during those years. In the Midwest and the South, the OP rate increased from 27.3% to 48.8% ($p < .0001$) and 37.2% to 51.9% ($p < .0001$), respectively.

At low volume hospitals, the OP rate increased from 8.9% to 16% from 2012–2014 ($p = .0001$).

Conclusion: Higher volume of hysterectomy procedures is associated with a higher likelihood of procedures being performed in an outpatient setting. While there is regional variation in the OP rate at high volume hospitals, both high volume and low hospitals have experienced growth in OP rate for hysterectomies.

118 Open Communications 8 - Laparoscopic Surgeries (2:15 PM - 3:15 PM)

3:08 PM – GROUP B

Laser Angiography with Indocyanine Green (ICG) to Assess Vaginal Cuff Perfusion During Total Laparoscopic Hysterectomy (TLH): A Pilot Study

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Study Objective: To determine feasibility of using NIR perfusion angiography to assess vaginal cuff vascular perfusion during total laparoscopic hysterectomies.

Design: Pilot experimental study.

Setting: Academic-affiliated hospital.

Patients: Twenty women undergoing TLH for benign disease.

Intervention: Following intravenous administration of indocyanine green (ICG), NIR perfusion angiography was employed to capture images of the vaginal cuff before and after closure. Three reviewers analyzed NIR images of vaginal cuffs to determine percent of cuff perimeter with adequate perfusion when open and length of vaginal cuff adequately perfused when closed. Participants underwent 1:1 randomization of energy method used for colpotomy (ultrasonic versus monopolar) and vaginal cuff closure suture (barbed versus non-barbed).

Measurements and Main Results: ICG was visible at the vaginal cuff in all participants. Mean time to appearance of ICG in the pelvis after administration was 19.78 ± 6.75 seconds (mean \pm S.D.) pre-closure, and 25.99 ± 22.22 seconds post-closure. With ultrasonic energy, $67.47 \pm 17.42\%$ (mean \pm S.D.) of open cuff perimeter, and $74.42 \pm 20.5\%$ of closed cuff length were adequately perfused, while with monopolar energy use, $59.14 \pm 17.43\%$ of the open cuff perimeter and $66.28 \pm 15.4\%$ of closed cuff length were adequately perfused. Cuffs closed with barbed suture showed adequate perfusion along $71.46 \pm 15.14\%$ of the length, while those closed with non-barbed suture showed $68.94 \pm 20.94\%$ adequate perfusion. When standardized to cervical

cup circumference, ultrasonic energy required 0.97 ± 0.21 s/mm (mean \pm S.D.), while monopolar energy required 0.80 ± 0.31 s/mm ($p = 0.162$). Linear regression showed no association of standardized time of energy activation versus percentage of perimeter of open cuff ($R^2 = 0.007$) or length of closed cuff ($R^2 = 0.005$) with adequate perfusion. No complications related to intravenous ICG administration occurred.

Conclusion: Intravenous ICG administration and use of NIR perfusion angiography allow evaluation of vascular perfusion at the vaginal cuff during TLH. This technique may inform future prospective studies examining causes for vaginal cuff dehiscence, which is most common following total laparoscopic hysterectomy.

119 Open Communications 9 - Basic Science/Research/Education (2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Assessment of Reliability Between Live versus Recorded Evaluation of Cystoscopic Skills



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Study Objective: To determine if there is a difference between unblinded live observation versus recorded assessment of cystoscopic skills using validated cystoscopy OSATS and GRS checklists.

Design: Prospective cohort study.

Setting: Academic tertiary care medical center.

Patients: All Ob/Gyn residents from Beth Israel Deaconess Medical Center were invited to participate.

Intervention: Ob/Gyn residents underwent a cystoscopy workshop with a didactic lecture and simulation skills component that used a wet-bladder model. Residents were videotaped during the simulation skills component. A 2-part validated cystoscopy assessment tool that includes an Objective Structured Assessment of Technical Skills (OSATS) checklist and Global Rating Scale (GRS) checklist was used to assess resident cystoscopy skills unblinded during their live performance. Residents were scored again with the same assessment tool in a blinded fashion using the recordings.

Measurements and Main Results: A total of 19 (82.6%) Ob/Gyn residents participated in the workshop. Half (47.4%) of participants had performed >31 cystoscopies prior to the workshop. The median (interquartile range) OSATS score from live observation was 43.0 (39.0–46.0) and from recorded assessment was 43.0 (38.0–45.0). Median scores on the GRS were 24.0 (20.0–28.0) from live observation and 25 (19.0–27.0) from recordings. Spearman correlation coefficients were calculated to compare scores from live observation and recordings. Live and recorded scores were perfectly correlated with respect to the overall pass threshold ($r = 1.0$, $p < 0.0001$). There was also a statistically significant correlation between live and recorded scores for the OSATS ($r = 0.54$, $p = 0.02$) and GRS ($r = 0.69$, $p = 0.001$) checklists. The correlation was stronger for GRS scores than OSATS scores.

Conclusion: There was perfect correlation for passing rates between direct observation and recorded assessment of cystoscopic skills using the OSATS and GRS assessment tools. Therefore, recorded assessment using OSATS and GRS checklists may offer an alternative option for objective blinded evaluation of cystoscopy skills without requiring live observation.

120 Open Communications 9 - Basic Science/Research/Education (2:15 PM - 3:15 PM)

2:22 PM – GROUP A

A Quantitative System for Technical Assessment and Training of Skills (STATS) for Surgical Performance



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Study Objective: Utilize micro motion analysis on segmented surgical elements or subtasks (therbligs) and statistically analyze the data for specific individualized patterns to identify rate limiting step in a complex process such as surgery and to assess the skill and performance level of a surgeon in a simulated environment.

Design: A prospective observational study.

Setting: Academic affiliated community hospital.

Patients: In the pilot study six robotic surgeons with varying levels of expertise were asked to perform standard simulator tasks on the da Vinci simulator repeatedly. In the second phase which is currently underway, 20 gynecology residents are included as participants.

Intervention: Three dimensional (3D) video recordings from the simulator are studied using automated motion analysis. The complex task is decomposed into sub tasks such as cut and grasp that could be individually examined called therbligs.

Measurements and Main Results: Preliminary results from the pilot study indicate that overall time based characteristics show only marginal discrimination between experts and novice surgeons. When this is broken down into therbligs, significant discrimination is possible. Based on the 3D trajectories obtained from videos, decision tree type classification algorithm is established to conduct studies for automated recognition of the therbligs. Comparison will be done between each therblig and each resident using sub task completion time, with the aim of identifying the most crucial step objectively and automatically. Also, the repeatability and sustainability of residents with varying levels of experience will be analyzed and compared to benchmark values set by an expert surgeon to serve as a measure of expertise.

Conclusion: Skill assessment through automated motion analysis of sub segments of a complex surgical task is a novel method to measure the expertise of surgeons. Further expansive validation studies are underway with the ultimate aim of overcoming the shortcomings of current system of metrics and contributing to the overall improvement of surgical training.

121 Open Communications 9 - Basic Science/Research/Education (2:15 PM - 3:15 PM)

2:29 PM – GROUP A

Microsatellite Instability in Endometrial Cancer

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Study Objective: To investigate new evidence in the pathogenesis of type I and type II endometrial cancer for individualized therapies through molecular analysis. Particular attention was paid to the immunohistochemical evaluation of microsatellite instability (MSI). MSI could be evaluated by PCR amplifying microsatellite-specific markers or by the immunohistochemistry (IHC) of MMR (mismatch repair) proteins.

Design: Prospective study.

Setting: University teaching hospital.

Patients: Women operated for endometrial cancer.

Intervention: An extended protocol with IHC, including the determination of the MSI (MLH1, PMS2, MSH2 and MSH6) was applied. Histological types were grouped into three subgroups: LGEC (low grade endometrioid carcinoma), HGEC (high grade endometrioid carcinoma), OHEC (other histological types of high-grade endometrial carcinoma).

Measurements and Main Results: 114 cases of endometrial cancer were eligible for the study, with a mean (\pm SD) age of 70.6 ± 12 years. Seventy-seven cases were diagnosed as LGEC (67.5%), 8 as HGEC (7.0%) and 29 as OHEC (25.5%). The evaluation of MSI showed loss of contemporary expression of MLH1 / PMS2 in 17 cases and MSH2 / MSH6 in 3 cases. MSI is presented with a frequency of 17.5% of cases. Tumors with MSI showed no peculiar clinicopathological features, however, are

significantly correlated with the endometrioid type, without differences of grade.

The comparison between LGEC, HGEC and OHEC outlines a significant distinction between LGEC and OHEC. In OHEC there is a loss of expression of hormone receptors, increase expression of p53. The HGEC is placed in a gray area with intermediate characteristics between the LGEC and OHEC for histopathological and molecular parameters studied.

Conclusion: Our study confirms the dualistic model of endometrial cancer: LGEC and OHEC have shown significant differences and they can be considered as completely separate diseases. The MSI valid this opinion because it is relatively frequent in endometrioid carcinomas and not present in non-endometrioid. HGEC constitute a sort of gray area between the two categories.

122 Open Communications 9 - Basic Science/Research/Education (2:15 PM - 3:15 PM)

2:36 PM – GROUP A

Malignancy Risk Assessment of Endometrial Polyps Through Immune Expression of p53 Protein and PTEN



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Study Objective: Assessment of malignancy risk of the endometrial polyps.

Design: Cross-sectional, retrospective study.

Setting: Botucatu Medical School - January 2010 to December 2014

Patients: 159 polypectomy (US diagnosis of endometrial polyp).

Intervention: Immunohistochemical - p53 and PTEN markers (Phosphatase and Tensin Homolog Delete on Chromosome Ten).

Groups: group A (120 - polyps without atypia) and group B (39 with atypia). A1 (80) and B1 (21) with negative p53 and positive PTEN; A2 (20) and B2 (11) with positive p53 and positive PTEN; A3 (14) and B3 (4) positive p53 and negative PTEN and A4 (6) and B4 (3) with negative P53 and negative PTEN.

Measurements and Main Results: A1 it was found 1 (1.25%) malignant neoplasia. In A2, A3 and A4 were found 6 (15%) with malignant neoplasia (2, 3 and 1 respectively). We found an increased incidence of cancer in groups with at least one of the modified markers (1.25% x 15%, $p = 0.0089$ and OR 13.94). B1 we found only 1 (4.8%) malignant neoplasia. B2, B3 and B4 was found 7 (38.9%) of malignancy (4, 2 and 1 patients respectively). We found an increased of cancer in groups with at least one of the modified markers (38.9% x 4.8%, $p = 0.0025$ and OR 12.73). Group B had a higher incidence of cancer than in group A (20.5% x 5.9%; $p = 0.011$). Negative p53 (110), 3 patients had cancer and 49 positive p53, 11 had neoplasia ($p = 0.00006$, OR = 7.67). Positive PTEN (132) 8 had malignant and 27 negative PTEN, 7 had malignancy ($p = 0.00043$; OR = 5.43).

Conclusion: Immunohistochemical proved to be a useful to predict the risk of malignant.

Additional studies should be expected.

Endometrial polyps and abnormal p53 and PTEN may be at increased risk of malignancy.

The malignant endometrial were higher in older women and polyps with atypia.

123 Open Communications 9 - Basic Science/Research/Education (2:15 PM - 3:15 PM)

2:47 PM – GROUP B

Anti-NMDA Receptor Encephalitis: An Underrecognized, Treatable Disease



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Study Objective: Anti-N-methyl-D-aspartate receptor (Anti-NMDAR) encephalitis is a newly defined autoimmune encephalitis predominantly affecting young, previously healthy women. This case series seeks to provide clinical knowledge so that anti-NMDAR encephalitis is considered in the differential diagnosis of any unknown encephalitis and timely minimally invasive treatment can be undertaken.

Design: Case Series.

Setting: Tertiary Care Hospital System over five years.

Patients: Young, previously healthy women.

Intervention: Laparoscopic salpingoophorectomy.

Measurements and Main Results: This case series describes the classic presentation of anti-NMDAR encephalitis. Three young, previously healthy women presented with status epilepticus and were admitted to MICU. Despite treatment for bacterial/viral encephalitis the patients failed to improve. Anti-NMDAR antibody serology testing was sent with diagnostic elevated titers. Adnexal evaluation was remarkable showing ovarian lesions unilaterally. Laparoscopic salpingoophorectomy was completed. Final pathology showed mature cystic teratoma. All three patients received IVIG and plasmapheresis following resection with significant improvement and eventual discharge to rehab after 2-3 months.

Conclusion: Anti-NMDAR encephalitis is a rare, often under/misdiagnosed autoimmune encephalitis with distinctive clinical features, a diagnostic antibody, and effective treatment; the prognosis of which is greatly affected by early intervention. Early intervention often requires oophorectomy; when done laparoscopically the patient's chance of survival greatly increases. Survival for these patients hinges on the ability of the provider to recognize, diagnose and adequately treat this underrecognized disease.

124 Open Communications 9 - Basic Science/Research/Education (2:15 PM - 3:15 PM)

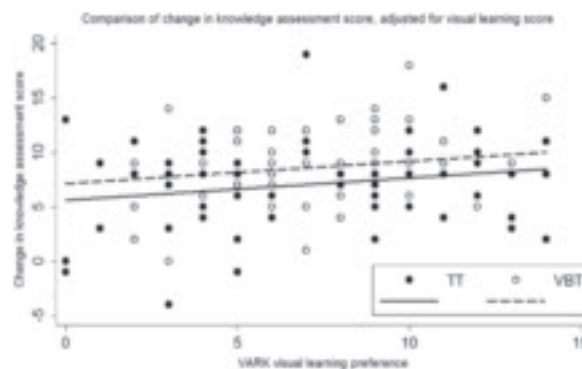
2:54 PM – GROUP B

A Prospective Trial: Traditional versus Video-Based Teaching for Minimally Invasive Gynecologic Surgery

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Study Objective: To compare the effect of traditional versus video-based education in minimally invasive gynecologic surgery on task-specific



cognitive and surgical skills performance among millennial trainees, and to evaluate the impact of individual learning preference on performance.

Design: Prospective study.

Setting: Urban university-hospital medical center.

Patients: Ob/Gyn residents and medical students during their gynecology rotation in 2015.

Intervention: Participants were assigned to either traditional training (TT) or video-based training (VBT) for teaching of skills needed for total laparoscopic hysterectomy. TT included routine didactic and clinical instruction. VBT additionally included two types of videos: 1) cognitive, and 2) psychomotor skills-based.

Measurements and Main Results: Participants received pre- and post-intervention knowledge and skills assessments.

Among medical students, as visual learning preference increased, change in knowledge assessment score increased ($p=0.04$, CI 0.01-0.49).

A similar trend was seen with auditory learning preference ($p=0.04$, CI 0.01-0.56). Among residents, as auditory learning preference increased, change in skills assessment score increased ($p=0.03$, CI 0.08-1.34).

Conclusion: Video-based teaching is an effective educational tool in gynecologic surgery. Cognitive and skills-based performance may be enhanced among individuals with visual and/or auditory learning preferences.

Resident Pre- and Post-Test Knowledge and Skills Assessment Scores by Level of Training

Resident Level (n=23)	Pre-test Mean Score Knowledge Assessment	Pre-test Mean Score Skills Assessment	Post-test Mean Score Knowledge Assessment	Post-test Mean Score Skills Assessment
1 (n=6)	22.5 (sd 6.60)	4.67 (sd 1.17)	24.00 (sd 4.43)	7.00 (sd 2.37)
2 (n=6)	23.5 (sd 3.94)	6.58 (sd 2.33)	27.67 (sd 4.97)	8.00 (sd 1.95)
3 (n=6)	23.83 (sd 6.37)	8.83 (sd 1.69)	30.50 (sd 4.59)	9.58 (sd 1.53)
4 (n=5)	27.6 (sd 6.88)	8.90 (sd 2.07)	32.17 (sd 3.60)	10.20 (sd 1.35)
p-Value	0.55	0.0025	0.0237	0.0368

The validated VARK(c) questionnaire was used to determine each subject's learning preference. VBT and TT change in assessment scores was compared. The relationship between learning preference, intervention group, and change in assessment scores was analyzed. 120 medical students (n=59 VBT v. n=61 TT) and 24 residents (n=12 per group) participated. Mean improvement in knowledge assessment score among medical students was 8.65 for VBT compared to 7.03 for TT ($p=0.02$). Mean skills test score (max 12 points) was 6.22 with VBT compared to 4.28 with TT group ($p<0.001$). Among residents, mean improvement in knowledge test score was 4.17 for VBT compared to 4.09 for TT ($p=0.98$). Mean change in skills test score was 2.45 with VBT compared with 0.36 with TT group ($p=0.04$).

Comparison of Knowledge and Skills Assessment Scores between Traditional Training and Video-Based Training Groups

	Medical Students			Residents		
	TT (N=60)	VBT (N=57)	p-Value*	TT (N=11)	VBT (N=12)	p-Value*
Knowledge test score mean change	7.03 (sd 4.02)	8.65 (sd 3.48)	0.02	4.09 (sd 7.23)	4.17 (sd 6.13)	0.98
Skills test score (/12 points)	4.28 (sd 1.71)	6.22 (sd 2.06)	<0.001	0.36** (sd 2.06)	2.45** (sd 2.40)	0.04
Skills test time (seconds, max 500)	208.18 (sd 74.49)	197 (sd 69.84)	0.40	5.27** (sd 72.66)	-42.83** (sd 43.00)	0.06

*t-test (all tests confirmed with non-parametric Wilcoxon rank-sum test). **Mean change in score and time for residents.

125 Open Communications 9 - Basic Science/Research/Education
(2:15 PM - 3:15 PM)

3:01 PM – GROUP B

Patient Knowledge of Risk and Prevention of Postoperative Venous Thromboembolism Using Mechanical Prophylaxis



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Study Objective: To assess patient’s knowledge of risk and prevention of postoperative venous thromboembolism (VTE).

Design: Prospective non-randomized controlled study.

Setting: Academic teaching hospital

Patients: Gynecology patients undergoing exploratory laparotomy between April 2015 and April 2016.

Intervention: Intervention group received written education at pre-surgical testing and post-operatively. Control and intervention groups had identical surveys administered on post-operative day (POD) 1.

Measurements and Main Results: 105 subjects were surveyed, 53 in control group and 52 in education group. Both groups were statistically similar in demographics including age and type of surgery. Although there was no statistical difference in the percentage of patients reporting receiving education prior to surgery (34.6% control versus 50% intervention, p=0.12), a significantly higher percentage of patients in the education group reported receiving education about VTE and sequential compression devices (SCDs) postoperatively (13.5% control versus 40.4% intervention, p<0.001). Significantly more patients in the education group reported their knowledge as “very good” regarding the purpose of SCDs (73.1% versus 30.2%, p<0.001). The percentage of patients that correctly answered when they should be wearing SCDs also increased from 73.6% to 92.3% in the education group (p=0.006). Moreover, significantly more

patients were compliant with wearing SCDs on postoperative day one in the education group than in the control group (53.9% vs. 30.2%, p=0.014). Despite education, only 50% of patients felt they were at risk for VTE postoperatively (increase from 34.6% in control group, p<0.05).

Conclusion: Mechanical prophylaxis for VTE is effective when used properly. This study demonstrates that providing patients with a simple cost-effective educational pamphlet significantly increased patient’s self-perceived knowledge of SCDs, actual knowledge of VTE, and compliance with SCDs to prevent VTE. By making the patient an informed participant in their treatment, we may be able to increase compliance to prevent postoperative DVT. Further education needs to be performed to increase patient awareness of their risk of VTE postoperatively.

126 Open Communications 9 - Basic Science/Research/Education
(2:15 PM - 3:15 PM)

3:08 PM – GROUP B

“Real-Time” Feedback for Milestones and Procedural Skills: A Multi-Center Trial of “myTIPreport”



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Study Objective: To implement myTIPreport, a web-based tool for “real-time” feedback on milestones and procedural skills, at multiple institutions and assess impact on feedback satisfaction.

Design: Obstetrics and Gynecology (Ob/Gyn) and Female Pelvic Medicine and Reconstructive Surgery (FPMRS) training programs implemented myTIPreport to provide milestone and procedural skills feedback to

trainees. Pre- and 6-months after implementing myTIPreport, learners and teachers completed a survey assessing feedback satisfaction.

Setting: 12 Ob/Gyn and 7 FPMRS programs at academic centers; 980 learners and teachers.

Patients: N/A

Intervention: The web-based tool, myTIPreport.

Measurements and Main Results: Baseline surveys were completed by 656 participants: 72% of learners and 64% of teachers. 70% of participants reported that they had “individual processes” for “real-time” feedback; the majority (70%) described these as “informal discussions.” Over 1/3 of Ob/Gyn residents were not satisfied with frequency (38%), quality (42%) or timeliness (37%) of their program’s current feedback system. An even higher proportion of Ob/Gyn and FPMRS teachers were not satisfied with frequency (50% and 39%), quality (54% and 54%) or timeliness (54% and 39%) of feedback. In contrast, fellows tended to be satisfied with their current feedback: 84% being satisfied with feedback frequency, 95% with quality, and 84% with timeliness. Over six-months, 1/3 of registered teachers and 2/3 of learners used the program a total of 4311 times. Milestone feedback was recorded 944 times and procedural feedback 3367 times. Six-months after implementation, a higher proportion of Ob/Gyn residents, Ob/Gyn teachers, and FPMRS teachers were satisfied with feedback received and/or provided. The proportion of respondents satisfied with feedback frequency, quality, and timeliness increased from 37-54% to 60-100%.

Conclusion: We successfully implemented a “real-time” feedback tool for milestone and procedural skills at 19 diverse programs in 2 specialties within 6-months. Residents and Ob/Gyn and FPMRS teachers satisfied with feedback increased after myTIPreport use.

127 Open Communications 10 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

3:25 PM – GROUP A

Surgical Management and Obstetric Outcomes of Laparoscopic Adnexal Surgery in Pregnancy



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Study Objective: To investigate the safety and obstetric and fetal outcomes of laparoscopic adnexal surgery in pregnancy.

Design: Retrospective cohort study.

Setting: Peking University First Hospital.

Patients: Pregnant women undergoing surgery for adnexal mass between March 2004 to February 2016.

Intervention: A total of 67 cases were identified, of which 54 cases underwent laparoscopy and 13 cases underwent laparotomy.

Measurements and Main Results: No significant difference was observed between the laparoscopy group and the laparotomy group regarding preoperative characteristics, including age (27.50 years vs. 27.00 years, $P=0.503$), BMI (21.91 kg/m² vs. 23.94 kg/m², $P=0.117$), gestational age (16.43 week vs. 25.14 week, $P=0.097$), percentage of primipara (92.59% vs. 100.00%, $P=0.579$) and size of ovarian mass (6.27 cm vs. 9.01 cm, $P=0.074$). Surgical types included cystectomy, oophorectomy and ovarian mass puncture. Mature cystic teratoma was the majority pathological type in both groups. Others included endometrioma, mucinous cystadenoma, etc. There was no significant difference in the operation time (61 min vs. 50 min, $P=0.595$) between the two groups. In laparoscopic group, the

median blood loss, time of flatus pass and percentage of tocolytics use were significantly less than those of the laparotomy group (5 ml vs. 20 ml, $P<0.001$; 1 d vs. 2 d, $P<0.001$, 33.33% vs. 76.92%, $P=0.004$). The obstetric outcomes were available for 47 women, of which 25 (52.08%) women underwent vaginal delivery and 22 (45.83%) underwent cesarean section. Preterm labor occurred in 7 women (15.22%). The Apgar scores were all 10 at both 1 and 5 min. No significant differences were observed regarding above maternal and fetal outcomes between the two groups. No occurrence of neonatal malformation.

Conclusion: Laparoscopic surgery in pregnancy performed by experienced doctors may be a safe and favorable approach for adnexal mass, especially in second trimester of pregnancy.

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3:32 PM – GROUP A

Review and Outcome of Electromechanical Power Morcellation Using an Innovative Contained Specimen Bag System



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Study Objective: To assess feasibility of an innovative method of electromechanical power morcellation within a specimen bag.

Design: Retrospective chart review.

Setting: The study took place at three independent hospitals in Illinois.

Patients: Patients who underwent contained electromechanical power morcellation during a laparoscopic or robotic-assisted hysterectomy or myomectomy from May 2014 through December 2015 were included.

Intervention: Three physicians utilized the technique during this time after consent was obtained from the patients. Contained power morcellation was performed using the Espiner EcoSac 230 specimen bag.

Measurements and Main Results: Of the 187 procedures performed, 73.8% were myomectomies and 26.2% were hysterectomies. The patients mean age was 40 (range 25-54) years old and mean body mass index was 28.7 (range 17.3-57.6). The average specimen weight was 300 grams, with the largest weighing 2,134 grams. Estimated blood loss averaged 98.4 milliliters.

Conclusion: Performing electromechanical power morcellation within the Espiner EcoSac 230 specimen bag was successfully performed in 187 patients with minimal complications. This is a feasible, reliable, and reproducible method of contained power morcellation, even for a large specimen.

Demographic Data (N = 187)

Variable	Mean (SD) [range]
Age (years)	40 (±6.093) [25-54]
BMI (kg/m ²)	28.7 (±7.42) [17.3 - 57.6]
Specimen Weight (grams)	300 (±329.1) [9 - 2,134]
EBL (mL)	98.4 (±136.2) [10-1000]
Fibroid number (for myomectomies)	4.9 (±4.57) [1-25]

The postoperative admission rate was 12.3%, the majority of which were due to nausea and urinary retention. Only 20 patients total (10.7%) had postoperative complications, most of which were minor, and 4 (2.1%) patients were readmitted.

Summary of Observed Complications

Complications	Number (%)	Reasons
Bag rupture or failure	0	n/a
Intraoperative complications	0	n/a
Admissions	23 (12.3)	urinary retention (6), nausea/vomiting (5), high EBL (4, 1 requiring transfusion), pain (2), multiple medical problems (4), fluid overload (1), family request (1)
Postoperative complications	20 (10.7)	wound cellulitis (8), post op fever (3), PE (1), labial hematoma (1), vomiting/constipation leading to readmission (1), corneal abrasion (1), vaginal infection (3), UTI (1), bleeding requiring readmission (1)

There were no bag failures or complications that were due to use of the specimen bag or due to power morcellation.

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3:39 PM – GROUP A

Major Complications of 1099 Laparoscopic Hysterectomies. Report from a Single Academic Center



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Study Objective: To report on the rates of major complications in women undergoing laparoscopic hysterectomy.

Design: Retrospective chart review.

Setting: Tertiary-care academic center.

Patients: 1099 patients who underwent laparoscopic hysterectomy between January 2009 and February 2016.

Intervention: Baseline characteristics and peri-operative data were abstracted from patient charts and divisional database.

Measurements and Main Results: In the study period, 1099 patients underwent laparoscopic hysterectomy, 370 (34%) supracervical and 729 (66%) total laparoscopic hysterectomies. The mean age of the patients was 48.5 years. The average BMI was 26.2 kg/m². The combined urologic and bowel injury rate was 8/1099 (0.7%). There were no vascular injuries. Of the 8 cases, 6/8 (75%) were total laparoscopic hysterectomies, while the remaining 2 (25%) were laparoscopic supracervical hysterectomies. This difference was not statistically significant, $P=.72$.a Among the 8 patients with complications, the mean specimen weight was 657 grams (SD 846, range 127 – 2530 grams) and the mean operative time was 180 minutes (range 64 – 252 minutes). Bladder injury occurred in 6/1099 (0.5%) cases. All were recognized intra-operatively and repaired laparoscopically. There was 1/1099 (0.09%) bowel injury in the recto-sigmoid. This was also recognized intra-operatively and repaired laparoscopically. There was 1/1099 (0.09%) ureteral injury. This required conversion to laparotomy and ureteroureterostomy.

Conclusion: The rate of urologic and bowel injury in laparoscopic hysterectomy can remain low with a consistent and reproducible surgical approach. With rapidly increasing use of minimally invasive surgery, re-appraisal of complication rates related to major gynecologic procedures performed laparoscopically should be routinely performed. aFisher exact test.



leiomyoma. Immunohistochemical stains supported this diagnosis. She was diagnosed with disseminated peritoneal leiomyomatosis and started on a GnRH agonist with plan for surgical resection in two to three months. The patient returned the following month in respiratory distress. Her abdominopelvic mass had enlarged. Biopsy was repeated and was consistent with benign leiomyoma. 7676 grams of tissue was surgically resected; complete resection was not possible due to large volume blood

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3:46 PM – GROUP A

Leiomyosarcoma Initially Presenting as Iatrogenic Disseminated Peritoneal Leiomyomatosis: A Case Report



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Study Objective: Introduction - When a surgical pathology report returns consistent with a benign leiomyoma, one assumes that leiomyosarcoma is ruled out. This case highlights that this is not always true.

Measurements and Main Results: Case Description: A 60 year old G1P0010 presented for evaluation of postmenopausal bleeding. An endometrial biopsy was performed and returned benign. Imaging showed a 17 x 16 x 11 cm leiomyomatous uterus.

A gonadotropin releasing hormone (GnRH) agonist was given. The patient's bleeding resolved and her uterus shrunk to 14 x 11 x 9 cm. The patient underwent a supracervical hysterectomy with uncontained morcellation. Microscopic examination was consistent with benign leiomyoma.

A year later, she presented with progressive shortness of breath. She was found to have multiple large abdominopelvic masses.

A computed tomography-guided biopsy showed spindle cells without increased mitotic activity or cytologic atypia, consistent with a benign



loss. Histologic evaluation again showed a low mitotic index and absence of cellular atypia.

The patient returned to the operating room three months later. Microscopic evaluation was consistent with leiomyosarcoma.

Conclusion: Discussion - This case study demonstrates that a leiomyosarcoma can have benign histologic features on presentation and representation of disseminated disease. Knowledge of this may help guide clinicians when faced with a benign surgical specimen examination in the setting of an aggressive clinical presentation.

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3:57 PM – GROUP B

Preventive Cervical Cerclage in Patients with Cervical Insufficiency: A Multicentre Cohort Study



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Study Objective: We applied a multicentre cohort study design to evaluate the difference of operative safety and effectiveness of various preventive cervical cerclage surgeries, including transvaginal surgery versus laparoscopic surgery and preconceptual surgeries versus postconceptual surgeries.

Design: Patients were enrolled into cohorts by surgery types including laparoscopic cerclage (preconceptual and postconceptual), transvaginal Shirodkar cervical cerclage (preconceptual and postconceptual) and transvaginal McDonald cervical cerclage (postconceptual). Trained professionals accomplished operation data collection and follow-up.

Setting: A university affiliated hospital.

Patients: Patients suffering from cervical incompetence.

Intervention: Laparoscopic cervical cerclage and vaginal cerclage are applied to patients with cervical incompetence.

Measurements and Main Results: There are 618 cervical insufficiency patients were included in our cohorts and finished the follow-up. The follow-up rate exceeded 100 percent. We enrolled 152 patients underwent preconceptual laparoscopic cervical cerclage, 131 postconceptual laparoscopic cervical cerclage, 143 patients underwent preconceptual transvaginal Shirodkar cervical cerclage, 131 patients underwent postconceptual transvaginal Shirodkar cervical cerclage, and 61 patients underwent postconceptual transvaginal McDonald cervical cerclage. After comparing different surgeries according to different surgical method cohorts and different operative timing cohorts, we discovered that laparoscopic cervical cerclage showed better effectiveness in promoting postoperative pregnancy outcomes (like total pregnancy week, term birth rate and take-home-baby rate, etc.) than transvaginal surgeries. And the operative safety indices (like intraoperative blood loss, operative duration and postoperative hospital stay, etc) among different surgical methods were comparable. Whether giving cerclage surgery preconceptually or postconceptually seemed to have no statistical significant influence on clinical effectiveness in our comparisons. However, preconceptual surgeries could shorten the duration of postoperative hospital stay significantly.

Conclusion: Laparoscopic cervical cerclage can improve patients' pregnancy outcomes significantly without increasing the safety risk when compared with transvaginal surgeries. Patients undergoing preconceptual surgery may have more benefits from shortening the duration of postoperative hospital stay and similar pregnancy outcomes with postconceptual surgery.

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4:04 PM – GROUP B

3D Laparoscopy: An Analysis of 1,475 Cases

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Study Objective: This retrospective cohort study analyses the safety of 3D laparoscopy in gynecological surgeries and improves on the evidence that 3D vision is superior to 2D vision in laparoscopic surgery by reducing the time of surgery for increasingly complex procedures while also reducing the number of complications encountered during surgery.

Design: In this study we analyzed 1,475 surgeries operated in 3D from September 2011 to May 2014 and compared them to 1,475 surgeries operated in 2D in the same center prior to September 2011.

Setting: The operative procedure in 3D was done using Einstein Vision telescope (Schoelly, GMBH, Germany) from Escolap and 2D procedures were carried out using Karl-Storz 30 degree telescopic system. An analysis was done for the average time taken for completion of the surgery, time for morcellation of large specimen, average blood loss and number of complications

Patients: Majority of the cases done in our tertiary referral center are total laparoscopic hysterectomy (TLH) and laparoscopic myomectomy (LM). All other cases were classified as misc.

Measurements and Main Results: In our study we have found significant reduction of time of surgeries done in 3D for both TLH and laparoscopic myomectomy. Since blood loss depended more on the technique of performing the surgery we have not found any significant reduction in blood loss. However, we have recorded significantly lesser number of complications when operated in 3D when compared to 2D although the complexity of the cases was comparable in both groups.

Conclusion: The loss of spatial orientation and depth perception are the drawbacks for novice surgeons to overcome when facing the 2D TV monitor. The success of a surgery depends on reducing the time of surgery, which requires precise instrument manipulative skills, and this can be achieved in 3D vision. Reducing the time of surgery also reduces on operation costs and anesthesia complications.

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4:11 PM – GROUP B

Planned Early Discharge After Laparoscopic (PEDAL) Hysterectomy Study: A Pilot Prospective Observational Study



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Study Objective: To determine the feasibility of a larger, multicenter prospective study addressing same day discharge from hospital after laparoscopic hysterectomy.

Design: Pilot Prospective Cohort Study.

Setting: Tertiary Care Academic Teaching Centre

Patients: All women undergoing laparoscopic hysterectomy by a member of the minimally invasive gynecology team at The Ottawa Hospital between May 2013 - February 2015 were eligible to participate, regardless of patient comorbidities or surgical pathology and complexity.

Intervention: Same day discharge from hospital after laparoscopic hysterectomy. Strict perioperative surgical and anesthetic protocols were followed. Baseline questionnaires were compared to post-operative questionnaires up to 6 months post-operation.

Measurements and Main Results: The overall recruitment rate was 82.8%. 53 patients underwent laparoscopic hysterectomy and agreed to take part in the study. Average BMI was 29.8 and 63.0% of patients had undergone a prior abdominal surgery. Of 7 patients who underwent mini-laparotomy, 6 (85.7%) went home the same day. Overall success of same day discharge was 83.0%. Median time to discharge for those discharged home same day was 7.1 hours. Those who had their surgery as first case of the day had a 91.7% same day discharge rate, compared to 64.7% if they were not booked as the first case of the day (p=0.02). 97.7% of respondents would recommend same day discharge to a close friend or loved one, and

94.9% indicated that they were happy with same day discharge when asked 6 months post-operatively.

Conclusion: Same day discharge from hospital appears to be feasible and a highly accepted plan of care for patients undergoing laparoscopic hysterectomy in a tertiary academic environment, regardless of patient comorbidities and surgical pathology. Those scheduled as the first case of the day may be more likely to be successfully discharged the same day. Patient satisfaction is high with this approach at 6 months post surgery and leads to lower length of stay.

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4:18 PM – GROUP B

Surgical Outcomes of Laparoscopic Mesh-Less Sacrocervicopexy for Central Compartment Prolapse



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Study Objective: To evaluate feasibility, efficacy and safety of a new surgical technique for the treatment of central compartment prolapse: the laparoscopic mesh-less sacrocervicopexy.

Design: Prospective study, between July 2013 to November 2015.

Setting: Tertiary level referral Center of minimally invasive gynaecologic surgery, Sant'Orsola Hospital, Bologna University. Full ethical approval was obtained from the local ethics committee to the study protocol (110/2013/U/sper).

Patients: Consecutive, sexually active, symptomatic women without pregnancy desire and requiring surgical correction of utero-vaginal prolapse. We excluded women with contraindications to laparoscopy or suspicion of genital malignancy.

Intervention: A standard 4-puncture laparoscopy was performed. A supracervical hysterectomy was performed by conventional technique. Laparoscopic mesh-less sacrocervicopexy consists in a suspension of the cervix to the anterior longitudinal ligament of sacral promontory through a continuous suture (monofilament non-absorbable thread), with plication and shortening of the right uterosacral ligament. Satisfaction score and vaginal examination were undertaken at preoperative and follow-up evaluations.

Measurements and Main Results: During the study period, 23 procedures were performed. Mean (+/-SD) age and parity of our population was 54.3 (± 10.9) and 2.1 (± 0.9), respectively. The median operating time for laparoscopic cervicopexy was 30 minutes (range, 20-42). The mean haemoglobin level decrease was 2.3 ± 0.9 g/dl and the mean hospitalization length was 4.6 ± 0.9 days. No intra-operative complications were observed. After surgery, one (4%) patient had transient urinary retention for 10 days. At median follow-up of 24 months (range 20-28), only one patient presented an objective recurrence of vaginal prolapse. None of the study group presented dyspareunia at follow-up. Twenty (87%) women reported high or moderate satisfaction with their surgery.

Conclusion: Laparoscopic mesh-less sacrocervicopexy could represent an effective, safe and feasible option for the surgical treatment of central compartment prolapse in sexually active women without pregnancy desire, avoiding the risks related to the mesh use.

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4:29 PM – GROUP C

Comparison of Hemoglobin Change and Post-Operative Day 1 Hemoglobin in Patients Undergoing Laparoscopic Hysterectomy with and without Ketorolac for Postoperative Pain Control



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Study Objective: To determine if ketorolac is associated with a significant decline in hemoglobin on post-operative day one (POD 1) compared to

patients only receiving opioid analgesia following laparoscopic hysterectomy.

Design: Retrospective cohort study.

Setting: Academic medical center.

Patients: Patients undergoing laparoscopic hysterectomy for benign disease from 2011-2015.

Intervention: Patients undergoing laparoscopic hysterectomy with and without salpingo-oophorectomy were included. The ketorolac group received between 45 to 120 mg during POD 1. All patients received parenteral and oral opioids. All patients had a preoperative hemoglobin within 7 days of their surgery and a POD 1 hemoglobin.

Measurements and Main Results: A total of 864 hysterectomies were identified during the study period. Of these, 132 (69=ketorolac with opioid, 63=opioid-only) met the inclusion criteria. There were no statistically significant differences in patient demographics: age, BMI, intra-operative blood loss, or uterine weight. The ketorolac with opioid group had a lower postoperative day 1 hemoglobin 9.8 ± 1.9 g/dL, compared to the opioid-only group 10.5 ± 2.5 g/dL, ($p = 0.046$). There was no statistically significant change in hemoglobin, 1.9 ± 1.1 g/dL versus 1.8 ± 0.9 ($p = 0.45$), or pre-operative hemoglobin 11.6 ± 2.2 g/dL versus 12.3 ± 2.5 g/dL ($p = 0.12$). There were no statistically significant associations between higher ketorolac doses changes in hemoglobin, Pearson's coefficient 0.232, $p = 0.65$, or postoperative day 1 hemoglobin, Pearson's coefficient 0.021, $p = 0.9$.

Conclusion: While ketorolac is associated with a lower POD 1 hemoglobin compared to control, the difference in hemoglobin change between pre- and postoperative levels was not statistically significant, and this finding likely related to lower preoperative hemoglobin values in the ketorolac group. Additionally, higher doses of ketorolac were not associated with lower postoperative hemoglobin levels or larger decreases in hemoglobin from preoperative levels.

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4:36 PM – GROUP C

Correlation of Laparoscopic Haptic Simulation Performance with Hysterectomy Costs and Surgeon Volume in an Academic Health Care System



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Study Objective: To correlate laparoscopic simulation task performance with hysterectomy costs in high volume (HV) and low volume (LV) gynecologic surgeons.

Design: Retrospective analysis of gynecologic procedural costs, and a laparoscopic surgical simulator assessment by a similar provider group.

Setting: Urban Academic Health Care System.

Patients: All active gynecologic surgeons in the department. 99 gynecologic surgeons participated in the simulation assessment.

Intervention: Surgical procedures were abstracted for 21 months from institutional data warehouses. Procedure type, provider, diagnosis (DX), length of stay, case mix index (CMI), payer, and direct cost were recorded. Providers were categorized as high, intermediate or low volume based on Total Surgical Volume (TSV) or Hysterectomy Only Volume (HOV). Laparoscopic simulator assessment included three tasks: Peg Transfer (PT), Lifting and Grasping (LG), and Cutting (C). Accuracy, time, and efficiency were also assessed by various parameters.

Measurements and Main Results: In both self-assessed and actual procedures recorded most providers perform few procedures, while few providers perform many procedures per month. Only 13% of participants self-reported performing more than 10 procedures per month. HV and LV surgeons performed 82% and 11% of all laparoscopic procedures. There were significant associations between simulator performance and self-reported surgical volume, and skill self-assessment scores. HV surgeons had lower mean Total Task Times. When comparing surgeon volume with laparoscopic hysterectomy direct cost in univariate analysis,

Surgeon Volume and Direct Cost

	Hysterectomy Only Volume			P- Value
	High Volume	Intermediate Volume	Low Volume	
Number of Hysterectomies	248	265	259	
Actual Total Cost, mean (USD)	9,822	7,267	7,377	<.0001
Surgery Direct Cost, mean (USD)	5,297	4,118	4,129	<.0001
		Total Surgery Volume		
	High Volume	Intermediate Volume	Low Volume	P-Value
Number of Hysterectomies	677	26	69	
Actual Total Cost, mean (USD)	8,185	7,460	7,780	ns
Surgery Direct Cost, mean (USD)	4,568	3,873	4,305	ns

High Volume >50; Intermediate Volume 10-50; Low Volume < 10; NS non significant

there were significant differences between HOV groups only ($p < .0001$ Anova). Higher cost was associated with higher volume surgeons. After performing regression analysis and controlling for CMI, DX, and provider type, and other factors there was no association between surgeon volume and surgery direct cost.

Conclusion: High performance on surgery simulation tasks by attending surgeons correlated with higher surgical volume reported per month. However, in this cohort Total Surgical Volume and Hysterectomy Only Volume were independent of surgery direct cost.

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4:43 PM – GROUP C

Rational Approach for the Hysterectomy for the Big Myoma



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Study Objective: The purpose of this work is the improvement of the radical surgical treatment in patients with the large myoma using different surgical approaches.

Design: Prospective study.

Setting: Department of Operative Gynecology of the Federal Institute, Research Centre for Obstetrics, Gynecology, and Perinatology (Moscow, Russia)

Reproductive Medicine and Surgery Department, Moscow State University for Medicine and Dentistry (Moscow, Russia)

Patients: 612 patients who underwent hysterectomy for myoma of large size.

Intervention: Laparoscopic, vaginal, and abdominal hysterectomy.

Measurements and Main Results: Out of 612 patients with large uterine fibroids, 390 (63.7%) underwent total laparoscopic hysterectomy (TLH), 141 (23%) patients underwent total abdominal hysterectomy (TAH), and 81 (13.2%) patients underwent total vaginal hysterectomy (TVH). The average duration of operations in TLH group was 108 minutes, in the TAH and TVH groups, 104 and 109 minutes, respectively. The weight of the uteri in the TLH group ranged between 300 and 2470 g (852 gm); in the TAH group the range was between 300 and 7300 gm (1030 gm); and in the group of TVH, between 300 and 1350 (350 gm). The volume of operative blood loss was 148+/-73; 287+/-181; 176+/-83ml. Intraoperative complications (bladder, ureter, and intestinal injuries) were noted in 4 patients who underwent TLH (1%), 5 patients who had TAH (3.5%), and 1 patient in the TVH group (1.2%). Significant blood loss (more than 500 ml) was observed in 5 patients who underwent TAH (3.5%).

Conclusion: Both laparoscopic and vaginal approaches to hysterectomy carry lower risks of bleeding or injury, and, when taking into account the uterine weight, present comparable risks to those of TAH. We select laparoscopic access is a primary alternative to laparotomy for hysterectomy in patients with larger size myoma due to superior visualization provided by laparoscopy. Use of vaginal access can also be considered under appropriate conditions (wide pubic arch, free cul-de-sac, preserved uterine mobility, absence of suspected adhesive process).

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4:50 PM – GROUP C

Tissue Removal During Hysterectomy: The Effect of Vaginal versus Abdominal Morcellation on Surgical Outcomes



Harman AC, AbiKhalil E, Moawad G, Vargas VM, Marfori C, Ebert J. Obstetrics and Gynecology, George Washington University Hospital, Washington, District of Columbia

Study Objective: To compare peri-operative outcomes of vaginal versus mini-laparotomy morcellation of the uterine specimen during minimally invasive hysterectomy.

Design: Randomized trial with 30 day follow up period.

Setting: Academic university hospital

Patients: Patients with estimated uterine size greater than or equal to 14 weeks by exam or 12 cm by ultrasound, who are planned for a robotic or laparoscopic hysterectomy for benign disease.

Intervention: Vaginal or abdominal morcellation of the uterine specimen.

Measurements and Main Results: Demographic information including age, gravidity and parity, patient's weight and surgical history are being collected and multiple regression models will be used to control for the effects of these characteristics on outcomes. The primary outcome will be morcellation time. Secondary outcomes will include operative time, estimated blood loss, length of stay, and peri-operative complications. Sample calculations based on total operative time assuming an alpha level of 0.05 and beta of 0.8 indicate that 17 patients are needed in each group to determine a 30 minute difference in morcellation time. Up to 20 participants will be enrolled into each group to take into consideration a 5 to 10 % dropout rate. Enrollment began in February 2016, and 7 patients have already been recruited. Preliminary results show that the vaginal group (n=4) has a longer morcellation time (16.5 min versus 5.6min), total operating time (231 minutes versus 77 minutes) and a larger estimated blood loss (518 mL versus 217 mL) compared to the abdominal group (n=3).

Conclusion: This randomized trial will be a means by which we validate our previous retrospective data suggesting that manual morcellation via mini-laparotomy is faster than vaginal.

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4:57 PM – GROUP C

Quality Improvement of Operating Room Communication



Schiff LD, Moulder J, Louie M, Toubia T. *Minimally Invasive Gynecologic Surgery, University of North Carolina, Chapel Hill, North Carolina*

Study Objective: To improve communication in the operating room during gynecologic surgery and to assess impact on provider perceptions of teamwork, communication, and patient safety.

Design: Quality improvement initiative with retrospective survey assessment of efficacy.

Setting: Tertiary care center.

Patients: Surgeons, anesthesiologists, certified registered nurse anesthetists (CRNAs), circulating nurses, scrub nurses, and physician assistants.

Intervention: Communication was identified as a problem in the operating room impacting patient safety. As part of a quality improvement initiative, a new protocol for communicating throughout a surgical case was instituted in the operating rooms of the Minimally Invasive Gynecology Division. All other gynecology operating rooms practiced routine communication. Six months after initiation of the protocol, participants completed an abridged version of the validated Safety Attitudes Questionnaire (SAQ). Fisher's Exact test was used to compare categorical variables. $P \leq 0.05$ was considered statistically significant.

Measurements and Main Results: 63 providers responded for a response rate of 36%, including 33 surgeons (51.6%), 9 anesthesiologists (9%), 6 CRNAs (9.4%), 8 circulating nurses (12.5%), 5 scrub nurses (7.8%), and 3 physician assistants (4.7%). When the communication protocol was used, a significantly higher proportion of respondents agreed the surgical team was well-coordinated ($p=0.01$) and team morale was high ($p=0.04$), compared to when the protocol was not used. There was a trend towards feeling encouraged to report patient safety concerns when the protocol was used ($p=0.06$), compared to when the protocol was not used. There was no significant difference between use and non-use of the protocol in feeling adequate support from colleagues to care for patients or in feeling comfortable speaking up in the operating room.

Conclusion: Use of a novel communication protocol during surgery improves providers' perceptions of teamwork and morale and fosters a culture of patient safety. Further quality improvement assessment of the impact on patient outcomes is needed.

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3:25 PM – GROUP A

Long-Term Outcomes for Prolapse Repair After Different Routes of Hysterectomy. A Population Based Cohort Study



Klimczak A, Borahay M, Lin Y-L, Kilic G. *University of Texas Medical Branch, Galveston, Texas*

Study Objective: To compare the probability of pelvic organ prolapse repair procedures following the different hysterectomy routes.

Design: Retrospective cohort study.

Setting: Insurance database claims (2005-2014).

Patients: Patients who underwent hysterectomy for benign indications.

Intervention: N/A.

Measurements and Main Results: A total of 124,098 hysterectomies were included. 46,427 (37.4%) abdominal, 45,077 (36.3%) robotic/laparoscopic, 21,392 (17.2%) supracervical, and 11,202 (9.0%) vaginal. The 5-year follow-up was divided into 3 time periods: Less than 18, 18-36 and 36-60 months. Within 18 months of hysterectomy, robotic/laparoscopic modalities were more likely to develop prolapse compared to abdominal (HR 1.62, CI: 1.09-2.41). No significant difference between these two in later periods was observed. There was no difference between

supracervical and abdominal hysterectomies at less than 18 months. However, at 18-36 months supracervical is more likely to have prolapse surgery (HR 1.88, CI: 1.12-3.17). The risk was even higher in the late period. (HR 2.71, CI: 1.11-6.63). Vaginal hysterectomies were more likely to need prolapse repair compared to abdominal after the initial 18-month post-operative period (HR 1.91; CI: 1.02 -3.56).

Conclusion: Vaginal hysterectomy had the highest probability of subsequent prolapse repair procedure for 5-year follow-up period. Early follow-up shows prolapse repair is more likely to follow robotic/laparoscopic modalities compared to abdominal. There is no difference between outcomes of supracervical and abdominal hysterectomies in the short-term, however long-term follow-up demonstrates supracervical is ultimately more likely to require prolapse repair.

141 Open Communications 11 - Urogyn/Pelvic Floor Disorders/ Vaginal Surgery (3:25 PM - 5:05 PM)

3:32 PM – GROUP A

Pixelated Vaginal CO₂ Laser Treatment for Stress Urinary Incontinence



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Study Objective: Vaginal CO₂ laser has been suggested for stress urinary incontinence (SUI). The objective of this study was to assess the effect of vaginal CO₂ laser on bladder and vaginal symptoms in patients with SUI.

Design: Retrospective evaluation of patients that were contacted 3-12 months following completion of treatments.





Setting: 134 patients were treated in 3 clinics, of whom 126 were successfully contacted to complete the evaluation following 2 or 3 laser treatments.

Patients: The mean age of our patients was 51.2. Eighty percent of the patients had SUI symptoms and 20% had mixed incontinence symptoms.

Intervention: Treatment was performed in an outpatient setting, without sedation or local anesthetics. FemiLift (Alma Lasers) is a CO₂ laser with a disposable, sterile hygienic probe that delivers laser energy pixelated over a 9x9 mm matrix

The probe, lubricated with baby oil, positioned under the mid-urethra location

Measurements and Main Results: Urinary incontinence symptoms improved significantly (VAS ≥ 7) in 89 patients (71.2%) and pad use declined significantly following treatment (no pad use: 47.8% to 80.6% ($p < 0.0001$)). Significant reduction in urinary urgency and frequency were found (21% to 17.5% and 23.9% to 17.7%; $p < 0.05$). Dyspareunia and vaginal dryness improved significantly following treatments (19.3% to 8.6%; 21.4% to 6.5% accordingly). 63.8% reported generally better situation compared to pre-treatment condition. Patients who had 3 treatments ($n=44$) reported significant better improvement in incontinence symptoms compared to those who had only 2 treatments ($n=82$) (90.1% vs. 60.5%, $p < 0.05$). No adverse events were reported.

Conclusion: The vaginal CO₂ laser treatment demonstrated promising initial results for treatment of stress urinary incontinence symptoms and vaginal symptoms. Three treatments achieved significantly better results compared to two treatments. Further studies are needed to assess prospectively the long-term efficacy of vaginal CO₂ laser treatment on SUI.

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3:39 PM – GROUP A

Anatomic Outcomes One Year After Minimally Invasive Sacrocolpopexy: A Comparison Between Permanent and Barbed Delayed Absorbable Suture



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Study Objective: To compare recurrent prolapse (\geq hymen) and mesh exposure rates at one year between two suture types for fixation of the vaginal portion of the mesh graft at the time of sacrocolpopexy (SCP).

Design: Retrospective cohort analysis; 6 week and 12 month outcomes.

Setting: Academic.

Patients: Women who underwent minimally invasive SCP over a 36 month period by a single provider.

Intervention: Permanent suture was primarily used during the first half of the time period ($n=140$) and then a transition was made to barbed delayed absorbable (BDA) suture ($n=73$).

Measurements and Main Results: Two hundred and thirteen patients were identified. Demographics, including smoking and menopausal status, were similar between groups. The permanent suture type was primarily 0 Ethibond (95%) vs CV2 Gortex (5%). The BDA suture was 2-0 Vloc 180. There was not a significant difference in prolapse recurrence between the permanent and BDA suture groups at 6 weeks (9/122 (7.4%) vs 1/49 (2.0%), respectively, $p=.28$) or 1 year (10/64 (15.6%) vs 5/30 (16.7%), $p=1.0$). There was no difference in mesh exposure rates between the permanent and BDA suture groups at 6 weeks (0/139 vs 0/68, respectively, $p=1.0$) or 1 year (0/72 vs 0/37, $p=1.0$). The mean (SD) surgical time was 32.2 minutes longer in the permanent suture group (175.2 (35.9) min.) than in the BDA group (143.0 (38.6) min.) ($p < .0001$).

Conclusion: Compared to permanent suture used for fixation of the vaginal portion of the mesh during SCP, the barbed delayed absorbable suture did not increase prolapse recurrence or mesh exposure rates but did decrease operative time.

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3:46 PM – GROUP A

Patients' Perspectives on Vaginal Mesh Use in Pelvic Reconstructive Surgery Prior to and After Initial Medical Consultation



Li ALK, Lee PE. Department of Obstetrics and Gynecology, Division of Urogynecology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

Study Objective: To determine patients' background knowledge and attitudes towards vaginal mesh use in pelvic reconstructive surgery before and immediately after medical consultation.

Background: Recently, government and media alerts have been raised regarding vaginal mesh use in pelvic reconstructive surgery. Women with adverse events have brought class action lawsuits against manufacturers of vaginal mesh.

Design: From April 2015 to March 2016, new patients with a referral diagnosis of stress urinary incontinence (SUI) or pelvic organ prolapse (POP) voluntarily completed pre- and post-consultation surveys. The pre-consultation survey consisted of 12 questions regarding demographic and background knowledge. If surgery was discussed, patients completed a post-consultation survey about their attitudes toward surgery and vaginal mesh.

Setting: Tertiary referral centre, single urogynecologist.

Patients: 93/94 new patients completed the pre-consultation survey. 50/93 (53.8%) had surgical management discussed during consultation. 50/50 (100%) completed the post-consultation survey.

Intervention: Initial medical consultation.

Measurements and Main Results: The average age was 59.6 ± 13.1 (range 30–91) years. Consultation indications were not exclusive: SUI ($n=51/93$; 54.8%) and POP ($n=43/93$; 46.2%). 67/93 (72.0%) had heard of vaginal mesh. Of the 50 who completed the post-consultation survey, the pre- and post-consultation 'level of concern' with mesh use was 6.38 ± 2.93 (range 1–10) vs. 4.77 ± 2.92 (range 1–10) ($p=0.009$). Pre-consultation, 26/50 (52%) were willing to proceed with surgery compared to 34/50 (68%) post-consultation ($p=0.03$). In particular, 14/50 (28%) were prepared pre-consultation to proceed with mesh if necessary, compared to 25/50 (50%) post-consultation ($p=0.001$). While the complication rate of $<5\%$ was specifically discussed with the patients during the consultation, post-consultation, only 31/50 (62%) recalled being told this risk level.

Conclusion: Most patients presenting with POP/SUI have heard of vaginal mesh and are quite concerned about the use of mesh. After medical consultation, patients' 'level of concern' about vaginal mesh decreased and most felt comfortable allowing the use of mesh if needed.

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Vaginal Surgery**
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3:57 PM – GROUP B

Long-Term Follow-Up After LeFort Colpocleisis:

Patient Satisfaction, Regret Rate and Pelvic Symptoms



Zhu L. Peking Union Medical College Hospital, Beijing, China

Study Objective: Colpocleisis is an effective alternative obliterative procedure for the correction of prolapse in older women who do not seek to maintain vaginal coital function. Recent literature on colpocleisis is relatively scarce, and a particular lack of data on long-term patient follow-up. The aim of this study was to evaluate long-term patient satisfaction, regret rate and pelvic symptoms in elderly patients who underwent LeFort colpocleisis.

Design: A retrospective cohort study of patients who underwent LeFort colpocleisis at least 3 years previously was conducted.

Setting: University-based tertiary care hospital.

Patients: Forty-two patients who underwent LeFort colpocleisis were enrolled in this study.

Intervention: Records were reviewed for patient characteristics, comorbid conditions and complications. The Patient Global Impression of Change (PGI-C) questionnaire and the Chinese version of the Pelvic Floor Distress Inventory - short form 20 (PFDI-20) were used to evaluate self-perceived quality of life. Regret was assessed by one additional question: "Do you regret choosing to have vaginal closure surgery for prolapse (Yes/No)?"

Measurements and Main Results: LeFort colpocleisis accounted for 7.3% (42/572) of all the prolapse surgeries. Thirty-five of the patients (83.3%) who responded were considered for statistical evaluation. Twenty-nine (82.9%) had at least one comorbid condition. After a median 5 (range 3-7)-year follow-up period, no patients had experienced prolapse recurrence requiring a second surgery. No patients regretted having had the surgery. The satisfaction rate was 94.3%, with postoperative overactive bladder syndrome accounting for one "neither satisfied nor dissatisfied" patient and vaginal hematoma for another. Pelvic symptoms improved significantly from baseline (PFDI-20, preoperative 60.5±29.5) to postoperative (14.1±20.0, P<0.001).

Conclusion: After long-term follow-up, LeFort colpocleisis still had a high satisfaction rate, a low regret rate and a positive impact on pelvic symptoms.

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Vaginal Surgery**
(3:25 PM - 5:05 PM)

4:04 PM – GROUP B

**Abdominal Sacrocolpopexy versus Sacrospinous
Colpopexy: A Prospective Analysis**



Agameya AF, Salem H, Moiety F. *Ob/Gyn, Alexandria University School of Medicine, Alexandria, Egypt*

Study Objective: To compare between abdominal promontofixation and sacrospinous colpopexy in the repair of stage 2,3 and 4 uterovaginal prolapse (POP-Q classification).

Design: Prospective Observational study.

Setting: Tertiary Gynecology Hospital.

Patients: 80 consecutive patients with uterovaginal prolapse were included. **Intervention:** 40 patients underwent abdominal promontofixation and the other 40 patients underwent sacrospinous colpopexy.

Measurements and Main Results: Operative time and complications, as well as postoperative complications, cure rate, and recurrence over 6-month follow up period. Cure rate was 95% in the abdominal sacrocolpopexy group, which was not significantly different from that in the other group (90%). Recurrence of prolapse was 10% in the former, and 15% in the sacrospinous group. The operative duration was significantly shorter in sacrospinous group. One case had intraoperative bleeding in sacrospinous

group. There were no cases of mesh erosion in abdominal Sacrocolpopexy group, however, 2 cases were reported in the vaginal group.

Conclusion: Both procedures have similar cure rate, complications, and duration of hospital stay. However, promontofixation showed less postoperative sciatic and gluteal pain, meanwhile, sacrocolpopexy needed less time to be done.

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Vaginal Surgery**
(3:25 PM - 5:05 PM)

4:11 PM – GROUP B

**Short-Term Anatomical Outcome and Patient
Satisfaction After Laparoscopic Uterine-Preserving
Uterosacral Ligament Suspension for Anterior and
Apical Prolapse**



Haj Yahya R, Asfour A, Levin G, Lesser S, Shveiky D. *Obstetrics and Gynecology, Hadassah Hebrew University Medical Center, Jerusalem, Israel*

Study Objective: Apical support plays a crucial role in pelvic organ prolapse (POP) repair. The aim of this study was to determine short-term anatomical and clinical cure rates as well as patient satisfaction in uterine-preserving laparoscopic uterosacral ligament suspension (LUSLS) in women with anterior and apical prolapse.

Design: Retrospective cohort study.

Setting: Urogynecology service in a tertiary-care university hospital.

Patients: Women who underwent LUSLS for anterior and apical prolapse between July 2010 and December 2015.

Intervention: All women had LUSLS hysteropexy as well as anterior colporrhaphy. Concomitant procedures included cervical amputation, posterior repair and midurethral sling as indicated. Pre-and-post operative POP-Q measurements were taken. Patient satisfaction was measured by Patient Global Impression of Improvement (PGI-I) score.

Measurements and Main Results: Fifty three women underwent the procedure during the study period; follow up data were available for 46 women. Mean age was 57.7±8.6 years, mean BMI was 25.1±3.4 kg/m² and mean parity was 3.5±1.2. Fifty-nine per-cents of women were menopausal. Median preoperative POP-Q stage was 3 with mean Ba=2.7±1.6 and C=-0.8±2.8. At a mean follow-up of 6.4 months, there was a significant improvement of POP-Q points Ba, C and Bp (p<0.0001 for all comparisons). Anatomical cure rate was 96%. Clinical cure, defined as a composite outcome of no prolapse outside the hymen, C point above total vaginal length/2, no prolapse symptoms and no need for further treatment, was 98%. Patient satisfaction was high with 100% stating their condition was very much better (PGI-I-A) or much better (PGI-I-B).

Conclusion: Laparoscopic uterosacral ligament suspension is a valid uterine preserving option for women with anterior and apical prolapse, with high short-term anatomical and clinical cure rates and patient satisfaction.

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Vaginal Surgery**
(3:25 PM - 5:05 PM)

4:18 PM – GROUP B

**The Outcome of an Office Based Surgical Treatment
for Stress Urinary Incontinence Using an Adjustable
Single Incision Sling**



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Study Objective: To evaluate the feasibility and outcome of inserting an adjustable single incision sling (Altis-Coloplast) under local anaesthesia (LA) alone in an office based/outpatient operating room.

Design: Retrospective cohort study.

Setting: In the outpatient operating theatre in a University Teaching Hospital.

Patients: Six patients with proven stress urinary incontinence were recruited and counselled to have an adjustable single incision sling (SIS) under local anaesthesia.

Intervention: All patients were consented with appropriate information leaflets given pre operatively. A standard local anaesthetic protocol was used. Strict aseptic techniques were used for surgical incision, handing of mesh/single incision device and check cystoscopy using a flexible cystoscope in the outpatients room. A cough test was done for mesh tensioning. Follow up was at 4 months and thereafter as deemed appropriate.

Measurements and Main Results: All procedures were completed without cancellation or needing additional analgesia outside the protocol. The duration of the operation was 45–60 minutes. Post-op duration of stay varied between 2 hours to 8 hours. There were no readmissions. The procedure was well tolerated based on pain scores intra/post op assessments. All patients reported > 80% improvement in symptoms within 2–4 weeks based on telephone follow up and at 4 months all (1 did not attend) reported a significant improvement in their symptoms of no/minimal leakage. There were no intra/post operative or mesh related complications.

Conclusion: In highly selected and motivated patients, the adjustable SIS may be a safe and suitable surgical treatment option for stress urinary incontinence. By doing these procedures in an outpatient setting the advantage of cost savings, shorter hospital stay and quicker recovery for patients may be realised. A larger sample size and suitable patient selection methods to assess individuals would tolerate this operative in an outpatient setting would be required to be able to offer this procedure on a wider scale.

Design: After IRB approval, a retrospective chart review of patients with a diagnosis of OAB who had failed medical or conservative therapy and who had elected to receive Botox was conducted. A total of 30 patients were identified: 7 with prolapse and 23 without prolapse. Patients with mixed incontinence, neurogenic bladder and advanced prolapse (stage 3 or 4) were excluded. All patients underwent standard injection of 100u of Botox A in the detrusor muscle as per protocol, under either local anesthesia or IV sedation. The level of satisfaction post procedure was assessed by the Patient Global Impression of Impression index two weeks post procedure. The data was further analyzed by a statistician who compared the 2 groups with multivariable statistical analysis for factors such as age, gravity/parity, medical history, smoking, form of anesthesia, urodynamic findings, cystoscopy findings and complications.

Setting: Office setting.

Patients: The control group consisted of patients with overactive bladder. The study group consisted of patients with overactive bladder and pelvic organ prolapse.

Intervention: Intradetrusor injection of Botulinum Toxin.

Measurements and Main Results: Patients with prolapse were found to have a similar rate of improvement of symptoms as the control group (without prolapse) at their follow up visit. All patients with pelvic organ prolapse were “very happy” and reported a decrease in symptoms rate over 70%. Complications included 2 patients with post procedure urinary tract infection, one from each group. One patient in the non prolapse group developed retention requiring self catheterization.

Conclusion: Botulinum Toxin is equally effective in patients with OAB who have stage 1 or 2 prolapse.

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4:29 PM – GROUP C

The Efficacy of Botulinum Toxin for the Treatment of OAB-WET in Women with Pelvic Organ Prolapse



Hessami SH, Amirlatifi N, Stephen H. *Urogynecology, St. Joseph's Regional Medical Center, Paterson, New Jersey*

Study Objective: To assess whether patients with concurrent pelvic organ prolapse (POP) of the anterior compartment and who suffer from overactive bladder may also benefit from the use of onabotA injections.

Continuous Variables

	Mean	Prolapse(n=7)		No Prolapse(n=23)		P-Value
		St.Dev	Mean	St Dev		
Age	69.71	12.22	69.83	8.43	0.98	
Gravidity	2.29	1.70	2.57	1.67	0.70	
Parity	1.57	0.98	2.35	1.53	0.22	
First Desire	118.43	191.64	76.82	62.30	0.37	
First Urgency	151.86	180.36	122.36	69.90	0.52	
Capacity	260.86	165.21	203.91	75.06	0.21	
Leak Point Pressure	82.80	72.79	58.64	48.55	0.44	

Dichotomous Variables

	Prolapse (n=7)		No prolapse (n=23)		P-Value
	Percent	n	Percent	n	
Diabetes	14.29	1	13.04	3	0.99
Hypertension	57.14	4	47.83	11	0.66
Sling	28.57	2	17.39	4	0.52
IV Anesthesia	14.29	1	8.70	2	0.67
UTI	14.29	1	4.35	1	0.35
Retention	0.00	0	4.0	1	n/a
Abnormal Cystoscopy (2)	28.57	2	39.13	9	0.56
Abnormal PVR (2)	28.57	2	27.27	6	0.97
Leak Pressure Point (2,3)	71.43	5	50.0	11	0.32

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4:36 PM – GROUP C

Vaginal Mesh Kits (VMK) in Women Undergoing Reconstructive Surgery for Pelvic Organ Prolapse (POP): Reassurance from a Large Surgical Cohort



Bates SK, Cowan CJ. *Obstetrics and Gynecology, McMaster University, Hamilton, Ontario, Canada*

Study Objective: To determine the effectiveness and safety of a VMK when used in reconstructive surgery for women with POP.

Design: Information on all women undergoing a VMK procedure at a community hospital between 2010 and 2015 was extracted from the Hospital and private office databases. A structured phone survey was then conducted to assess longer term outcomes in these women.

Setting: University-affiliated community hospital performing over 300 urogynecologic surgical procedures annually.

Patients: Women with POP referred for urogynecology consultation.

Intervention: All women in the study had a VMK integrated into the index POP reconstructive surgical procedure.

Measurements and Main Results: The mean age of 111 women in the study was 65.2 years. Of these, 34% had a previous repair in the same prolapse compartment in which the VMK was used. The median pre-op degree of prolapse (Baden-Walker) was $\frac{3}{4}$ for both the anterior and posterior compartments.

The VMK was inserted in Anterior, Posterior or both compartments in; 83, 16 and 1% of women respectively.

There were no, that is, zero percent, (0 %, 95 % CL, 0 % - 3.1 %) serious intra-operative or post-operative complications identified. Minor complications were identified in 21 percent (21 %, 95 % CL 14 – 29 %) of patients. Some of these could reasonably be attributed to the other procedures concurrently performed (i.e. mid-urethral sling-related voiding difficulties). At the six-week post-op visit, 93 % of women had complete resolution of prolapse in the targeted compartment. Overall, 81 % of women answered the phone survey. The respondents mean post-surgery interval was 29.5 months. Of the respondents, 97% reported being “satisfied” with the results of the prolapse surgery and 95% indicated that it “improved” their quality of life.

Conclusion: Surgery with the VMK has a very high success rate with very few complications.

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4:43 PM – GROUP C

Use of Ultrasound to Identify and Measure the Female Bladder Trigone: Implications for Targeted Bladder Therapy

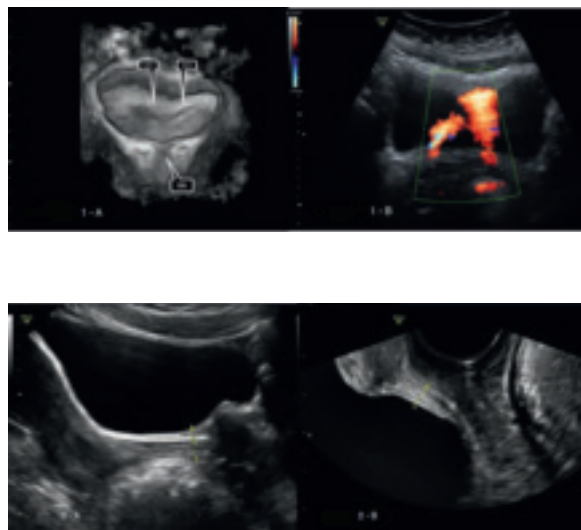


Balica AC, Patel R, Egan S, Segal S, Colas H, Bachmann G. Department of Obstetrics and Gynecology, Rutgers RWJ Medical School, New Brunswick, New Jersey

Study Objective: Direct trigonal treatment of bladder conditions is achieved cystoscopically.

Less invasive transvaginal delivery of treatment under abdominal or transvaginal ultrasound guidance can be considered.

First step is trigone sonographic identification and measurement: thickness and surface area.



Design: A descriptive study of female bladder trigone comparing sonographic measurements transabdominally (TAUS) versus transvaginally (TVUS).

Setting: Gynecological ultrasound unit of a tertiary academic center.

Patients: A total of 28 patients were included.

Intervention: All examinations were performed by the same team using same ultrasound machine.

Exclusion criteria: urogenital abnormalities, prior pelvic surgery, pregnancy.

Trigone Identification: TAUS with 3 D reconstruction. Fig 1A

-Ureteral orifices (UO) seen as smooth excrescence of the bladder wall, confirmed by color Doppler visualization of the ureteral jets. Fig 1B

-The bladder neck (BN) seen where proximal end of the urethra enters the bladder wall.

-The trigone was identified as the area between the UO and BN.

Trigone Measurements:

TAUS: bladder wall (BWT) and detrusor wall thicknesses (DWT) at the trigone Fig2 AUO to BN distance and inter-UO distance.

TVUS: post void BWT and DWT measured at the same point. Fig2B

Surface area was calculated.

Measurements and Main Results: Conclusion: Bladder trigone can be identified and measured sonographically.

Thickness and surface could become measurements for ultrasound guided intratrigonal therapy.

Further studies are warranted to confirm these differences and to establish the best route of measurement.

Trigone Measurements

	Thickness Mean mm (SD)	Thickness Range mm	Mean Measurements mm (SD)	Measurements Range mm	Mean Surface mm ²
BWT (TAUS)	6.11 (1.5)	3.7-9.7			
DWT (TAUS)	3.61 (1.1)	1.5-6.3			
BWT (TVUS)	5.10 (1.6)	0.3-8.1			
DWT (TVUS)	3.47 (1.0)	1.9-6.4			
LEFT UO- BN			19.5 (6.0)	9.3-36.9	
RIGHT UO- BN			22.0 (8.1)	9.0-47.4	
INTER UO			24.8 (7.1)	17.2-43.5	

205.25

For equivalence we used the TOST option in the TTEST procedure.

The two BWT measurements: could not be considered equivalent using a margin of +/- 0.5 mm (p more than 0.9).

The paired t-test : there was a statistical difference between the measurements for BWT (p = 0.005). The two DWT measurements: could be considered equivalent (p = 0.04).

The paired t-test: was no statistical difference (p = 0.5).

There is a statistical difference in BWT and no difference for DWT measured abdominally versus transvaginally.

**151 Open Communications 11 - Urogyn/Pelvic Floor Disorders/
Vaginal Surgery**
(3:25 PM - 5:05 PM)

4:50 PM – GROUP C

**Are Large Uterus and Nulliparity Contraindications
for Vaginal Hysterectomy?**



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Study Objective: To determine perioperative outcome differences in patients undergoing vaginal hysterectomy based on uterine weight, parity and menopausal state.

Design: A Retrospective descriptive study of a prospectively collected database.

Setting: Academic hospital center.

Patients: 452 patients who underwent vaginal hysterectomy performed by a single surgeon between March 2003 and March 2016.

Intervention: None.

Measurements and Main Results: Patients' age, parity, uterine weight, indication for surgery, previous pelvic surgery, previous cesarean delivery, removal of ovaries were compared, as well as estimated blood loss (EBL), operating room time (ORT), length of stay (LOS), intraoperative complications and postoperative complications. Exploring factors associated with blood loss were performed by multivariable logistic regression. For our analysis of operating room time (ORT), multiple linear regression techniques were employed. All data were analyzed at $p < 0.05$ level of statistical significance using SAS system software (SAS Institute Inc., Cary, NC), version 9.3.

The average age and parity were 57.13 +/- 11.52 years and 2.59 +/- 1.65 ; respectively. The overall incidence of blood transfusions, bladder and ureteral injuries were 3.03%, 2.93% and 0.69% ; respectively. The factors associated with longer ORT were uterine weight, removal of ovaries, posterior repair, TVT sling, prolapse and EBL greater than 500cc ($p < 0.0001$). The factors associated with EBL greater than 500cc were uterine weight ($p = 0.0008$), uterine myomas ($p = 0.0157$) and non menopausal state ($p = 0.0138$). No significant difference was noted in incidence of blood transfusions, bladder and ureteral injuries, as well as conversions to laparotomy and readmissions in women regardless of uterine weight and parity.

Conclusion: Vaginal hysterectomy is a safe and feasible approach for women desiring definite surgical treatment in the form of hysterectomy regardless of uterine weight and parity.

**152 Open Communications 11 - Urogyn/Pelvic Floor Disorders/
Vaginal Surgery**
(3:25 PM - 5:05 PM)

4:57 PM – GROUP C

**Retrospective Case Control Study of the Incidence,
Laterality, and Risk Factors of Ureteral Injuries in
Patients Undergoing Hysterectomy**



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Study Objective: This study will describe the incidence, laterality, and risk factors of ureteral injuries in patients undergoing hysterectomy.

Design: Retrospective Case Control (Canadian Task Force classification II-2).

Setting: Community teaching hospital.

Patients: A total of 4709 women underwent different type of hysterectomy between 2001 and 2015, and 27 cases of ureteral injuries occurred.

Intervention: The patients underwent different types of hysterectomies including abdominal, vaginal, laparoscopic and robotic hysterectomy, in which ureteral injury was investigated.

Measurements and Main Results: The incidence of ureteral injury recognized after hysterectomy was 0.5%. Ureteral injuries occurred more often after laparoscopic hysterectomy. There was no difference found in ureteral injury in relation to laterality. Age of patients with a ureteral injury ranged from 40 to 77-years-old and EBL at the of these injuries 25-900 mL. 9 patients had an intervention for ureteral injury at the time of the hysterectomy. 7 of these 9 patients underwent cystoscopy at the time of hysterectomy. 2 patients with ureteral injury had preoperative ureteral catheter stents in place at the time of hysterectomy.

Conclusion: The incidence of ureteral injury related to a hysterectomy from 2001-2015 was 0.5%. Although laparoscopy offers a lot of benefits for patients, such as decreased pain, decreased bleeding, and decreased length of hospital stay, it was noted that there was an increased risk of ureteral injury during laparoscopic hysterectomies compared to other modalities of hysterectomies such as abdominal or vaginal. There was no difference in laterality of which ureter was injured. It is well known that early diagnosis and recognition of a ureteral injury as well as early intervention are important to decrease morbidity associated with a ureteral injury. In this study, cystoscopy at time of hysterectomy helped decrease morbidity by early recognition of ureteral injury.

153 Open Communications 12 - Endometriosis
(3:25 PM - 5:05 PM)

3:25 PM – GROUP A

**Laparoscopic Management of Deep Pelvic
Endometriosis with Minimal Complications: Five-Year
Experience**



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Gynecology, Koc University School of Medicine, Istanbul, Turkey;
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Istanbul, Istanbul, Turkey

Study Objective: To report our experience in laparoscopic management of deep infiltrating endometriosis (DIE) with minimum complications.

Design: Retrospective observational cohort study.

Setting: University hospital and academic affiliated private hospital.

Patients: Patients with stage IV endometriosis according to the American Fertility Society (AFS) classification who were operated on between 2012-2016.


Intervention: Laparoscopic endometrioma excision, cul-de-sac dissection and nodule excision from uterosacral ligament, ureter or bladder wall resection, bowel surgery including shaving and/or segmental resection-anastomosis were performed as needed by a team of gynecologists, general surgeons and an urologist. Patient history, complaints, physical findings, details of the performed procedures, and complications were recorded for each patient.

Measurements and Main Results: One-hundred-and-three patients underwent laparoscopic surgery. Of these, two were converted to laparotomy due to need for ureteroneocystostomy. Cul-de-sac dissection was done in all of the cases. Nodule was excised from the right, left and both uterosacral ligaments in 20, 22 and 21 cases, respectively; adding up to a total of 63 cases. Forty-nine patients had bowel endometriosis; 26 patients underwent rectosigmoid bowel shaving while segmental bowel resection and anastomosis was performed in 23 patients. Ten cases suffered from urinary system endometriosis and had ureter and/or bladder nodule excisions. No major complication was seen. There were two cases of

urinary retention that resolved in the 2nd and 3rd week postoperatively. Five patients had subileus, one patient who underwent laparotomy for ureteroneocystostomy had temporary voiding problems due to kinking of the intramural part of the contralateral ureter. There were no perforations, fistulas, or infections. Blood transfusion was required in only one of the cases. **Conclusion:** Colloboration of a specialized team of surgeons before, during and after this challenging surgery reduces complications to a minimum.

154 Open Communications 12 - Endometriosis
(3:25 PM - 5:05 PM)

3:32 PM – GROUP A

Research of Gestrinone-Related Abnormal Uterine Bleeding and the Intervention in the Treatment: A Multi-Center, Randomized, Controlled Clinical Trial 

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Study Objective: Investigate the incidence, influencing factors and intervention of gestrinone -related abnormal uterine bleeding at different dosage.

Design: Prospective multicenter, randomized, control clinical trial.

Setting: Academic affiliated community hospital

Patients: 195 women with endometriosis or adenomyosis from June 2011 to November 2013.

Intervention: The subjects were randomized into three groups with oral administration of gestrinone, 2.5mg dose at one time; twice a week group(Group A): 67 cases with oral administration twice a week last two months; double dose first month group(Group B): 67 cases with oral administration triple times a week at first month, then twice a week for two months; three times a week group(Group C): 61 cases with oral administration three times a week last three months.

Measurements and Main Results: (1) Three months after, the incidence of abnormal uterine bleeding in Group A was 30 %, in Group B and Group C were 7% and 16% respectively, there were significant difference between three groups(p <0.05)The incidence in Group B was the most lower. (2) Univariate analysis showed that the dosage and ovarian size were the significant factors for abnormal uterine bleeding (OR=0.461, p =0.003; OR=0.303, p =0.016); logistic regression analysis demonstrated that the risk of abnormal uterine bleeding in Group B was the lowest when compared with Group A and Group C, the risk in Group A was 5-fold higher than that in Group B(OR=0.211,

p =0.011). The incidence of abnormal uterine bleeding in participants with abnormal ovarian volume results from ovarian cyst or ovarian surgery was significantly lower than those with normal ovarian volume (OR=0.304, p =0.018). (3)After the treatment of three month, there were no significant difference in alanine transaminase level between the groups(P >0.05).

Conclusion: Double dose of gestrinone in the first month could significantly decrease the incidence of gestrinone -related abnormal uterine bleeding.

155 Open Communications 12 - Endometriosis
(3:25 PM - 5:05 PM)

3:39 PM – GROUP A

Urinary Tract Endometriosis: Review of Four Decades of Evidence and Updates 

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Table 1. Symptoms of UTE in Bladder and Ureter [6]

Symptoms of vesical endometriosis	Frequency (%)
1. Frequency	41-71
2. Urgency	41-78
3. Dysuria	14-21
4. Suprapubic pain	38-78
5. Nocturia	50-75
6. Urge incontinence	21
7. Hematuria	19-30
8. Pelvic Mass	50
Symptoms of ureteral endometriosis	
1. Flank Pain	17-26
2. Abdominal pain	24-45
3. Dysuria	9-15
4. Gross hematuria	13-18
5. Uremia	2-4
6. Pelvic mass	13-14
7. Asymptomatic	50

Table 2. UTE diagnostic modalities

UTE diagnostic modalities	Sensitivity (%)	Specificity (%)
1. Kidney Ureter Bladder X-Ray (KUB) [21]	60 [22,23]*	77 [22,23]*
2. Ultrasonography (US): [24,25,26] (Transabdominal pelvic ultrasound [21] and Transvaginal ultrasound [27,28,29])	73-83[25,26]	86-98[24,25,26]
3. Cystoscopy [30]	95 [31]	87-93 [31]
4. Ureteroscopy [32,33,34]	N/A	N/A
5. Intravenous pyelography (IVP) [30,35,36]	85-90 [37,38]*	95-100 [37,38]*
6. Magnetic resonance imaging (MRI). [30,35,36,28,29]	90 [39]	91 [39]
7. Retrograde urography [36]	N/A	N/A
8. Intravenous urography [40,36]	N/A	N/A
9. Computed tomography (CT-Scan) [36,37,41]	72.2 [37]	100 [37]
10. mercaptoacetyltriglycine (MAG3) renography [21,42] (Radioisotope) renography [43]	91[43]*	84 [43]*

* Evaluation for obstructive uropathy

Table 3. clinical biomarker an immunostains for UTE

Immunostains and serum biomarkers	Sensitivity %	Specificity %
1. ER [44]	N/A	N/A
2. PR [44]	N/A	N/A
3. CK7 [44]	N/A	N/A
4. CA 125 [44, 41, 45]	55.8-92.3	72-92.8
5. CD10 [44]	N/A	N/A
6. CD 19-9 [41]	80	53.9
7. CA-125+NLR [45]	69.383.9	
8. CA-125+MCP-1+leptin [46]	49	94
9. CA-125+MCP-1+leptin+MI [46]	100	40
10. Urinary sFlt-1 [47]	N/A	N/A
11. N1-methyl-4-pyridone-5-carboxamide [48]	N/A	N/A
12. Guanidinosuccinate, [48]	N/A	N/A
13. Creatinine [48]	N/A	N/A
14. Taurine [48]	N/A	N/A
15. Valine [48]	N/A	N/A
16. 2-hydroxyisovalerate [48]	N/A	N/A
17. MALDI- TOF-MS peptide [49]	N/A	N/A
18. NNE (Enolase I) [49]	56	70
19. VDBP [49]	70	55
20. CK 19 [49]	11	94

Table 4. UTE medical treatments [50]*

Medication	Administration methods	Dosage
1. Combined oral contraceptive pills	Oral	One pill daily
2. Etonogestrel/ethinyl estradiol (vaginal ring)	Vaginal Insertion	One ring monthly
3. Norelgestromin/ethinylestradiol (transdermal)	Application	One patch weekly
4. Depot medroxyprogesterone (IM or Sub-Q)	IM or Sub-Q	1.150 mg IM every 13 weeks or 2.104 mg Sub-Q every 12-14 weeks
5. Dienogest	Oral	2 mg daily
6. Levonorgestrel intrauterine system	Insertion	Single for up to 5 years
7. Norethindrone	Oral	5 mg daily
8. Goserelin	Sub-Q implant	3.6 mg monthly
9. Leuprolide	IM	3.75 mg monthly or 11.25 mg every 3 months
10. Nafarelin	Intranasal	400 mcg daily, dosed as one spray in one nostril am and one spray in opposite nostril pm
11. Triptorelin	IM	3.75 mg monthly
12. Danazol	Oral	100-200 mg twice daily
13. Anastrozole	Oral	1 mg daily
14. Letrozole	Oral	2.5 mg daily

* Refer to specific side effects for each medication.

Study Objective: To review the epidemiology, diagnostic modalities, and treatment methods of Urinary Tract Endometriosis (UTE).

Design: Retrospective review of 77 selected articles from January 1976-April 2016.

Setting: We conducted a review of selected 77 UTE articles from PubMed, MEDLINE, Cochrane, and Up-to-date database.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: Endometriosis, the presence of active endometrial gland and stroma outside the uterine cavity involves 10-15% of reproductive age women and up to 3-5% of postmenopausal women [1, 2]. This prevalence surges to 28-75% in

patients with interstitial cystitis [3-5]. Endometriosis typically impacts the urinary tract in 1-2% of cases [6]. It most commonly involves the bladder (80-84%), ureter (15%), kidney (4%), and urethra (2%) [7,8]. UTE has various clinical presentations depending on the size and location of the involvement (Table 1). Bladder endometriosis should be considered in patients with irritative urological symptoms such as, dysuria, hematuria, recurrent urinary tract infection (UTI), bladder spasms, urgency, suprapubic discomfort, and nocturia with aggravation during menstruation [6,9,10]. Ureteral endometriosis can be clinically asymptomatic or present with pelvic and back pain, infertility, urinary frequency, recurrent UTIs, hematuria, silent or progressive obstructive uropathy, hypertension and advance hydronephrosis with up to

Table 5. UTE site specific diagnostic approach and surgical treatment

Urinary Site	Diagnostic Approach	Surgical Approach*	Follow up Post-surgical evaluation*
Ureter (15%)			
	1. Magnetic resonance imaging	1. Ureterolysis (+/- Double J stent) [6, 10,11,30,36,42,51,52, 53,54,55]	1. MRI [56]
	2. Ureterscopy	2. Partial ureteral resection & ureteroneocystostomy [10,36]	2. Ureterscopic surveillance [57]
	3. Ultrasound	3. Partial ureteral resection & end-to-end ureteral anastomosis [36,56]	3. Ultrasonographic evaluations [9]
	4. Intravenous pyelography	4. Segmental ureterectomy and ureterocystostomy [2,58]	4. Transvaginal scan [42,55,56]
	5. Retrograde ureteropyelography	5. Partial ureteral resection & ureteroureterostomy [11,36]	5. Transabdominal ultrasound of the kidney [42,55,56]
	6. CT scan	6. Endoscopic resection [36,59]	
	7. CT Scan Urogram	7. Ureteronephrectomy[10]	
	8. Intravenous urogram	Resection and ureteroneocystostomy with a psoas hitch [54]	
	9. mercaptoacetyltriglycine (MAG3) renography.	9. Reimplantation of the ureter to the bladder using a Boari flap and psoas hitch [10,11,52]	
	10. MRU(magnetic resonance urography)[60]	10. Laser ablation/resection [57]	
Kidney (4%)			
	1. Transabdominal US [61]	1. Complete nephrectomy [6,62] or partial nephrectomy [30] (+/- nephrostomy tube)	1. Renal tract sonography and renal function test [11].
	2. CT [61]		2. Intravenous urography [19]
	3. MRI [61]		3. Retrograde pyelogram [57]
	4. Intravenous pyelogram [63]		
	5. Retrograde pyelography [63]		
	6. Renal angiography [63]		
	7. MRU (magnetic resonance urography)[60]		
Bladder (detrusor muscle, dome, trigone) (80-84%)			
	1. MRI	1. Partial cystectomy (Laparoscopic/ Robotic/Laparotomy) [6,9,10,11,15, 28,42, 54,64-69]	1. Cystoscopy [30]
	2. Transvaginal ultrasound	2. Transurethral Resection [70-72]	2. Cystogram[11]
	3. Cystoscopy [30]	3. Superficial excision of the bladder lesion [2]	
	4. Cystogram[11]	4. Segmental bladder resection [64]	
	5. MRU (magnetic resonance urography)[60]		
Urethra (2%)			
	1. MRI	1. Excision of the lesion +/- Urethral reconstruction	1. MRI
	2. Urethrascopy [73]	2. Urethrascopy	
	3. Urethrogram [74]	3. Urethrogram	
	4. Urodynamic test (If incontinence) [75]	4. Urodynamic test (If incontinence)	

* Other aspect of surgical care based on the location of UTE: 1.Multidisciplinary expert team approach [52]. 2.Placement and maintenance of adequate, uninterrupted urinary drainage [76]. 3. Placement of large size catheter drainage to allow passage of intraperitoneal fluid if necessary [77] 4. Appropriate post surgical care follow up with pelvic rest and appropriate laboratory and diagnostic tests [56]

30% developing acute renal failure [2, 6,11-13]. Different diagnostic modalities have been described for UTE (Table 2, 3). However, endoscopic visualization with biopsy is the best method to confirm the diagnosis [14]. Medical treatment (Table 4) and surgical approaches have been described. Minimally invasive surgeries are more definitive and effective for symptom relief and prevention of UTE recurrence [15-20]. (Table 5)

Conclusion: Urinary Tract Endometriosis requires a high index of suspicion in order to make an accurate and early detection. Proper initial surveillance measures maximize the effectiveness of multi-disciplinary, minimally invasive treatment plans and lead to superior outcomes. Accurate follow-up evaluation minimize the recurrence and progression of UTE.

156 Open Communications 12 - Endometriosis (3:25 PM - 5:05 PM)

3:46 PM – GROUP A

Significance of Magnetic Resonance Imaging in Diagnosis of Deeply Infiltrating Endometriosis



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Study Objective: To compare the value of physical examination, transvaginal sonography, and magnetic resonance imaging (MRI) for the diagnosis of deeply infiltrating endometriosis (DIE).

Design: Retrospective descriptive study.

Setting: University tertiary referral center.

Patients: Forty-one consecutive patients with clinical and histopathological evidence of DIE.

Intervention: Physical examination, transvaginal sonography, and MRI, performed preoperatively.

Measurements and Main Results: The results of MRI in fifteen patients matched with surgical and histopathological findings. Sensitivity and specificity of MRI for the diagnosis of DIE in specific sites were: uterosacral ligaments 12% and 100%; vagina 25% and 100%; rectovaginal-septum 36% and 100%; rectosigmoid 55% and 100%. Only one case was found DIE by transvaginal sonography. The detection rate of pelvic examination is 51%. However, physical examination cannot determine the exact anatomic location of the lesion.

Conclusion: MRI had better accuracy in cases of DIE when compared with physical examination and transvaginal sonography, confirming that it is an important preoperative examination for the definition of surgical strategies.

157 Open Communications 12 - Endometriosis (3:25 PM - 5:05 PM)

3:57 PM – GROUP B

Deep Retraction Pockets, Endometriosis, and Quality of Life



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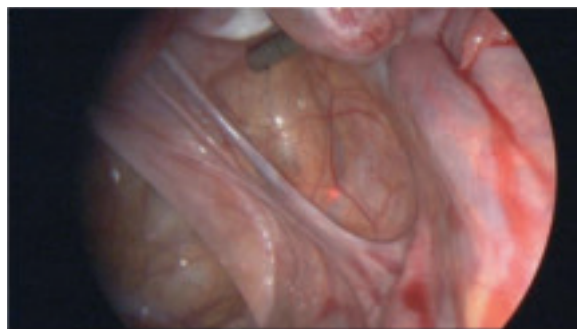
Study Objective: The purpose of this study was to examine if deep retraction pockets (DRPs) in the posterior cul-de-sac and uterosacral ligaments could be a manifestation of endometriosis and if excision of these pockets improves pain symptoms and quality of life.

Design: Prospective cohort study Canadian Task Force Classification, II-3.

Setting: Preoperative data, operative data, and follow-up data were collected prospectively at the Center for Endometriosis at St. Louis University, a referral center for the surgical management of endometriosis.

Patients: Patients with deep dyspareunia presenting for excision surgery for endometriosis.

Intervention: All patients underwent optimal laser excision surgery for abnormal peritoneum consistent with endometriosis, including deep retraction pockets.



Measurements and Main Results: The 107 consecutive patients who presented with preoperative deep dyspareunia were included in the study, and the median postoperative follow-up was 13 months. Endometriosis was confirmed histologically in any location excised in 88/107 (82.2%) of the women, and 31 DRPs were excised from 25 women with DRPs in the posterior cul-de-sac or uterosacral ligaments, of which 15/31 (48.4%) had endometriosis. Of the 10 DRPs without visible surface lesions, 3 (30.0%) had endometriosis on histology. Pain symptoms and quality of life significantly improved after excision surgery, whether or not DRPs were present. Women who had endometriosis in their DRP also had significant improvement in deep dyspareunia and chronic pelvic pain and quality of life. Results did not differ when patients who took postoperative hormonal suppression were removed from the analyses.

Conclusion: Patients had significantly improved pain symptoms and quality of life after excision surgery, whether or not DRPs were present. This study demonstrated that a DRP may be a manifestation of endometriosis (even with a clear surface of the pocket), so that DRPs should be excised to achieve optimal excision of endometriosis.

158 Open Communications 12 - Endometriosis (3:25 PM - 5:05 PM)

4:04 PM – GROUP B

Vaginal Bromocriptine Improves Pain and Bleeding in Women with Adenomyosis



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Study Objective: Adenomyosis affects up to 65% of reproductive age women, causing abnormal uterine bleeding and painful menses. The only widely accepted treatment is hysterectomy. Prolactin is produced in the endometrium and myometrium and is a smooth muscle cell mitogen. Murine models of adenomyosis have shown a pathogenic role for intrauterine concentration of prolactin. In this

study, we test the hypothesis that bromocriptine, a dopamine agonist with prolactin inhibiting effects, will decrease symptoms from adenomyosis.

Design: Multi-center prospective single arm pilot study.

Setting: Private clinic and university hospital in Sweden and university hospital in the United States.

Patients: 22 women with Magnetic Resonance Image diagnosed adenomyosis were enrolled. Three dropped out and 8 are still undergoing treatment. Data on 11 women is complete and is presented.

Intervention: After baseline assessment, vaginal bromocriptine was used and increased stepwise to a dose of 5mg daily; this day was defined as study day 1. Patients continued bromocriptine for 6 months. Women completed multiple validated measures at baseline and after 3 and 6 months of treatment including a Pictorial Blood Loss Assessment Chart (PBLAC), visual analog scale for pain (VAS), Mc Gill Pain Questionnaire (MPQ), Aberdeen Menorrhagia Clinical outcomes (AMCOQ) and the Fibroid Symptom Quality of life (UFS-QOL). Median scores were compared using Wilcoxon Signed Rank test.

Measurements and Main Results: Mean age of women was 44.7 ± 3.6 years, with 82% having menses lasting for ≥ 7 days and 73% having moderate to severe cramps. All women had improvement in bleeding and pain evaluated at 6-months after starting treatment.

Bleeding and Pain Improvement in Women after 6-months of Treatment with Vaginal Bromocriptine

	Median			p-value
	Baseline	6-months	Change	
PBLAC*	367	242	-120	0.003
VAS*	5	2	-2.4	0.020
AMCOQ*	49	34	-15	0.002
MPQ*	18	6	-5	0.039
UFS-QOL ^o	62.1	69	10.8	0.004

*higher score indicates worse symptoms, ^ohigher score indicates fewer symptoms

Conclusion: Significant improvement in menstrual bleeding and pain after bromocriptine treatment suggests a key role for prolactin in adenomyosis and the potential of a novel therapeutic agent for this common disease with limited alternative therapies.

159 Open Communications 12 - Endometriosis (3:25 PM - 5:05 PM)

4:11 PM – GROUP B

Prevalence of Medial Ureteral Position in Patients with and without Endometriosis

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Study Objective: Determine the prevalence of medial deviation of the ureter in patients with and without endometriosis by retrospective examination of laparoscopic photographs. This information is in contrast with the literature suggesting that the ureter is closer to the uterosacral near the uterine artery and with literature that suggests that this only occurs in patient with endometriosis.

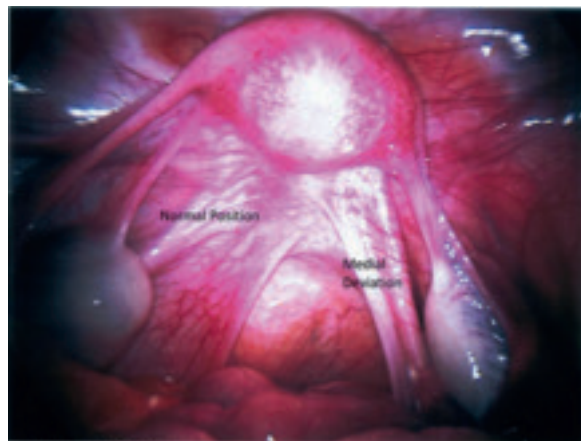
Design: This is a retrospective study of 101 deidentified patients with and without endometriosis.

Setting: Academic community hospital.

Patients: 101 consecutive patients undergoing laparoscopy for pelvic pain, infertility, or pelvic mass. 39 patients had pictures adequate for analysis. 12 patient evaluated had medial deviation of the ureter. 8 of the 12 were diagnosed with endometriosis.

Intervention: Pictures were obtained during routine clinical care of these patients. Pictures were retrospectively reviewed.

Measurements and Main Results: The ureter was considered medially deviated (figure 1) if it was greater than 75% of the distance from the hilar vessels or infundibulo-pelvic vessels to the mid-uterosacral ligament.



We found that of the images reviewed eight were deviated 80-89% from the uterosacral ligament and four were deviated 90-100%.

Conclusion: In 12% patients with and without endometriosis, as the ureter caudally descends it initially moves medially toward the uterosacral prior to coursing laterally to its expected anatomy. This medial positioning puts the ureter at increased risk during procedures such as uterosacral suspension and uterine nerve ablation. This was a retrospectively identified population and the prevalence may not apply to general population.

160 Open Communications 12 - Endometriosis (3:25 PM - 5:05 PM)

4:18 PM – GROUP B

Risk Factors for Reoperation After Initial Excision of Endometriosis Over a Six-Year Period

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Study Objective: To determine risk factors for reoperation in a cohort of 108 women undergoing excisional surgery for endometriosis.

Design: Retrospective data collection chart, electronic and histopathology record review for excisional surgery over six years by two laparoscopic surgeons.

Setting: Gynaecology department of a United Kingdom District General Hospital.

Patients: 108 women undergoing surgery for suspected endometriosis.

Measurements and Main Results: Average age was 31 years, average parity 0 and average BMI 26. Psychomotor comorbidities coexisted in 41% (n=44) of patients; depression 31%, irritable bowel syndrome 17% and fibromyalgia 5%.

34% (n=37) required more than one laparoscopy, the highest number being 6. Patients who were 30 years of age or younger were more likely to undergo reoperation during the follow up period, (OR 2.47 [95% C.I. 1.08-5.61], p=0.03).

There was no association with operator and reoperation rate, (RR 0.96 [95% C.I. 0.55-1.67], $p=0.89$)

Irritable bowel syndrome seemed to be associated with reoperation but this was not statistically significant (OR 2.33 [95% C.I. 0.83-6.52] $p=0.10$).

Patients with a diagnosis of depression did not have a statistically significant greater reoperation rate (OR 1.51 [95% CI 0.61-3.72] $p=0.36$)

A combination of fibromyalgia and irritable bowel syndrome was not associated with increased reoperation rate (OR 1.35 [95% CI 0.21-8.48] $p=0.74$)

Use of adjunct hormonal therapy was not associated with reoperation, (OR 1.40 [95% CI 0.61-3.15] $p=0.41$).

Conclusion: Interestingly only age under 30 was associated with a higher reoperation risk; other factors including operator, comorbidities, BMI, parity and age were not. This information might help doctors advise patients about their reoperation risk and reassure operators that surgical management outcomes are not affected by other factors. The perception that patients with psychomotor comorbidities have poorer outcomes is not reflected in our data. While this was a retrospective observational study and cannot definitively address these issues, it does provide useful information for clinicians and patients.

161 Open Communications 12 - Endometriosis (3:25 PM - 5:05 PM)

4:29 PM – GROUP C

Analysis of Predictive Factors for Recurrence of Deep Infiltrating Endometriosis: A 2-Year Prospective Study

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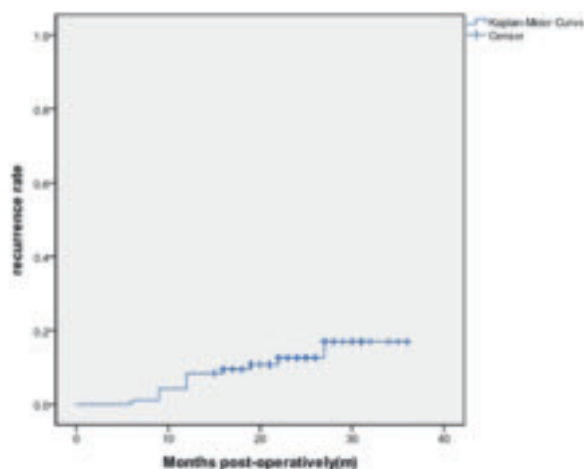
Study Objective: To investigate factors that might predict the recurrence of deep infiltrating endometriosis (DIE) lesions and DIE-related symptoms.

Design: Prospective study with 2-year follow-up.

Setting: A large university-based tertiary obstetrics and gynecology hospital.

Patients: From January 2013 to September 2014, a total of 84 patients who had histologically confirmed deep endometriosis and had undergone surgery were included. All of them underwent laparoscopic surgery.

Intervention: Data were obtained from patient medical records and were compared between recurrence and non-recurrence patients. Follow-up information including the assessment of painful symptoms by visual analogue score (VAS) and ultrasonic/MRI scan that were repeated at 3, 6, 9, 12 and 24 months. Variables (age, BMI, severity and duration of symptoms, size and location of lesion, pre- and post-operative medical treatment) were evaluated using univariate and logistic regression analysis to identify indicative factors associated with recurrence. Fig 1



Measurements and Main Results: During the 2-year follow-up, 3 of them (7.1%) were lost to follow-up. A total of 9(10.7%) experienced recurrence of DIE-related symptoms post-operatively, another 2 (2.3%) were detected recurrence via ultrasound or Magnetic Resonance Imaging (MRI). Univariate analysis showed that longer length of menstruation (7.36 days VS 5.95 days, $p=0.01$), more advanced rAFS stage (Stage I-II VS Stage III-IV, $p=0.002$), higher Visual Analogue Scale (VAS) score for dysmenorrhea (9.36 VS 5.15, $p=0.001$) and higher VAS score for pain with defecation (7.83 VS 4.84, $p=0.016$) were related to the recurrence. However, the multivariate analysis revealed that only the higher VAS score for dysmenorrhea and more advanced rAFS stage were independently related to recurrence of DIE, with the OR=1.895 (1.061-3.385, $p=0.031$), and OR=4.310 (1.091-17.028, $p=0.037$), respectively.

Conclusion: The severer the dysmenorrhea is, and the more advanced rAFS stage the patient suffers, the easier to get DIE lesions or DIE-related symptoms recurrence post-operatively. Better technique of image studies is needed to improve the sensitivity and specificity in the diagnosis of recurrence of DIE.

162 Open Communications 12 - Endometriosis (3:25 PM - 5:05 PM)

4:36 PM – GROUP C

Paratubal Cyst of Morgagni: A Possible Atypical Manifestation of Endometriosis?

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Study Objective: To determine the rate of finding endometriosis in paratubal cysts of Morgagni. To determine if there are differences in patients with endometriosis in the paratubal cysts versus patients with endometriosis though not in the paratubal cyst.

Design: This is a retrospective cohort review of a prospectively collected database of patients under an IRB protocol.

Setting: Patients presenting to a referral center for excision surgery at the St. Louis University Center for Endometriosis, between December 2013 and November 2015.

Patients: Patients presented for pain and/or infertility for excision surgery for known or suspected excision surgery for endometriosis.

Intervention: All patients underwent laser excision surgery with the goal of optimal excision of all visible manifestations of endometriosis, typical and atypical. Paratubal cysts were always excised when seen.

Measurements and Main Results: The initial patient population was 66 patients, who had paratubal cysts excised. After exclusions for unknown data, there was 49 patients for the comparison analysis. The rate of finding endometriosis within paratubal cysts was determined to be 7/62 (11.3%), 5/7 (71.4%) of which were on the left side, and 2/7 (28.6%) on the right side. When comparing the groups of patients with endometriosis in the pelvis but not in the paratubal cysts versus patients with endometriosis in the pelvis and the paratubal cysts, there no differences found in demographics, surgical characteristics, pre and post operative symptoms, except that the group with endometriosis in the paratubal cyst had a higher rate of deep endometriosis and a higher rate of previous surgery for endometriosis.

Conclusion: Endometriosis can be found in paratubal cysts of Morgagni. To achieve optimal excision of endometriosis, paratubal cysts should be excised.

163 Open Communications 12 - Endometriosis (3:25 PM - 5:05 PM)

4:43 PM – GROUP C

A Novel Treatment of Women with Endometriosis Pain Using a Combination of Laparoscopic Surgery, Hysteroscopic Endometrial Ablation and Insertion of a LNG-IUS

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Study Objective: To examine the effectiveness of using a combination of laparoscopy, endometrial ablation and LNG-IUS insertion in the treatment of endometriosis pain.

Design: Prospective non-randomized trial. (Canadian Task Force Classification II-2).

Setting: University-affiliated hospital.

Patients: After REB approval and informed consent, we evaluated sixty-eight women with endometriosis pain who underwent laparoscopy, endometrial ablation, and LNG-IUS insertion from 2001 to 2015.

Intervention: Women with endometriosis pain underwent laparoscopy, hysteroscopic endometrial ablation, and insertion of LNG-IUS.

Measurements and Main Results: Long-term follow-up on sixty-eight patients treated for endometriosis pain was performed in a prospective analysis. Patient symptoms and need for surgical re-intervention were gathered through chart review and patient interview. All patients had endometriosis pain and 56% of patients also had abnormal uterine bleeding. Median follow-up time was thirty-nine months and mean follow-up time was thirty-eight months. Therapy success was determined by patient satisfaction and need for surgical re-intervention. Ten of sixty-eight patients (15%) would go on to receive a hysterectomy, while two patients (3%) are currently unsatisfied with their symptoms and have planned for hysterectomy. The mean time from procedure to hysterectomy was twenty-one months, the median time was eleven. Eleven patients (16%) were lost to follow-up.

Conclusion: Patients suffering from endometriosis pain and abnormal uterine bleeding can be treated effectively with laparoscopy, endometrial ablation, and LNG-IUS insertion. This novel therapy offers patients control of their symptoms and can help them avoid hysterectomy. Our results should be interpreted carefully given the loss of patients to follow-up.

164 Open Communications 12 - Endometriosis (3:25 PM - 5:05 PM)

4:50 PM – GROUP C

Anti-Mullerian Hormone (AMH) – Related Fertility Outcomes in Patients with Endometriosis



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Study Objective: To evaluate pregnancy rate in patients operated for deep infiltrating endometriosis with infertility and pregnancy desire in relation to pre- and postoperative levels of AMH.

Design: Retrospective study using data prospectively recorded in the CIRENDO database.

Setting: University tertiary referral center.

Patients: 180 patients with DIE and/or associated ovarian endometriomas ≥ 5 cm known to be infertile and with a desire to conceive treated surgically in our department from June 2010 to December 2015.

Patients were divided into two groups according to Pre-operative AMH levels: group A AMH ≥ 2 and group B AMH < 2 .

Intervention: Surgical interventions included treatment of DIE. Associated ovarian endometriomas were managed by ablation by PlasmaJet.

Measurements and Main Results: Fertility outcomes were compared between the two groups.

Among 180 women enrolled, 134 (74.5%) were included in group A with a mean pre-operative AMH of 4.3 ± 2.1 , 46 (25.5%) in group B with a mean AMH level of 1 ± 0.5 ($p < 0.001$). Post-operative AMH levels were 3.4 ± 2.5 and 1.2 ± 0.9 in group A and B respectively ($p = 0.001$).

AFSr score averaged 67.8 ± 42.9 in group A and 68 ± 39.3 in group B ($p = 0.98$).

83 (46.4%) were infertile before surgery, 62 (46.6%) in group A and 21 (45.6%) in group B ($p = 0.52$).

A total of 134 (74.4%) pregnancies were noted following surgery with 74 (55.2%) being able to conceive spontaneously. 100 (74.6%) of them were among those of group A, and 34 (73.9%) in group B ($p = 0.52$). The spontaneous pregnancy rate is 54% (54) in group A and 58.8% (20) in group B ($p = 0.17$).

Conclusion: No statistically significant difference in pregnancy outcome rate was observed between the two groups. Patients with low AMH levels

have the same spontaneous pregnancy rate as those with a normal AMH. The level of AMH does not therefore seem to be a marker of infertility especially in cases where assisted reproductive technology management is rejected due to reduced ovarian reserve.

165 Open Communications 12 - Endometriosis (3:25 PM - 5:05 PM)

4:57 PM – GROUP C

Uterine-Sparing Surgery in the Management of Uterine Adenomyosis in Patients of Reproductive Age



Adamyan LV, Kozachenko IF, Dzhamalutdinova KM, Gavrilova TY, Stepanian AA. Operative Gynecology Department, Russian Scientific Center for Obstetrics, Gynecology and Perinatology named after V.I. Kulakov, Moscow, Russian Federation

Study Objective: Adenomyosis is a common condition among women of reproductive age.

Because of the limited amount of data available, the use of uterine-sparing surgery in the management of uterine adenomyosis and/or adenomyoma is still controversial.

Design: Retrospective study.

Setting: Department of operative gynecology of The Research Center for Obstetrics, Gynecology and Perinatology.

Patients: 92 patients with nodule adenomyosis were enrolled in the study between 2011 and 2014.

Intervention: Laparoscopic excision of adenomyotic lesion with subsequent hormonal therapy with GnRH agonists was performed in all patients.

Measurements and Main Results: Mean age of patients was 34 ± 4.5 years. All patients underwent careful laparoscopic excision of the adenomyosis tissue without damage to the uterine cavity. Mean visual analog scale score of dysmenorrhea and menorrhagia before and after a 3-month follow-up was measured. After surgery, the mean visual analog scale score of dysmenorrhea decreased from 9.4 to 0.8, and anemia due to menorrhagia improved in all women. 76 patients of 92 (82%) get pregnant at 6-18 months after surgery: 46 women conceived spontaneously and 20 after ART. 66 pregnancies were uneventful, and healthy infants were delivered via cesarean section at term. In 10 patients pregnancy loss occurred.

Conclusion: Our data support the opinion of the beneficial role of the combination of uterine-sparing surgery and GnRH agonist treatment in managing infertile women with adenomyosis could include the removal of a tumor with a relatively poor blood supply, and the enhancement of the immune function of the host. Laparoscopic uterine-sparing surgery can be an alternative treatment to the use of hypoestrogenic agents or hysterectomy in women with localized adenomyosis, especially for those who want to maintain their fertility and achieve successful pregnancies.

THURSDAY, NOVEMBER 17, 2016

166 Open Communication 13 - Robotics (11:00 AM - 12:00 PM)

11:00 AM – GROUP A

Comparison of Cost and Operative Outcome of Robotic Hysterectomy Compared to Laparoscopic Hysterectomy Across Different Uterine Weights



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Study Objective: To compare operative cost and outcomes between robotic and laparoscopic hysterectomy across different uterine weights.

Design: Retrospective cohort study.

Setting: Academic university hospital.

Patients: Patients who underwent robotic or laparoscopic hysterectomy for benign disease between January 2014 and December 2015 by expert minimally invasive surgeons.

Intervention: Robotic or laparoscopic hysterectomy.

Measurements and Main Results: A total of 196 hysterectomies were identified (101 robotic versus 95 laparoscopic). Demographic and surgical characteristics were mostly similar. Robotic group had a higher body mass index (32.9 ± 6.5 versus 30.4 ± 7.1) and more frequent concurrent adnexal surgery (12.9% versus 4.2%, $p = 0.031$). Laparoscopic group had a higher number of total hysterectomy (89% versus 56%, $p < 0.0001$) and concurrent salpingectomy (81% versus 66.3%, $p = 0.02$). Estimated blood loss did not differ between procedures. Compared to robotic hysterectomies, laparoscopic procedures added 47 minutes (CI 31-63 minutes; $p < 0.001$) of operative time, cost \$1648 more (CI 500-2797; $p = 0.0054$) and had triple the odds of having an overnight admission (OR=2.94 CI 1.34-6.44; $p = 0.007$). After stratification of cases by uterine weight, the mean operative time difference between the two groups in uteri between 750 and 1000 g and in uteri > 1000 g was 81.3 min (CI 51.3-111.3, $p < 0.0001$) and 70 min (CI 26-114, $p < 0.005$) respectively, in favor of the robotic group. Mean direct cost difference in uteri between 750 and 1000 g and uteri > 1000 g was 1859 \$ (CI 629-3090, $p < 0.006$) and 4509 \$ (CI 377- 8641, $p < 0.004$) respectively, also in favor of the robotic group.

Conclusion: In expert hands, robotic hysterectomy is associated with shorter operative time, length of stay and cost profile especially for larger uteri weighing more than 750 gm. Studies from other centers of excellence in minimally invasive surgery are needed to determine consistency of our results.

167 Open Communication 13 - Robotics (11:00 AM - 12:00 PM)

11:07 AM – GROUP A

Comparing the Surgical Outcomes of Robotic Hysterectomies by High-Volume Gynecologists vs. Gynecologic Oncologists



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Study Objective: To determine patient outcomes of robotic hysterectomies performed by high-volume gynecologists and by gynecologic oncologists.

Design: Retrospective chart review.

Setting: Academic urban hospital.

Patients: Patients receiving a robotic hysterectomy for any condition between 2009-2015.

Intervention: Patients who received a robotic hysterectomy and their surgical outcomes.

Measurements and Main Results: There were 468 cases identified, and 387 (82.7%) were for benign indications. Gynecologic oncologists performed 64 (16.4%) of these benign hysterectomies. All gynecologists were high-volume, performing approximately 3-4 robotic hysterectomies per month. Identified medical morbidities in this population included: obesity (43.5%), hypertension (32.5%), diabetes (13.4%), and previous abdominal surgery (20.8%). Patients of gynecologic oncologists were more likely to be older (51.4 vs 46.2 years, $p = 0.01$), African American (72.2 vs 62.3%, $p = 0.01$), have a history of prior abdominal surgery (73.4 vs 42.9%, $p = 0.01$), and cardiac issues (36.4 vs 23.6%, $p = 0.03$). Patients of gynecologic oncologists were also more obese (34.3 vs 31.7 kg/m²), but this was not statistically significant ($p = 0.06$). Intra-operative consults were requested in 51 (20.1%) hysterectomies by gynecologists vs 4 (1.9%) of those by gynecologic oncologists ($p = 0.01$). Gynecologic

cases also took on average 73.4 minutes longer (244.4 vs 171.0, $p = 0.01$). The most common reasons for intra-operative consults were adhesive disease (45.7%) and large uteri (21.9%). Patients of gynecologists were almost 5 times more likely to have intra-operative complications ($n = 18$ (6.9%) vs 4 (1.9), $p = 0.01$), and 3 times more likely to experience postoperative complications ($n = 23$ (9.1%) vs 7 (3.3), $p = 0.01$). Interestingly, gynecologic oncologists were less likely to convert to an open procedure ($n = 2$ (0.9%) vs 14 (5.5), $p = 0.01$).

Conclusion: In minimally invasive surgery using the robotic platform, gynecologic oncologists outperform even high-volume gynecologists in multiple parameters, despite having older patients with more morbidities. Future studies should look at identifying differences in techniques among these two groups.

168 Open Communication 13 - Robotics (11:00 AM - 12:00 PM)

11:14 AM – GROUP A

Robotic-Assisted Abdominal Cerclage During Pregnancy: Case Series



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Study Objective: To evaluate the safety and efficacy of robotic-assisted abdominal cerclage during pregnancy.

Design: Descriptive Study, Canadian Task Force Classification III.

Setting: Two academic institutions

Patients: Patients undergoing robotic-assisted abdominal cerclage during pregnancy between January 2010 and March 2016.

Intervention: Robotic-assisted abdominal cerclage.

Measurements and Main Results: Six patients met the criteria for inclusion. The median age was 34 years (range 28-37) at the time of the procedure. In five cases, the indication for transabdominal cerclage was failed vaginal cerclage in a previous pregnancy, whereas scarred and shortened cervix was the indication in the sixth case due to a cervical laceration in a previous dilatation and curettage. Median operating time was 159.5 minutes (range 124-204 min) and median estimated blood loss was 25 ml (range 10-25). None of the cases were converted to laparotomy and all patients were discharged on postoperative day 1. The median gestational age at delivery was 37.5 weeks (range 22-39 weeks). Five patients delivered between 36 and 39 weeks. None of the patients had chorioamnionitis or preterm premature rupture of membranes. One patient went into preterm labor at 22 weeks with the need of cerclage removal via mini-laparotomy. The patient was found to have an approximately 1 cm uterine rupture close to the right uterine artery under the cerclage suture. The cerclage suture was removed and the rupture site was repaired without the need for a hysterectomy. The patient gave birth to a 500 g female infant vaginally three hours after the procedure.

Conclusion: Robotic-assisted abdominal cerclage seems to be safe and effective during pregnancy.

169 Open Communication 13 - Robotics (11:00 AM - 12:00 PM)

11:21 AM – GROUP A

Lumbosacral Osteomyelitis after Robotic-Assisted Laparoscopic Sacral Colpopexy Using Biological Mesh



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Study Objective: To report a case series of L5-S1 osteomyelitis and discitis after robotic-assisted laparoscopic sacral colpopexy using Strattice Reconstructive Tissue Matrix.

Design: Case series.

Setting: University teaching hospital and faculty gynecological practice.

Patients: Three patients who were treated for L5-S1 osteomyelitis and discitis after robotic-assisted laparoscopic sacral colpopexy using Strattice Matrix at an outside hospital.

Intervention: Diagnoses were confirmed with MRI and CT scan. Biopsies were performed at L5-S1. All patients were monitored weekly to trend WBC, ESR and CRP, and were successfully treated with IV antibiotics as outpatients.

Measurements and Main Results: All patients were referred for treatments. Data was abstracted from review of medical records and surgical reports. Strattice Matrix was used for sacral colpopexy. Gore-Tex suture was used for mesh application. The vaginal cuff was closed with V-loc suture in two layers. All patients developed lower back pain and copious vaginal discharge within 1 week and were diagnosed at 4-5 months by MRI for worsening symptoms. They were initially treated for abnormal vaginal discharge with PO antibiotics and the vaginal cuff was either cauterized with silver nitrate or repaired surgically. Cultures of aspirated fluid and core biopsy at L5-S1 were negative for bacteria, fungus and AFB. Only one case had rare Gram positive cocci, but the culture had no growth. Blood cultures and urine cultures were negative. ESR and CRP returned to normal around 8-12 weeks after the initiation of IV antibiotics.

Conclusion: The selection of mesh and suture material, and surgical techniques are critical in robotic-assisted laparoscopic sacral colpopexy,

due to the potential risk of lumbosacral osteomyelitis. Strattice Matrix can cause significant inflammatory response. Worsening lower back pain and copious vaginal discharge immediately after surgery should raise suspicion for an infection. High index suspicion of osteomyelitis with an early diagnosis by MRI is critical and conservative management can be utilized.

170 Open Communication 13 - Robotics (11:00 AM - 12:00 PM)

11:32 AM – GROUP B

Laparoscopic and Robotically-Assisted Hysterectomy for Uterine Leiomyomas: A Comparison of Costs and Complications



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Study Objective: To compare costs and perioperative complications of laparoscopic and robot-assisted hysterectomy for uterine leiomyomas.

Design: A population-based retrospective cohort study comparing women who underwent hysterectomy for uterine leiomyomas between 2008 and 2012.

Setting: The Health Care Cost-Nationwide Inpatient Sample database: includes data from hospitals across 46 states in the United States.

Case Series of L5-S1 Osteomyelitis after Robotic- Assisted Laparoscopic Sacral Colpopexy Using Biological Mesh

Cases	Case 1	Case 2	Case 3
Diagnosis	Pelvic Organ Prolapse, SUI, Cystocele	Uterovaginal prolapse stage 3, SUI, cystocele, pelvic pain	Pelvic Organ Prolapse
PMH	PCOS, Depression	Restless leg syndrome, Constipation	RA taking MTX, meningitis, MRSA
PSH	none	Mesh bladder tuck 13 years ago	TAH, Abdominoplasty complicated by MRSA
Procedure	Robotic TLH, Urethropexy, Sacral Colpopexy, Paravaginal defect repair	Robotic TLH, BSO, Burch, Sacral Colpopexy, Mesh removal	Robotic Sacral Colpopexy, Cystocele repair
Mesh and Suture	Strattice mesh, Anchor: Gore-Tex interrupted stitch x 3 Vag Cuff: V-Loc Monocryl 2 layer	Strattice Mesh, Anchor: Gore-Tex interrupted stitch x 3 Vag Cuff: V-loc monocryl 2 layer	Strattice Mesh, Anchor: Gore-Tex interrupted stitch
Initial Symptoms	LBP, pressure on Spine difficulty with ambulation 1wk after surg, vaginal spotting	LBP with radiating pain on bilateral thigh and profuse greenish discharge 1wk after Surg	Copious vag discharge immediate post op, LBP unable to bear weight
Imaging Study	MRI L5-S1, vertebral osteomyelitis CT: prevertebral soft tissue thickening and inflammation	MRI: L5 osteomyelitis, L5-S1 discitis, prevertebral and epidural phlegmon/ abscess extending caudally into pelvis	MRI L5-S1 osteomyelitis, discitis, CT soft tissue thickening anterior, water density fluid collection in pelvis
Initial Labs	WBC 11.4, ESR 24 (0-20), CRP 0.4 (0-0.9)	WBC 9.9, ESR 33 (0-20), CRP 0.8 (0-0.9)	WBC 8, ESR 53 (0-20), CRP 102 (0-0.9)
Microbiology	Unable to obtain biopsy due to anatomical location Blood culture NGTD Urine culture NGTD	Fluid aspiration at L5-S1 and L5 core biopsy Neg for bacterial, fungal, AFB, organisms Blood culture NGTD Urine culture NGTD	Pelvic fluid aspiration and vaginal discharge both grew rare Gram positive cocci fluid culture Neg for yeast, anaerobes, AFB Blood culture NGTD Urine culture NGTD
Interval of Diagnosis	4 months	4 months	5 months
Initial Treatment	Suture removal, vaginal cuff cauterized with silver nitrate, PO Cipfo, Flagyl, Chiropractic therapy	PO Bactrim and Flagyl, Vaginal cuff cauterized with silver nitrate, Physical therapy x 5	Vaginal cuff cauterized with silver nitrate in office, then vaginal cuff repair surgically with vaginal packing for 7 days
Final Treatment	IV Ertapenem, Vancomycin x 8wks Levaquin+Bacrim PO x 28 days	IV Vanc-Dapto, Cefepime, Flagyl x 12wks, then 3 mon PO Keflex and 6-8wk of doxycycline, total 6 mo abx treatment	IV Daptomycin and Ertapenem for 7wks followed by PO abx, total 3 months of treatment
Complications	Vaginal cuff revision with Gore-Tex suture removal at 10 mo from initial surg, path finding: granulation tissue		

Table 1. Baseline Characteristics of Women Who Underwent Surgery for Uterine Fibroids

Characteristics	Laparoscopic N=33,086 (%)	Robot N=10,521 (%)
Age		
< 40	5,037 (15.22)	1,544 (14.68)
40-49	18,088 (54.67)	5,696 (54.14)
50-59	8,198 (24.78)	2,431 (23.11)
≥ 60	1,763 (5.33)	850 (8.08)
Median income quartile		
Q1	8,850 (27.24)	2,078 (20.07)
Q2	6,720 (20.68)	2,174 (20.99)
Q3	7,198 (22.15)	2,998 (28.95)
Q4	9,722 (29.92)	3,105 (29.99)
Race		
White	18,007 (54.42)	5,764 (54.79)
Hispanic	2,973 (8.99)	1,163 (11.05)
African American	7,018 (21.21)	1,908 (18.14)
Other	1,656 (5.01)	657 (6.24)
Missing	3,432 (10.37)	1,029 (9.78)
Payment source		
Medicare	1,761 (5.32)	796 (7.57)
Medicaid	2,384 (7.21)	770 (7.32)
Private insurance	26,562 (80.28)	8,371 (79.56)
Self pay/no charge/ other	2,307 (6.97)	562 (5.34)
Missing	72 (0.22)	22 (0.21)
Comorbidities		
HTN	10,835 (32.75)	3,570 (33.93)
CVD	1,996 (6.03)	793 (7.54)
Diabetes	3,288 (9.94)	1,337 (12.71)
Pulmonary Disease	4,225 (12.77)	1,668 (15.85)
Renal Disease	2,259 (6.83)	830 (7.89)
Anemia	9,714 (29.36)	2,699 (25.65)

HTN, hypertension; CVD, cardiovascular disease

Women who had robotic surgery, compared with the ones treated laparoscopically, were more likely to have respiratory failure (OR 1.5, 95% CI 1.1-2.0), postoperative fever (OR 1.6, 95% CI 1.2-2.0) and ileus (OR 1.3, 95% CI 1.1-1.5), and less likely to have transfusion (OR 0.8, 95% CI 0.7-0.9).

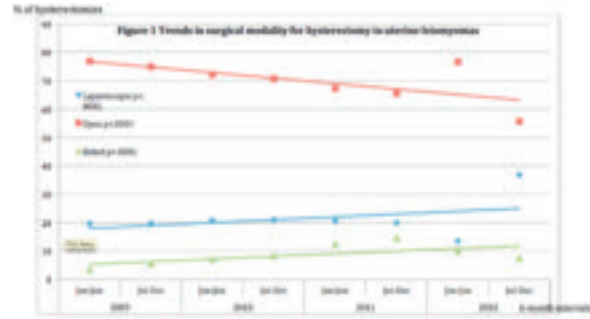


Figure 1. Trends in surgical modality for hysterectomy in uterine leiomyomas

Patients: Subjects were women who underwent hysterectomy for leiomyomas. Among these 156,079 women, 33,086(76%) had laparoscopic and 10,521(24%) had robotic-assisted hysterectomy.

Intervention: Open, robotically-assisted, total laparoscopic, and laparoscopic-assisted vaginal hysterectomies.

Measurements and Main Results: We trended the rates of different types of hysterectomy in six-month intervals. A descriptive analysis was performed with patient baseline characteristics to compare robotic and laparoscopic approaches. Rates of perioperative complications were compared using likelihood ratios. Logistic regression estimated associations between surgical methods and complications, adjusting for patient characteristics. Median cost per admission was calculated for each cohort. Over the five-year study period, the total number of hysterectomies increased, with a decreasing trend in laparotomy mirroring increasing rates of laparoscopic and robotic approaches.

Table 2. Association between Surgical Approach and Length of Admission and Complications

Complications	Laparoscopic (n = 33,086) %	Robotic (n = 10,521) %	Crude OR (95% CI)	Adjusted OR a (95% CI)	P value
Length of stay (days)					
> 3	89.94	91.07	Ref	Ref	
3-6	8.64	7.35	0.84 (0.77-0.91)	0.78 (0.72-0.85)	<.0001
≥ 7	0.97	1.17	1.19 (0.96-1.46)	1.05 (0.84-1.31)	0.659
Intra-operative complications					
Any laceration	10.21	3.36	0.31 (0.27-0.34)	0.37 (0.33-0.42)	<.0001
Bowel injury	0.03	0.03	0.94 (0.26-3.43)	0.79 (0.21-2.94)	0.7266
Bladder injury	0.11	0.09	0.75 (0.36-1.54)	0.71 (0.34-1.48)	0.3605
Ureter	0.08	0.10	1.33 (0.66-2.70)	1.37 (0.67-2.81)	0.3899
Conversion to open	2.67	2.69	1.01 (0.88-1.16)	0.98 (0.86-1.13)	0.8244
Post-operative complications					
Fever	0.67	1.05	1.57 (1.25-1.98)	1.55 (1.23-1.96)	0.0002
Sepsis	0.08	0.10	1.21 (0.58-2.51)	0.96 (0.44-2.09)	0.9200
Transfusion	3.96	3.40	0.85 (0.76-0.96)	0.83 (0.73-0.94)	0.0037
VTE (DVT, PE, CVA)	0.15	0.24	1.61 (0.99-2.60)	1.39 (0.85-2.28)	0.1946
AKI	0.63	0.68	1.09 (0.84-1.43)	0.92 (0.70-1.23)	0.5856
Urinary Retention	1.23	1.33	1.09 (0.90-1.32)	1.01 (0.83-1.23)	0.9269
Respiraotry Failure	0.39	0.71	1.85 (1.39-2.46)	1.48 (1.09-1.99)	0.0108
Pneumonia	0.21	0.38	1.83 (1.24-2.70)	1.47 (0.98-2.20)	0.0647
Ileus	1.30	1.76	1.36 (1.15-1.62)	1.29 (1.07-1.54)	0.0060
Wound Infection	0.15	0.23	1.54 (0.95-2.51)	1.40 (0.85-2.30)	0.1923
Seroma/ Hematoma	0.42	0.39	0.93 (0.66-1.33)	0.92 (0.64-1.31)	0.6278
Death	0.02	0.01	0.45 (0.06-3.65)	0.33 (0.04-2.78)	0.3081

a: Adjusted for age, income, race, source of payment and co-morbidities. CI, confidence interval; VTE, venous thromboembolism; DVT, deep vein thrombosis; PE, pulmonary embolism; CVA, cerebrovascular accident; AKI, acute kidney injury

Length of admission was similar in both groups (median of one day). In overall and subclass analyses robotic surgery was consistently more expensive (overall median cost of \$33,928.00 vs \$23,753.00).

Table 3. Median charges for laparoscopic and robotically-assisted hysterectomy

Variable	Laparoscopic (n = 33,086)	Robotic (n = 10,521)	Adjusted difference ^a (95% CI)	P value
Median Cost	\$23,753	\$33,928	\$12,932 (12,443 - 13,421)	<.0001
Length of admission (days)				
< 3	\$22,697	\$32,708	\$12,949 (12,531 - 13,367)	<.0001
3-6	\$32,381	\$46,815	\$15,558 (13,480 - 17,636)	<.0001
7+	\$65,197	\$82,365	\$581 (-18,509 - 19,672)	0.9523
Age				
<60	\$23,636	\$33,759	\$13,087 (12,593 - 13,582)	<.0001
≥60+	\$25,466	\$36,065	\$9,787 (7,315 - 12,259)	<.0001
Conversion to open				
Yes	\$27,711	\$41,819	\$15,706 (11,835 - 19,578)	<.0001
No	\$23,650	\$33,739	\$12,822 (12,332 - 13,313)	<.0001

CI, confidence interval;^aAdjusted for age, income, race, source of payment and co-morbidities.

Robotic cohort had older patients and more comorbidities, such as cardiovascular disease, diabetes, pulmonary disease, renal disease and hypertension, whereas the laparoscopic group had more patients with anemia.

Conclusion: Both laparoscopic and robotic-assisted hysterectomies for uterine leiomyomas are comparably safe surgical interventions, with negligible complication rates. With a consistently greater total direct cost, the robotic approach has minimal advantages compared with laparoscopy.

U4C4V4. All patients have hematometra more than 4cm. The average operation time was 232.5±89.2 min, average blood loss was 225.0±95.7ml.

Conclusion: Congenital complete vaginal and cervical atresia is rare. Some patient has urinary system abnormality. Robotic-assisted reconstruction of cervix and vagina by SIS graft and/or fusion of hemi-uterus is feasible and safety. However, more cases should enroll and additional studies are required.

171 **Open Communication 13 - Robotics**
(11:00 AM - 12:00 PM)

11:39 AM – GROUP B

Robotic Surgery of Congenital Complete Vaginal and Cervical Atresia



Zhang Y, Chen YS, Hua KQ. *The Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China*

Study Objective: To summarize and analyze clinical characteristics and robotic surgery features of congenital complete vaginal and cervical atresia.

Design: Clinical observation and follow-up of 7 months.

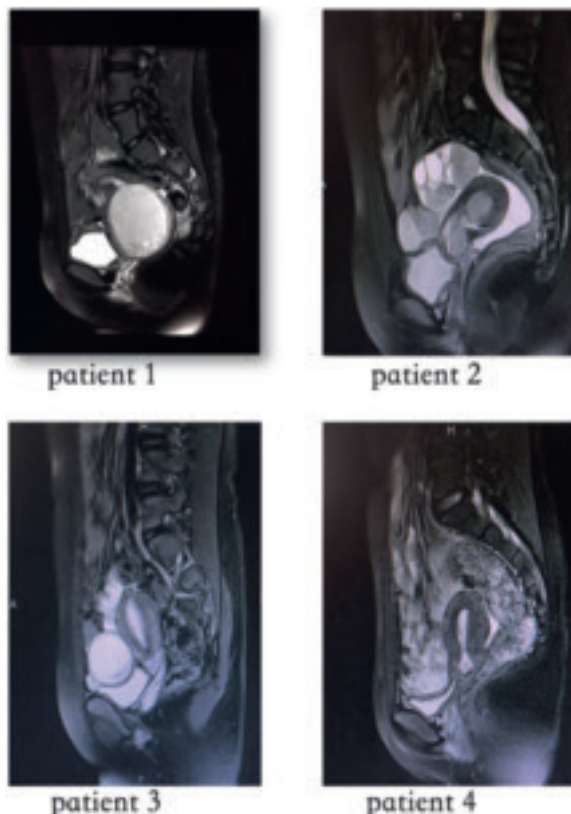
Setting: Obstetrics and Gynecology Hospital affiliated of University.

Patients: 4 patients diagnosed of congenital complete vaginal and cervical atresia and underwent robotic surgery during 2015.

Intervention: Robotic-assisted reconstruction of cervix and vagina by SIS (small intestinal submucosa, SIS) graft (Cook Medical, USA) and/or fusion of hemi-uterus.

Measurements and Main Results: Patient age was 12 to 17, the average was 13.75 ±2.2. All the patients complained of severe periodic pain of abdomen. Mammary development and serum sex hormone were within normal range. 1patient has single kidney. The diagnosis was made according to clinical characteristics, physical examination, MRI (Figure 1) and classified by ESHRE/ESGE system. 2 patients had hemi-uterus (U4C4V4).

All 4 patients underwent reconstruction of cervix and vagina by SIS graft. Fusion of hemi-uterus was performed in the 2 patients of



Clinical Characteristics of 4 Patients of Congenital Complete Vaginal and Cervical Atresia

Characteristics	Patient 1	Patient 2	Patient 3	Patient 4
Age (years)	12	13	13	17
Complaints	Periodic pain of abdomen for 2 months	Periodic pain of abdomen for 2 years	Periodic pain of abdomen for 1 month	Periodic pain of abdomen for 2 years
Mammary development	Tanner IV	Tanner IV	Tanner IV	Tanner V
Gynecological examinations	Normal vulva with no vagina nor cervix, a 7cm diameter hypertension mass in the pelvic	Normal vulva with no vagina nor cervix, a 5 cm diameter mass in the pelvic	Normal vulva with no vagina nor cervix, a 4 cm diameter mass in the pelvic	Normal vulva with no vagina nor cervix, a 6 cm diameter mass in the pelvic
Serum hormone	Normal	Normal	Normal	Normal
MRI	Unicornous uterus in the right side, with the lower segment expanded to 7cm of diameter, no sign of vagina nor cervix., absent of the right kidney	Unicornous uterus in the left side, rudimentary horn of the uterus in the right side, with the hematometra of 5cm, no sign of vagina nor cervix	No sign of vagina nor cervix with the hematometra of 4cm in the lower segment of the uterus	No sign of vagina nor cervix with the hematometra of 6cm in the lower segment of the uterus
Urinary system	Single kidney	Normal	Normal	Normal
Diagnosis	Congenital complete vaginal and cervical atresia with hemi-uterus	Congenital complete vaginal and cervical atresia with hemi-uterus	Congenital complete vaginal and cervical atresia	Congenital complete vaginal and cervical atresia
ESHRE/ESGE classification	U4C4V4	U4C4V4	U0C4V4	U0C4V4
Operation	Robotic- assisted reconstruction of cervix and vagina by SIS graft and fusion of hemi-uterus	Robotic- assisted reconstruction of cervix and vagina by SIS graft and fusion of hemi-uterus	Robotic- assisted reconstruction of cervix and vagina by SIS graft	Robotic- assisted reconstruction of cervix and vagina by SIS graft
Operation date	2015/5/14	2015/8/6	2015/9/6	2015/10/26
Operation time (min)	260	340	200	130
Blood loss (ml)	300	300	200	100

After surgery all patients have normal menstruation without pain. They insist to wear vaginal mould 24 hours per day. The average follow up was 7 months. The average length of the vagina was 8.9 ± 0.3 cm, average width was 3 ± 0 cm.

Follow up information of the patients after robotic surgery

Characteristics	Patient1	Patient2	Patient3	Patient4
Follow up time (month)	10	7	6	5
Menstruation(day)	7per30-40	6per30-40	6per30	7per30
Periodic pain of abdomen	N	N	N	N
Vaginal mould wear(per day)	24h	24h	24h	24h
Length of vagina (cm)	9	8.5	9	9
Width of vagina (cm)	3	3	3	3

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11:46 AM – GROUP B

Does Decreased Insufflation Pressure During Major Robotic-Assisted Gynecologic Surgery Have an Influence on Intraoperative Respiratory Parameters



Tokiwa M, Grant A, Huang K. *Obstetrics and Gynecology, New York University Medical Center, New York, New York*

Study Objective: To investigate whether decreased insufflation pressure during robotic-assisted gynecologic surgery has an influence on intraoperative respiratory parameters.

Design: Retrospective cohort study from March 2014 to August 2015.

Setting: University hospital.

Patients: Women undergoing benign gynecologic robotic procedures.

Intervention: A total of 301 patients underwent robotic hysterectomy, myomectomy and adnexal surgery, of which three were excluded for

incomplete data. The remaining 298 cases were included in the study. Ninety-nine patients were in 10mmHg insufflation pressure group, 100 patients were in 12mmHg insufflation pressure group, and 99 patients were in 15mmHg insufflation pressure group. All procedures were completed in steep trendelenburg position.

Measurements and Main Results: Peak Inspiratory Pressure (PIP), plateau airway pressure (Pplat), tidal volume (TV), minute ventilation (MV), positive end-expiratory pressure (PEEP), were collected at three points, T0: after intubation and before insufflation initiation, T1: 5 min after induction of pneumoperitoneum, T2: the midsurgery insufflation time. End tidal CO₂ (EtCO₂) was collected at two points, in the beginning and at the end of insufflation.

Student's t-test was used to analyze parametric data and Wilcoxon rank test was used for non-parametric data. There were no statistically significant differences in baseline characteristics of the three groups. There were significant differences in PIP and Pplat at T2 among three groups. Median PIP at T2 was 28mmHg in 10 mmHg group vs 31 mmHg in 15 mmHg group ($p < 0.001$); and median Pplat

Table 1. Median measured variables in the intraoperative period and P value compared insufflation pressure 10 mmHg vs. 12 mmHg, 10 mmHg vs.15 mmHg, and 12 mmHg vs. 15 mmHg

	Insufflation pressure			P value		
	10 mmHg (n=99)	12 mmHg (n=100)	15 mmHg (n=99)	10 vs 12	10 vs 15	12 vs 15
PIP T0	18	18	19	0.66	0.06	0.2
PIP T1	27	28	30	0.54	0.002	0.04
PIP T2	28	29	31	0.08	<0.001	0.01
Pplat T0	16	16	17	0.94	0.36	0.37
Pplat T1	25	26	28	0.55	0.01	0.06
Pplat T2	26	28	30	0.13	<0.001	0.03

Note: PIP: peek inspiratory pressure. Pplat: plateau airway pressure. T0 refers to time after induction of anesthesia, T1 to 5 minutes after induction of pneumoperitoneum, and T2 to the midsurgery insufflation time.

The EtCO₂ between the end and the beginning of insufflation were lower in 10 mmHg vs 15 mmHg group with median difference of 1 vs. 3(p=<0.001).

Table 2. EtCO₂ of median (SD) measured variables, absolute difference and percent difference

	Insufflation pressure			P value		
	10 mmHg (n=99)	12 mmHg (n=100)	15 mmHg (n=99)	10 vs 12	10 vs 15	12 vs 15
Beginning of Insufflation	33	33	33	0.8	0.12	0.22
End of Insufflation	34	34	36	0.11	0.04	0.001
Absolute difference	1	1	3	0.07	<0.001	<0.001
Percent difference	3%	0%	9%	0.08	<0.001	<0.001

Note: Absolute difference: EtCO₂ at the end of Insufflation - EtCO₂ in the beginning of insufflation. Percent difference: (EtCO₂ at the end of the insufflation - EtCO₂ in the beginning of insufflation) /EtCO₂ in the beginning of insufflation

at T2 was 26 mmHg in 10mmHg group vs 30 mmHg in 15 mmHg(p=<0.001).

Conclusion: Operating at a lower pressure allows for improved respiratory parameters for patients undergoing robotic gynecologic procedures in steep trendelenburg position. These benefits may be especially important in obese patients.

173 Open Communication 13 - Robotics
(11:00 AM - 12:00 PM)

11:53 AM – GROUP B

Robotic Hysterectomy: Assessing Patient Attitudes and Knowledge



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Study Objective: Our primary objective was to assess patient attitudes and health literacy of robotic hysterectomy. Our secondary objective was to identify factors affecting patient knowledge and perception of robotic gynecologic surgery.

Design: This was a prospective study conducted from August 1, 2015 through January 31, 2016. IRB approval was obtained. Patients presenting for routine general and sub-specialty benign gynecologic care were recruited. Anonymous questionnaires in English or Spanish were distributed to patients.

Setting: n/a

Patients: n/a

Intervention: n/a

Measurements and Main Results: One hundred and two women were enrolled, 4 of which declined participation. The patient characteristics are detailed.

Conclusion: Knowledge about hysterectomy and use of robotic surgery in our study population was extremely limited. Although two-thirds would undergo a hysterectomy for life threatening conditions, less than half would opt for robotic hysterectomy as the preferred route. Few patients

Table 1. Patient Characteristics

Age	Range 22-80y	Mean 41.5y
Parity	0-4	Mean 1.6
Race	Hispanic 66%	African American 24%
	White 3%	Others 6%
Education	High school or less 64%	Some college or higher 35%
Annual income	<25k 51%	25-50k 26%
	>50k 9%	Don't know 12%
Insurance	Medicaid 63%	Private 27%
	None 10%	

Just over half of those interviewed had heard of hysterectomy (56%), and most had never heard of robotic hysterectomy (78%).Information was received primarily from health care provider (45%), media (36%), or friends/family members (32%). 64% responded in the affirmative to have a medically indicated hysterectomy. Robotic hysterectomy was declined by 55% of the women,the reasons are detailed.

Table 2. Reasons for Refusal

Lack of sufficient knowledge about the surgery	57%
Induced menopausal/ emotional/ sexual changes	21%
Inability to have more children	13%
Pain	13%
Bleeding	8%
General surgical complications	4%
No reason	20%

Robotic hysterectomy for a primary indication of vaginal prolapse or gynecological cancer was acceptable to 49% and only a minority (11%) would consider surgery for improvement of health or quality of life.

would do so on an elective basis for the sole purpose of improving their quality of life. Contrary to the growing use of robotic surgery across the country, our findings support a different level of awareness and slower acceptance rate in lower socioeconomic populations. This wide gap in advanced surgical technology and consumer perception raise fundamental concerns about health literacy in similar populations and its potential impact on the informed consent process overall.

174 Open Communications 14 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:00 AM – GROUP A

125 Consecutive, Intra-Pregnancy Laparoscopic Transabdominal Cerclages: A Single Surgeon's Experience



Demir RH. *Desert Women's Care, Chandler, Arizona*

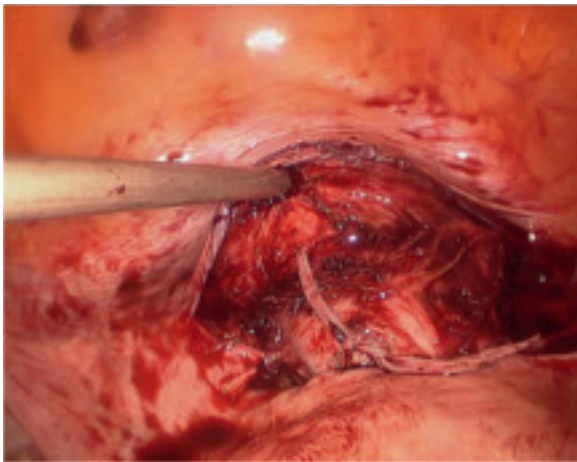
Study Objective: To evaluate efficacy of intra-pregnancy, laparoscopic transabdominal cerclage (LTAC).

Design: Prospective observational.

Setting: Private practice of minimally invasive surgery.

Patients: 125 consecutive currently-pregnant patients with diagnosis of cervical insufficiency and either loss in a prior second trimester pregnancy with vaginally-placed cerclage or inadequate portio-vaginalis to permit vaginally-placed cerclage were included. Singleton pregnancies between 13 and 21 weeks were included.

Intervention: Standard three or four puncture laparoscopy was undertaken in each case. Bladder was reduced on the pubo-cervical-vesical fascia. A polyester fiber band was placed precisely at the cervico-isthmic junction and care was exercised to avoid injuring adjacent uterine vasculature.



Measurements and Main Results: Outcomes were tracked in the first pregnancy following cerclage placement. 10 pregnancies were lost prior to 24 weeks. Fetal survival rate for pregnancies of at least 24 weeks was 99.1%. No significant intra-operative complications were observed.

Conclusion: Intra-pregnancy LTAC is effective treatment for women with cervical insufficiency meeting selection criteria. Placement of the suture as far cephalad as possible, at the level of the internal os, where the intrinsic defect of incompetent cervix is postulated to exist, likely contributes to these favorable outcomes.

LTAC Outcomes in Pregnancy

	Intra-Op Complic	Delivery <24 w	Delivery 24-30 w	Delivery 31-36 w	Delivery >36 w	Fetal Survival
n=125	0 (0%)	10 (8%)	9 (7.2%)	45 (36.0%)	61 (48.8%)	114 (99.1%)

175 Open Communications 14 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:07 AM – GROUP A

Indications, Surgical Technique and Outcomes of Ovarian Transposition



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Study Objective: To summarize available literature with respect to indications for ovarian transposition and patient outcomes in the context of ovarian function and fertility preservation following pelvic radiation.

Design: Systematic review of published literature on ovarian transposition in patients undergoing radiation therapy for pelvic malignancies.

Setting: Systematic review of available literature, in the setting of an academic department and a tertiary care facility.

Patients: This is a systematic review of the literature on ovarian transposition, summarizing the techniques and outcomes from 69 publications that met the inclusion criteria.

Intervention: Data Sources: We conducted an electronic search of research articles published in English without date restriction, using PubMed and ClinicalTrials.gov databases. The key words of “ovarian transposition”, “ovariopexy” and “oophoropexy” were used for the literature search.

Measurements and Main Results: Methods of Study Selection: Of the 224 studies initially identified, 69 were selected after limiting the review to clinical trials and case reports focusing on ovarian transposition in the context of cancer and cross-referencing to eliminate duplication.

Tabulation, Integration, and Results: Data were abstracted using standard abstract templates to summarize study findings. Given the under-utilization of this procedure and the lack of clinical trials and case reports, we report available data with respect to indications, most commonly reported surgical techniques, reported complications associated with the procedure, and the outcomes in the context of fertility and ovarian function. A brief video illustrating the step-wise technique of the procedure will be shown.

Conclusion: Ovarian transposition is a safe but under-utilized procedure in the preservation of fertility and ovarian function in women with pelvic cancers. Physicians should recommend ovarian transposition in addition to other preservation methods as an onco-fertility option for these women.

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(11:00 AM - 12:00 PM)

11:14 AM – GROUP A

Post-Operative Pain and Patient Satisfaction with Single-Port Robotic-Assisted Laparoscopic Hysterectomies and Salpingo-Oophorectomies



Fisher JE, Perlin LE. *Department of Obstetrics and Gynecology, William Beaumont Hospital, Royal Oak, Michigan*

Study Objective: To determine if single-port robotic-assisted laparoscopy results in increased patient satisfaction, decreased pain and improved cosmetic appearance. Secondary outcomes to be evaluated include lower blood loss and shorter length of stay.

Design: Prospective, case-cohort study.
Setting: Large, suburban, academic/teaching hospital.
Patients: Women undergoing robotic-assisted gynecologic procedures.
Intervention: Analog pain and satisfaction surveys were evaluated in women undergoing laparoscopic single-port and multi-port robotic-assisted hysterectomies and/or salpingo-oophorectomies. Patients received surveys on post-operative day 0 or 1, and at their two-week and six-week post-operative visits, with questions regarding post-operative pain, satisfaction with the surgery and incision appearance, etc.. Results were controlled for potential confounding variables such as pre-operative diagnosis, specimen weight, and patient demographics. Evaluation of pre-operative pain, intra-operative estimated blood loss, and length of stay were also evaluated and compared between the two groups.
Measurements and Main Results: Patients who underwent single-port laparoscopic surgery had a significantly lower estimated blood loss (65 mL versus 107 mL, $p=0.035$). They also had lower pain scores post-operatively (current pain - 2.1/10 versus 5.1/10, $p=0.001$, and maximum pain - 4.8/10 versus 7.1/10, $p=0.008$). Lastly, length of stay post-operatively was shorter for patients in the single-port compared to the multi-port group (0.67 days vs. 1.18 days, $p = 0.01$).

Single-Port vs Multi-Port Robotic Surgery Results

	Single-Port	Multi-Port	Significance
Uterine Weight (grams)	204	333	NS
Estimated Blood Loss (cc)	65.0	107.0	$p<0.05$
Current Pain (POD 0/1)	2.1	5.1	$p<0.001$
Maximum Pain (POD 0/1)	4.8	7.1	$p=0.008$
Length of Stay (days)	0.67	1.18	$p<0.01$

Conclusion: Patients who undergo laparoscopic single-port robotic-assisted gynecologic surgeries experience significantly less pain post-operatively as compared to patients undergoing multi-port gynecologic surgeries. In addition, estimated blood loss is significantly lower and length of stay is significantly shorter in patients undergoing single-port robotic-assisted procedures. Patient satisfaction scores appear to be higher in this group. Of note, the difference in pain and satisfaction scores may be even greater given that single-port surgery patients were evaluated more often on post-operative day 0 as opposed to post-operative day 1 for the majority of multi-port surgery patients.

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11:21 AM – GROUP A

A Comparison Between Total Laparoscopic Hysterectomy and Abdominal Hysterectomy at TEC of Monterrey Healthcare System



Basurto-Diaz D, Silva-Alanis J, Flores-Mendoza H, Hernandez-Nieto CA, Nungaray-Gonzalez L, Leyva-Gutierrez K, Garcia-Rodriguez LF. *Tecnológico de Monterrey, San Pedro, Nuevo Leon, Mexico*

Study Objective: To compare variables regarding laparoscopic and abdominal hysterectomies.

Design: A retrospective analysis of patients who underwent hysterectomy between 2007 and 2014 at TECSalud healthcare system was performed; 741 patients in the abdominal group and 206 in de laparoscopic group. Means, standard deviation and confidence intervals were calculated and a Student's t-test was performed to test differences between means.

Setting: TECSalud healthcare system.

Patients: 741 patients in the abdominal group and 206 in de laparoscopic group.

Intervention: Abdominal hysterectomy Total laparoscopic hysterectomy.

Measurements and Main Results: Population characteristics were as follows for the laparoscopic group: age 45.84 years($SD=6.94$), BMI 25.68($SD=5.39$). Population characteristics for the abdominal group were: age 47.44 years($SD=7.57$), BMI 24.60($SD=3.20$), wound infections 113

($SD=15.25$; $p=0.1144$). There were no significant differences between characteristics of both groups.

Laparoscopic hysterectomies had a significantly lower hospital-stay (2.62 vs 3.45; $p=0.0001$), significantly less bleeding (200.44 vs 291.98; $p=0.0001$). Nonetheless, they presented with a significantly higher surgical time (145.39 vs 123.52; $p=0.0001$). There were no differences in terms of complications between both groups and finally there was an increased risk of wound infection in the abdominal group ($RR=1.42$, $p=0.1144$).

Conclusion: Evidence suggests that patients undergoing laparoscopic hysterectomy presented with lower hospital-stay and less bleeding in comparison with patients who underwent abdominal hysterectomy. Patients who underwent abdominal hysterectomy had a significantly lower surgical time but an increased risk of wound infections. Complications were equivalent in both groups. Therefore, total laparoscopic hysterectomy is a feasible and a safe option for hysterectomy in our population.

178 Open Communications 14 - Laparoscopic Surgeries (11:00 AM - 12:00 PM)

11:32 AM – GROUP B

Route of Hysterectomy and Risk of Readmission



Jaffry AM,¹ Hollenbeak CS.² ¹Ob/Gyn, Hershey Medical Center, Hershey, Pennsylvania; ²Surgery and Public Health Sciences, Hershey Medical Center, Hershey, Pennsylvania

Study Objective: To determine whether the route of hysterectomy has any significance in the rate of readmission within 30 days of surgery in Pennsylvania.

Design: A retrospective cohort analysis to determine whether the minimally invasive approach had a lower rate of readmission after controlling for other patient characteristics. Age, race/ethnicity age, ethnicity, payer operation, admission status (elective, urgent, emergent) and admission type (transfer, referral) were the specific covariates that we used for control.

Setting: Data for this study came from the Pennsylvania Health Care Cost Containment Council (PHC4). PHC4 is a state agency with the task of collection of data and reporting on outcomes of hospitals and health care providers across the state. The data set contained all the data from the UB-92 discharge form, including patient demographics, information about procedures, and discharge disposition. We identified hysterectomy procedures using ICD-9 procedure codes for non-radical open (68.31 68.39 68.4 68.49 689), laparoscopic (68.41, 68.51) and vaginal (68.51, 68.59) procedures.

Patients: Our study looked at a large cohort of patients who have had a hysterectomy in 2011 in Pennsylvania. It included hysterectomies done for nonmalignant reasons in larger academic centers as well as smaller community hospitals.

Intervention: A hysterectomy can be done vaginally, laparoscopically or with a laparotomy. Vaginal and laparoscopic routes are considered minimally invasive.

Measurements and Main Results: A total of 15,869 hysterectomies were performed in 2011. There were 701 readmissions. 7,923 were laparotomies and out of these 439 were readmitted. 4,254 were vaginal hysterectomies and out of these 130 were readmitted. 3,692 were laparoscopic hysterectomies and out of these 132 were readmitted.

Conclusion: Patients readmitted were mostly operated by low or medium volume surgeons, had a laparotomy, belonged to the black race and were either younger than 45 year or more than 65 years. Admission types, insurance types and hospital volumes were statistically insignificant.

Table 1.

	Laparotomy		Vaginal		Laparoscopic	
	N	Percent	N	Percent	N	Percent
Readmitted	439	5.5	130	3.1	132	3.6
Not Readmitted	7,484	94.5	4,124	96.9	3,560	96.4
Total	7,923	100.0	4,254	100.0	3,692	100.0

Readmission comparisons.

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11:39 AM – GROUP B

Factors Associated with Peri-Operative Blood

Transfusion in Minimally Invasive Myomectomy



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Study Objective: To determine factors associated with peri-operative blood transfusion after minimally invasive myomectomy.

Design: Retrospective cohort study.

Setting: An academic, tertiary-care referral center.

Patients: Patients who underwent laparoscopic or robotic-assisted myomectomy between 2004 and 2015.

Intervention: Retrospective chart review to identify factors associated with estimated blood loss (EBL) \geq 500 mL, hemoglobin (Hb) drop \geq 3 g/dL and peri-operative blood transfusion.

Measurements and Main Results: The cohort included 363 patients; 57.6% had laparoscopic and 42.4% had robotic myomectomy. The mean (SD) body mass index was 29 kg/m² (7) and mean age 36 (6). The mean uterine size was 14 weeks (3.8), mean largest myoma diameter 8.2 cm (3.2), mean specimen weight 280 gams (305) and mean number of myomas removed 3.6 (3.7). The mean EBL was 164 mL (321) and 8.4% of patients had EBL \geq 500 mL. 19.8% had \geq 3 g/dL decrease in Hb. The percent of peri-operative blood transfusion was 4.4% and total complication 11.4%. When compared to women without a blood transfusion, women who received a blood transfusion had a larger mean myoma diameter (9.5 vs. 6.5 cm; $p=0.002$), larger mean uterine size (17 vs. 14 weeks; $p=0.002$), greater mean number of myomas removed (7.9 vs. 3.4; $p=0.0002$), larger mean weight of myomas removed (651 vs. 262 grams; $p=0.0001$) and longer mean procedure duration (263 vs. 177 minutes; $p=0.0001$). Drop in Hb \geq 3 g/dL and EBL \geq 500 mL were both significantly associated with larger myoma diameter, larger uterine size, greater number and weight of myomas removed as well as longer procedure duration. In a logistic regression model, procedure duration was the only characteristic that remained significantly associated with blood transfusion when adjusted for the other factors.

Conclusion: In our cohort, number, size and weight of fibroids are significantly associated with blood transfusion. After adjusting for all significant variables, operative time was the only factor significantly associated with blood transfusion.

180 Open Communications 14 - Laparoscopic Surgeries (11:00 AM - 12:00 PM)

11:46 AM – GROUP B

A Comparative Study Between Laparoscopic and Transvaginal Repair of Cesarean Scar Defect



Xu H, Yang M, Ding J, Hua K. Gynecology, The Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China

Study Objective: To compare the efficacy, postoperative recovery and medical expenses between laparoscopic and transvaginal repair of cesarean scar defect.

Design: Retrospective cohort study.

Setting: University-affiliated hospital.

Patients: Totally 169 patients with cesarean scar defects (CSD) were retrospectively analyzed, 122 of them received laparoscopic repair and 47 of them received transvaginal repair between March 2012 and June 2015.

Intervention: Patients received laparoscopic repair or transvaginal repair, and were followed up at least three month after surgery about duration of menstruation. Other medical data were collected from medical history.

Measurements and Main Results: No significant statistical differences were found between groups in patient characteristics including age, age of cesarean, duration of menstruation before cesarean, duration of menstruation after cesarean (median, 15 days in laparoscopic repair group v.s. 14 days in transvaginal repair) ($p>0.05$). After surgery, The median duration of menstruation was 8 days in laparoscopic repair group and was 9 days in transvaginal repair group, which were largely reduced from those before surgery ($p=0.000$) but had no statistical difference between group ($p=0.606$). The cure rate (duration of menstruation \leq 7 days after surgery) is 45.1% (55/122) in laparoscopic repair group and 44.4% (20/47) in transvaginal repair group ($p=0.899$), the effective rate (duration of menstruation \leq 10 days after surgery) was 75.4% (92/122) in laparoscopic repair group and 74.5% (35/42) in transvaginal repair group ($p=0.767$). compared with laparoscopic repair, transvaginal repair had advantages of shorter operative time (median 60 v.s. 81 minutes, $p=0.001$), faster recovery of intestinal activity (median 19 v.s. 24 hours, $p=0.010$) and lower medical expenses (median 9081.17 v.s. 12487.75 RMB, $p=0.000$).

Conclusion: Laparoscopic and transvaginal repair of CSD have comparable effect in symptom improvement. Transvaginal repair is less invasive.

181 Open Communications 14 - Laparoscopic Surgeries (11:00 AM - 12:00 PM)

11:53 AM – GROUP B

Major Complications Associated with Over 1,400 Operative Laparoscopies: A Multicenter Prospective Study



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Study Objective: As an increasing number of indications for operative gynecological laparoscopy continue to present the number being performed is rising, however, the minimally invasive approach can be a challenge for even experienced surgeons. Traditionally associated with increased complications, are the shorter recovery times for patients worth the risk?

Our objective was to review the incidence of major complications following operative gynecological laparoscopic surgery.

Design: Prospective multicenter study.

Setting: A multicenter prospective study of 1,413 operative laparoscopies over a 94-month period by three internationally trained advanced laparoscopic surgeons.

Patients: All patients undergoing operative gynecological laparoscopies were included.

Intervention: Complications diagnosed intraoperatively and postoperatively were analyzed.

Measurements and Main Results: Major complication rate was 18/1413, 1.27%. This included damage to bowel (5/1413), bladder and urinary system (6/1413), vascular injury (6/1413) and one death secondary to pulmonary embolus.

Analysis of the timing of the complication being recognized included at entry (1/1413), intraoperatively (5/1413) and delayed (12/1386).

The majority of the complications were managed laparoscopically 11/18 (61.1%) and 9/18 (50%) were successfully managed by the gynecologist.

Conclusion: The major complication rate is low, and compares favorably with those reported in the literature for open and vaginal equivalent procedures. Many major complications can be managed by the gynecologist using a laparoscopic approach thereby avoiding the morbidity associated with laparotomy.

182 Open Communications 15 - Reproductive Issues (11:00 AM - 12:00 PM)

11:00 AM – GROUP A

Perfecting Hysterosalpingography: Limitations and Solutions



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Study Objective: The purpose of this study is to revive an old technique to overcome limitations associated with technical difficulties during hysterosalpingography (HSG) using the disposable HSG catheter.

Design: Case series: A retrospective study of patients with technically difficult or an incomplete HSG study using a disposable HSG catheter.

Setting: Academic Teaching Hospital, Tertiary Health Care Center.

Patients: A total of 17 consecutive patients who had a technically difficult or an incomplete HSG study performed using a disposable HSG catheter during 2015-2016 were included in the study. Nine patients underwent a repeat HSG using Kahn's/acorn cannula (Group1). Eight elected to undergo diagnostic laparoscopy and tubal perfusion testing using Kahn's/acorn tipped cannula (Group 2). In Group 1, the HSG procedure performed using the disposable HSG cannula was associated with a difficult insertion in 4 patients, dye leak into the vagina in 3 patients likely leading to lack of proper pressure build up in the uterus and an incomplete study in 2 patients due to cervical stenosis. In Group 2, the HSG procedure performed using the disposable HSG cannula was associated with dye leak in 6 patients and a difficult insertion leading to incorrect positioning of the balloon in the lower uterine segment in 2 patients.

Intervention: Repeat HSG study using a Kahn's/acorn cannula or diagnostic laparoscopy with tubal perfusion using Kahn's/acorn tipped cannula.

Measurements and Main Results: All patients were noted to have patent tubes on repeat HSG or tubal perfusion testing during laparoscopy.

Conclusion: Radiologists and Gynecologists who perform HSG studies should be familiar with the value of a Kahn's/acorn tipped cannula when the traditional use of disposable HSG catheter fails due to technical difficulty or incomplete or inconclusive study. The use of Kahn's/acorn tipped cannula in such situations can prevent inaccurate assessment and unnecessary interventions.

183 Open Communications 15 - Reproductive Issues (11:00 AM - 12:00 PM)

11:07 AM – GROUP A

The Morphology of Pelvic Adhesions in Patients with Uterine Leiomyoma



Kondratovich L, Adamyan L, Kozachenko A. Federal Institution, Research Center for Obstetrics, Gynecology, and Perinatology named after V.I. Kulakov, Moscow, Russian Federation

Study Objective: To Study the Morphological Aspects of Pelvic Adhesions in Patients with Uterine Leiomyoma.

Design: A prospective study.

Setting: Operative Gynecology Department, Federal Scientific Center for Obstetrics, Gynecology and Perinatology named after V.I.Kulakov, Moscow, Russian Federation.

Patients: Patients who underwent laparoscopic myomectomy over the period of 6 months and who were found to have adhesive peritoneal process.

Intervention: Laparoscopic myomectomy with biopsy of pelvic peritoneum and pelvic adhesions. Morphological and immunohistochemical (IHC) studies of the myoma, peritoneum, and pelvic adhesions were performed.

Measurements and Main Results: 110 patients underwent laparoscopic myomectomy over the period of 6 months. Peritoneal adhesions were found in 34 cases. Based on morphological study, markers of

inflammation and reactive changes of the mesothelium in pelvic adhesions of patients with myoma were 50 % higher than those of pelvic peritoneum, fibroblasts were 56.2% more present, 50% higher degree of neovascularization was observed. "Mature adhesions" characterized by higher activity of fibroblasts, angiogenesis, response of the mesothelium and the presence of adipocytes were prevalent. Both collagen 1st and 3rd types were found in pelvic adhesion using IHC study. Increased expression of collagen 1st type was identified with uterine leiomyoma specimens, while increased expression of collagen 3rd type was revealed in pelvic adhesions. Morphologically it was characterized by intense coloring of cells, their diffuse localization, and accumulation around the vessels. There were statistically significant differences in the expression of collagen 3rd type between uterine leiomyoma and pelvic adhesions ($p < 0.05$) and between normal peritoneum and pelvic adhesions ($p < 0.05$).

Conclusion: Collagen 1st type with stable structure and dense connective fibers was dominant in uterine leiomyoma. The collagen 3rd type with an unstable changing structure dominated in pelvic adhesions. These findings demonstrate active and inflammatory properties of pelvic adhesions in patients with uterine myoma and suggest pathway for establishing of a prognosis of individual fibroid growth potential.

184 Open Communications 15 - Reproductive Issues (11:00 AM - 12:00 PM)

11:14 AM – GROUP A

Selective Approach to Combined Organ-Sparing Treatment of Women with Ectopic Cervical Pregnancy



Kozachenko AV, Akinfiyev DM, Adamyan LV. Federal State Institution, Research Center for Obstetrics, Gynecology, and Perinatology named after V.I. Kulakov, Moscow, Russian Federation

Study Objective: To evaluate the effectiveness of modern approaches and technologies for preserving fertility in young patients with ectopic cervical pregnancy.

Design: Prospective and retrospective analysis.

Setting: Department of Operative Gynecology of the Federal State Institute, Research Centre for Obstetrics, Gynecology, and Perinatology, named after V.I. Kulakov

Patients: Women with cervical pregnancies, treated in Operative Gynecology department during 10 recent years.

Intervention: Clinical protocol included transvaginal ultrasound with color Doppler mapping, MRI; determination of serum β -subunit of human chorionic gonadotropin (β -hCG), biochemical blood tests and hemostasis in the dynamics, diagnostic hysteroscopy and followed with resectoscopic excision of pregnancy with preoperative methotrexate followed by leucovorin administration. Selective uterine artery embolization (SUAE) was used in selected cases.

Measurements and Main Results: 42 women with cervical pregnancies (ages 25-43 years) were treated in Operative Gynecology department during 10 recent years. 25 of them underwent combined therapy with preoperative methotrexate chemotherapy and minimal invasive surgery (resectoscopic removing of cervical pregnancies) for preserving fertility. In 5 cases with higher blood supply of chorion and its invasion into the cervix we used selective uterine artery embolization (SUAE). The term of pregnancy on admission ranged from 5 to 9 weeks of gestation and the average term was $6,2 \pm 0,9$ weeks. Patients with cervical pregnancy received methotrexate at an average of 50 mg/every 48 hours, leucovorin was administered at a dose of 6 mg after 28 hours after methotrexate injection. The total dose of administered methotrexate ranged from 200 to 300 mg and depended on the body weight, week of gestation and intensity of chorion blood flow.

Conclusion: The results of this study suggest that resectoscopic removing of embryo with previous cytostatic therapy with methotrexate in combination with leucovorin allows to preserve fertility in young women with early cervical pregnancy. In cases of chorion invasion into the cervix SUAЕ following resectoscopy is a treatment of choice.

185 Open Communications 15 - Reproductive Issues (11:00 AM - 12:00 PM)

11:21 AM – GROUP A

Reproductive Outcomes After Hysteroscopic Septoplasty and Comparison of Different Surgical Techniques: A Retrospective Cohort Study



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Study Objective: The aim of the study was to evaluate pregnancy outcomes after hysteroscopic septoplasty and to compare the beneficial effects of different hysteroscopic techniques.

Design: Retrospective design.

Setting: Ege University School of Medicine Department of Obstetrics and Gynecology.

Patients: Hospital records of 122 patients who underwent hysteroscopic septoplasty were retrospectively reviewed.

Intervention: Hysteroscopic septoplasty was performed in all cases with either monopolar electrode or cold scissors.

Measurements and Main Results: All patients' pregnancy outcomes were followed-up by using registry system and telephone interviews. Ninety-four pregnancies (79 live births, 15 abortion) occurred. Sixty-six women had at least one live birth. Hysteroscopic septoplasty was performed in 72 and 50 patients using resectoscope and cold scissors with 5mm hysteroscope, respectively. Forty-two (58%) and twenty-four patients (48%) in the resectoscope and cold scissors group, respectively, had live birth but the difference was not statistically significant. Hysteroscopic septoplasty is a safe and effective method with high pregnancy rate. There is no significant difference in live birth rates whether using resectoscope or scissors.

Conclusion: Infertile patients should be offered the option of hysteroscopic septoplasty unless they have a history of adverse reproductive outcomes.

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11:32 AM – GROUP B

Fertility and Pregnancy Outcomes Following Laparoscopic Myomectomy



Kozachenko IF, Adamyan LV, Smolnikova VY, Porotikova IE, Begieva GA, Stepanian AA. Operative Gynecology Department, Russian Scientific Center for Obstetrics, Gynecology and Perinatology named after V.I. Kulakov, Moscow, Russian Federation

Study Objective: To assess post-operative fertility rates and pregnancy outcomes of patients who had a Laparoscopic myomectomy (LM) from 2012 to 2014.

Design: Retrospective case series.

Setting: Department of operative gynecology of The Research Center for Obstetrics, Gynecology and Perinatology.

Patients: 437 patients that underwent LM.

Intervention: We reviewed the medical records of 437 patients that underwent LM. Routine postoperative care involved obtaining follow up on their fertility and pregnancy outcomes.

Measurements and Main Results: 437 women with mean age of 40.55 +/-2.24 years and mean BMI of 24.53+/-4.9 kg/m². Patients had a mean of 3.34 +/- 2.9 fibroids removed (range 1-21), with the average mass of the fibroids being 331.23 +/- 310.36 grams. 354 of 437 patients (81%) provided fertility and pregnancy outcome data. Follow-up from time of surgery to most recent charted data ranged from 10 months to 7.9 years. Of the 354 women, 212 (59.9%) actively tried for pregnancy after surgery. 73.2% of the 212 achieved a total of 155 pregnancies – 123 full term, 26 preterm, 16 spontaneous abortions and 2 termination. 90.4% of these patients underwent cesarean section. A subset of 104 women had pre-existing infertility. 25 of these patients underwent intrauterine

insemination (IUI), while 79 underwent in vitro fertilization (IVF). After surgery, 60% of these patients achieved 62 total pregnancies. Of the 354 cases, there was one placenta accreta and no uterine ruptures.

Conclusion: The fertility rate after laparoscopic myomectomy for all women attempting to conceive (73.2%) and for those with known infertility who continued to try for pregnancy (60%) was similar. There was a low incidence of major complications associated with the presence of uterine scarring in pregnancies conceived after laparoscopic myomectomy in both women with and without a diagnosis of fertility.

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11:39 AM – GROUP B

Why We Fail. Single Dose Methotrexate Failure – Comparing Patients Receiving Second Dose with Those Selected for Surgical Intervention



Schwartz M, Wu C, Fridman D, Rotenberg O, Arabkhaazeli M, Scott C, Levie M. Montefiore Medical Center, Bronx, New York

Study Objective: To compare patients selected for surgery with those receiving second dose of methotrexate amongst patients who failed single-dose methotrexate for treatment of ectopic pregnancy (EP).

Design: A retrospective cohort, descriptive study.

Setting: Inner city academic medical center.

Patients: Patients treated with methotrexate for suspected EP from January 1998 to January 2014.

Intervention: Review of medical records.

Measurements and Main Results: 396 patients with EP were treated with single-dose methotrexate – 114 (28.8%) failed single-dose methotrexate therapy. Group 1 (n=57) received a second dose of methotrexate; Group 2 (n=57) underwent surgery. There were no significant differences with regards to demographics, prior history, or initial clinical presentation. Group 1 had lower initial levels of hcg (2466±2354 vs 5854±7734, p=0.002), and lower proportion of patients with adnexal mass (68.4% vs 89.5%, p=0.005) or fetal pole (12.2% vs 33.3%, p=0.007). Other parameters (size of mass, presence of free fluid) did not demonstrate statistical significance.

The main reason for administration of a second dose methotrexate was inappropriate decline of hcg (86.0%). 8.8% received additional methotrexate due to an increase in size of adnexal mass despite adequate hcg dynamic and there was no information on indication in 5.3%. 17.5% patients from Group 1 ultimately required surgery, while the others had successful resolution of EP.

The main reason for surgical intervention in Group 2 was worsening abdominal pain (57.9%). Other causes were – de-novo ectopic fetal pole (12.3%), inadequate decline in hcg (8.8%), increase in size of adnexal mass (5.3%), increase in free fluid (3.5%), and in 12.3% no reason was identified.

Conclusion: In our setting, single-dose methotrexate therapy failed in 28.8% patients – half received a second dose and the other half went directly to surgery. Patients who were selected for surgery had a more advanced gestation at initial presentation. Decision of intervention in cases of failed single-dose methotrexate was mostly clinical.

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11:46 AM – GROUP B

Hysteroscopic Correction of Uterine Malformations Improves the Uterine Receptivity and Implantation Rate in Infertile Cases with Recurrent Implantation Failure



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Study Objective: To increase the endometrial receptivity that increases implantation rate in infertile women suffering from recurrent ICSI failure with variation in the endometrial shape, thickness and subendometrial blood flow without any other cause of implantation failure.

Design: Retrospective observational study.

Setting: 2D and 3D vaginal ultrasound of the endometrium with DOPPLER study to assess the pattern of the endometrium (triple line, thickness and subendometrial blood flow).

Hysteroscopic metroplasty of dysmorphic cavity to reach the normal parameters.

Patients: 376 women ages between 22 to 38 suffering from recurrent implantation failure and uterine dysmorphia.

Intervention: 2D and 3D vaginal ultrasound of the endometrium with DOPPLER study to assess the pattern of the endometrium (triple line, thickness and subendometrial blood flow).

Hysteroscopic metroplasty of dysmorphic cavity to reach the normal parameters.

Measurements and Main Results: The endometrial cavity characterized by dysmorphia with variation in the widest dimensions between the two ostea less than 20MM and midcavitary narrowing less than 12MM and abnormal high subendometrial blood flow with RI more than 0.6.

After hysteroscopic correction of the dimension resulted in increase the dimensions of the cavity and better subendometrial blood flow and successful embryo implantation and even spontaneous pregnancy of 223 cases and had full term babies, 72 cases had successful implantation after ICSI/ET and 61 had fullterm babies, 31 cases had abortion due to infections and thrombophilias, 22 cases are pregnant now 10 by ICSI and 12 spontaneously under follow up, 27 cases have been lost.

Conclusion: Hysteroscopic correction of uterine dysmorphias associated with recurrent implantation failure due to weak, narrow and insufficient blood supply of the cavity significantly increase the implantation rate and take home baby rate.

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11:53 AM – GROUP B

Comparing Patients with Ectopic Pregnancy Who Fail Methotrexate Therapy with Those Selected for Immediate Surgical Intervention



Wu C, Fridman D, Rothenberg O, Scott C, Levie M. Montefiore Medical Center, Bronx, New York

Study Objective: To compare patients with ectopic pregnancy (EP) who fail methotrexate therapy with those who were selected for immediate surgical intervention.

Design: A retrospective cohort, descriptive study.

Setting: Inner city academic medical center.

Patients: Patients presenting to the medical center who were treated surgically for suspected EP from January 1998 to January 2014.

Intervention: Review of medical records.

Measurements and Main Results: 508 patients were treated surgically for EP. 437 were selected for immediate surgical intervention (group 1), and 70 underwent surgery after failure of medical management (group 2). There was no significant difference in demographic and prior history between groups. Complaint of pain was prevalent in both groups, but group 1 reported it more frequently (89.2% vs 75.0%, $p < 0.001$). Comparing sonographic findings on the day when decision for intervention was made (surgery or initial administration of methotrexate) patients had similar prevalence of adnexal mass (85.2% vs 80.3%, $p = 0.29$). However, the larger adnexal masses (36.4±20.0 mm vs 20.1±16.9 mm, $p < 0.001$), more pelvic free fluid (84.4% vs 39.4%, $p < 0.001$), and/or definite ectopic structures (yolk sac or higher, 32.6%, $p < 0.001$) were more prevalent in group 1. Level of serum hcg was highly variable and was significantly higher in group 1 (10243±16837 vs 4589±5190 $p = 0.005$).

Conclusion: Comparing patients with ectopic pregnancy selected for immediate surgical intervention to those with surgical intervention following failure of medical management there was no difference in demographic parameters, or prior history. The difference was evident during clinical evaluation (pain), sonographic (presence and volume of free fluid, size of the adnexal mass and presence of definite ectopic structures) and laboratory findings (level of hcg).

190 Open Communications 16 - Surgical Trends / Techniques (12:10 PM - 1:10 PM)

12:10 PM – GROUP A

Correlation Between Severity of Urinary Symptoms and Clinical and Image-Based Indexes of Interstitial Cystitis in a Prospective Cohort of Patients with and without Interstitial Cystitis



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Study Objective: To examine the correlation between severity of urinary symptoms and clinical suspicion indexes of interstitial cystitis (IC) as well as cystoscopic findings after cystoscopy with hydrodistension (CwHD).

Design: Prospective interventional cohort study with blinded image review.

Setting: Participants were recruited from an academic urogynecologic and minimally invasive gynecologic practice.

Patients: All participants in the study are patients scheduled to have routine gynecologic or urogynecologic procedures involving cystoscopy. 224 of the 269 women initially enrolled in this study are included in this interim analysis. All 224 participants had complete data sets and met all criteria.

Intervention: Patients scheduled for cystoscopy or cystoscopy with hydrodistension were all consented for CwHD. Participants completed questionnaires including the IC Problem Index (ICPI). Originally scheduled procedure (cystoscopy vs CwHD) and treating physician expectancy of IC served as clinical suspicion indexes. A panel of three urogynecologists evaluated de-identified picture sets.

Measurements and Main Results: Associations were assessed by χ^2 tests using SPSS v23.0 for Windows. $P < 0.05$ denoted statistical significance.

There is significant correlation between ICPI bladder burning/pain/discomfort component and suspicion indexes (initially scheduled procedure $P < 0.001$, and physician expectancy $P < 0.001$) and diagnosis (physician diagnosis $P < 0.001$, image review diagnosis $P < 0.05$). There was a statistically significant relationship between several ICPI component scores as well as overall ICPI score and clinical suspicion indexes. The correlation of ICPI component other than pain with indexes of diagnosis was weaker by comparison. We found no statistically significant association between overall ICPI score and image-based diagnosis.

Conclusion: Severity of pain is highly correlated with clinical suspicion and image-based diagnosis, indicating a relationship between the ICPI pain component and glomerulations. However, ICPI as a whole correlated poorly with cystoscopic findings. These findings can inform the debate regarding the clinical significance of severity of individual symptoms and cystoscopic findings in diagnosis.

191 Open Communications 16 - Surgical Trends / Techniques (12:10 PM - 1:10 PM)

12:17 PM – GROUP A

Can CDC Guidelines on Opioid Use Be Applied to Patients with Chronic Pelvic Pain?



Wiseman DM. *International Adhesions Society, Dallas, Texas*

Study Objective: To compare the harms and benefits of opioid use in patients with chronic pelvic pain with those postulated by the 2016 CDC Guideline for Prescribing Opioids for Chronic Pain.

Design: Patient reports of their use of opioid analgesics. Opioid usage was stratified by duration (>3 months, <3 months) and dose (larger or smaller than a daily dose equivalent to 90mg of morphine - 90mgME).

Setting: Internet survey of visitors to ten patient advocacy groups.

Patients: 2214 women (F) and 133 men (M) with at least one of 14 conditions related to chronic pelvic pain.

Intervention: N/A

Effect of Duration of Use and Dose on Opioid Side Effects in Pelvic Pain Patients

Treatment duration	Dose	Percentage of patients reporting side effects of stated severity with opioid use				Number of patients
		None	Few, mild	Moderate, tolerable	Severe, not tolerable	
MEN						
< 3 months	ALL	28	19	25	26	57
> 3 months	ALL	32	32	28	5	169
ALL	< 90mgME	33	28	26	10	182
ALL	> 90mgME	3	32	34	11	44
WOMEN						
< 3 months	ALL	22	32	20	26	1077
> 3 months	ALL	28	43	21	7	2149
ALL	< 90mgME	27	39	19	13	2772
ALL	> 90mgME	21	39	25	12	454

90mgME = Daily dose equivalent to 90mg morphine

57% (F) and 58% (M) of encounters <3 months provided moderate or better relief in contrast to 79% of encounters >3 months for both genders.

Effect of Duration of Use and Dose on Opioid Effectiveness in Pelvic Pain Patients

Treatment duration	Dose	Percentage of patients reporting stated degree of pain relief with opioid use					Number of patients
		None	Little	Moderate	Good	Complete	
MEN							
< 3 months	ALL	11	32	25	30	4	57
> 3 months	ALL	2	17	41	34	5	169
ALL	< 90mgME	5	20	36	32	6	182
ALL	> 90mgME	0	25	41	34	0	44
WOMEN							
< 3 months	ALL	17	25	20	26	11	1077
> 3 months	ALL	3	18	35	38	6	2149
ALL	< 90mgME	8	20	30	33	8	2772
ALL	> 90mgME	6	20	31	37	6	454

90mgME = Daily dose equivalent to 90mg morphine

74% (F) and 75% (M) of encounters with >90mgME provided moderate or better relief, compared with 71% (F) and 74% (M) of encounters with <90mgME. Doses >90mgME were associated with an increased incidence of side-effects from 73% (F) and 67% (M) to 79% (F) and 77% (M). This increase fell mainly in the moderate category for both genders.

Measurements and Main Results: 94% (F) and 93% (M) of patients reported pain lasting >2 years. 1582 women and 98 men each encountered an average of 2.64 and 2.73 different opioids respectively. 85% (F) and 91% (M) of opioid users used at least one opioid for >3 months. Moderate or severe side-effects were reported in 27% (F) and 33% (M) of encounters >3 months and 45% (F) and 51% (M) of shorter encounters.

Conclusion: With caveats, our data in this population of long term opioid users conflict with how CDC relates duration and dose to effectiveness and harms. Stable opioid users should not be deprived of analgesia if alternatives are not feasible or available. Few gender-based differences are apparent.

Design: Retrospective chart review using the Michigan Surgical Quality Collaborative (MSQC) database.

Setting: Statewide group of 64 hospitals that voluntarily report perioperative surgical outcomes.

Patients: Hysterectomies performed for endometrial hyperplasia with and without atypia.

Intervention: None.

Measurements and Main Results: Endometrial cancer was confirmed by pathology of the hysterectomy specimen. Demographics and medical comorbidities of women with and without endometrial cancer were

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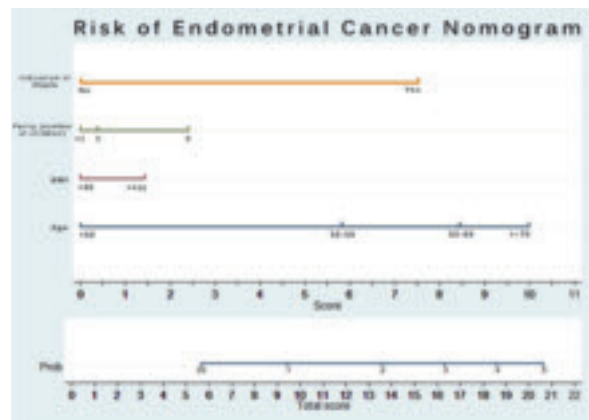
12:24 PM – GROUP A

Risk Factors for Endometrial Carcinoma Among Women Undergoing Hysterectomy for Endometrial Hyperplasia



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Study Objective: To describe the prevalence of endometrial carcinoma among women who undergo hysterectomy for endometrial hyperplasia and to identify perioperative risk factors of patients ultimately found to have endometrial cancer.



compared. Factors significantly associated with endometrial cancer in bivariate analysis were considered in a multivariable logistic regression model.

The overall rate of endometrial cancer among women undergoing hysterectomy for endometrial hyperplasia was 16% (167 of 1,025). Endometrial hyperplasia with atypia accounted for 54% (550 of 1,025), and endometrial cancer was detected in 26% (141 of 550). In multivariable analysis, factors associated with endometrial cancer were age, nulliparity, and indication of atypical hyperplasia. An increased risk of endometrial cancer was observed among women ages 50-59 (aOR 3.2, 95% CI 1.8-5.5), 60-69 (aOR 5.3, 95% CI 3.0-9.3), and ≥ 70 (aOR 7.1, 95% CI 3.5-14.5) compared to < 50 years. Nulliparity (aOR 1.6, 95% CI 1.1-2.5) and preoperative finding of atypia (aOR 4.3, 95% CI 2.8-6.9) were also shown to increase risk of endometrial cancer. Using these risk factors, a nomogram was created to calculate the probability of detecting endometrial carcinoma during hysterectomy.

Conclusion: The risk for endometrial cancer increases approximately twofold with each decade of age after menopause after controlling for body mass index, parity, and indication of atypia. Risk stratification of women with endometrial hyperplasia can help to identify women at the highest risk for endometrial cancer.

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12:31 PM – GROUP A

Northern Irish Experience of Total Laparoscopic Nerve Sparing Radical Trachelectomy: National Data on Surgical, Oncological and Reproductive Outcomes



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Study Objective: Radical trachelectomy is a valuable and oncologically safe fertility-preserving treatment option for women with early-stage cervical disease. The Laparoscopic Radical Trachelectomy (LRT) has the advantage of direct vision of the ureters, identification and preservation of the uterine arteries and detailed nerve preserving dissection. However, uptake of the laparoscopic procedure over Vaginal Radical Trachelectomy (VRT) remains low, potentially due to surgical expertise required.

A strong laparoscopic ethos and established 'buddy' operating system exists in our institution, allowing delivery of complex laparoscopic techniques.

The study objective was to assess safety and feasibility of LRT looking at operative, oncological and reproductive outcomes in our considerable experience.

Design: Retrospective cohort study.

Setting: A University Affiliated Gynaecological Oncology Hospital in Northern Ireland.

Patients: All patients with early cervical cancer (Figo 1a2- 1b2) with desire to preserve fertility. 24 patients in total were studied with 12 in each the LRT and VRT arms.

Intervention: Experienced surgeons performed laparoscopic pelvic node dissection, radical nerve sparing surgery and insertion of a cervical suture with cervical stump amputation.

Measurements and Main Results: We present a video technique and results for outcomes over a 5-year period. There were 12 patients in each arm. Operative time was significantly shorter in the VRT group (mean 158.1) versus LRT group (210.3) $p=0.018$ but this represents a learning curve effect. Fewer intraoperative complications occurred in LRT group (2/12 16%) [CI 95% 0.035- 0.46] than vaginal 4/12 (32%) [CI 95% 0.09-0.65] 5% of patients. Blood loss was significantly lower in LRT arm, (Mean 17.1g/L vs 10g/L $p=0.02$) hospital stay was shorter in the laparoscopic group (mean 3days VRT vs 2.5LRT.)

Conclusion: Total LRT is effective and safe with respect to all outcomes. As it requires significant expertise buddy operating can negate some of the technical challenges and allow our patients access to the best quality surgery.

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12:42 PM – GROUP B

The Aftermath of Banned Morecellation on Minimally Invasive Hysterectomies



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Study Objective: To determine the conversion rate and associated factors for conversion of minimally invasive hysterectomies after the elimination of power morcellation.

Design: Retrospective chart review.

Setting: Academic Inner-city Hospital

Patients: All patients who underwent a minimally invasive hysterectomy from January 2014 through January 2016 were studied. Types of minimally invasive hysterectomies included total laparoscopic, vaginal, and robotic-assisted hysterectomies. Cases excluded were scheduled open hysterectomies, those for tuboovarian abscess(es), or those performed for a pelvic or adnexal mass concerning for neoplasia, cervical cancer greater than StageIB1, uterine cancers greater than Stage II, or metastatic non-gynecologic cancers.

Intervention: Hysterectomy.

Measurements and Main Results: Two hundred and twenty cases were reviewed. Of these cases, 158 (71.82%) were performed for benign reasons, and the remaining 62 (28.18%) were performed for malignancy. Of the benign cases, 18.35% converted to open, whereas 16.13% of the malignant cases converted to open ($p= 0.697$). Demographic data and reasons for conversion were recorded. Decisions to convert to open included dense adhesions ($n=9$), specimen size inhibiting delivery through the vagina ($n=21$), intra-operative complications ($n=4$), patient's inability to tolerate pneumoperitoneum ($n=2$), and patient's inability to tolerate Trendelenburg ($n=3$). BMI was the only patient demographic that appeared to be significantly related to conversion ($p<0.05$). Eighteen (62.07%) of the converted benign cases had a BMI greater than 30, whereas 8 (80%) of the converted malignant cases had a BMI greater than 30 ($p=0.301$). Whether the hysterectomy was for malignant or benign etiologies, specimen weight proved to be a significant variable requiring conversion ($p<0.05$).

Conclusion: In this series, BMI and specimen weight are significant factors requiring conversion. Although these risk factors alone should not prevent a woman from a minimally invasive hysterectomy, identifying those women at risk of conversion preoperatively may decrease morbidity associated with a combined modality surgery.

195 Open Communications 16 - Surgical Trends / Techniques (12:10 PM - 1:10 PM)

12:49 PM – GROUP B

Use of a Low Fidelity Simulation to Improve Gynecology Resident Confidence and Competence with Contained Manual Tissue Extraction



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Study Objective: To improve resident confidence and competence with contained manual tissue extraction through a low fidelity simulation.

Design: Prospective Cohort Study.

Setting: Academic Medical Center.

Patients: Gynecology residents in the 2015-2016 academic year.

Intervention: We created a low fidelity simulator and filmed an instructional video depicting contained manual tissue extraction techniques. Residents answered a questionnaire assessing baseline exposure to extraction techniques and confidence level with contained tissue extraction measured

on a 5-point scale. Each resident extracted a standardized beef tongue specimen from our simulator and times were recorded. They then viewed the instructional video, then extracted another standardized beef tongue specimen with times again recorded. All residents answered another survey question regarding confidence level. Confidence levels and extraction times were analyzed using paired t-tests.

Measurements and Main Results: 28 residents participated, all four classes were represented. Among all residents, mean confidence level increased by 2.19 points from 1.897 to 4.086 ($p=0.0001$) after the intervention. When stratified by level of training, confidence levels statistically significantly increased for all four classes. The 4th year class was excluded from the extraction time data as there was a structural defect in the model which was fixed for the remaining classes. Among 1st, 2nd, and 3rd year residents, the mean tissue extraction time improved by 4 minutes and 1 second from 8 minutes and 56 seconds before the intervention to 4 minutes and 55 seconds after the intervention ($p=0.0001$), decreasing extraction time by 45%. When looking at the residents by level of training, all classes had a statistically significant improvement in tissue extraction time.

Conclusion: Among our residents, this simulation statistically significantly improved their confidence level and their tissue extraction time. Improved confidence may encourage them to offer minimally invasive options to their patients and improved extraction time may potentially translate to decreases in operating room time.

196 Open Communications 16 - Surgical Trends / Techniques (12:10 PM - 1:10 PM)

12:56 PM – GROUP B

Mechanism of Survivin-Autophagy Pathway Regulates Thioridazine Sensitizing Progesterin-Resistance Endometrial Cancer



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Study Objective: The research will elucidate the mechanism of whether or not thioridazine cross-regulate the survivin-autophagy and PI3K/Akt/mTOR pathways to regulate autophagy and further modify the progesterin-resistance in endometrial cancer.

Design: In order to investigate the difference in the formation of autophagosome and the autophagy flux, two kinds of endometrial cancer cells (progesterin-sensitive and resistant) transfected with the vector of RFP-GFP-tagged LC3 were compared when treated with medroxyprogesterone (MPA) or/and thioridazine. With or without autophagy inhibitor, CRISPR/Cas9 technology is applied to construct the over-expression and low-expression of survivin in endometrial cancer cell to analysis whether or not survivin-autophagy pathway regulate the proliferation, apoptosis, and reactive oxygen species in progesterin-resistance endometrial cancer cell in vitro and in vivo.

Setting: The research is studied in an obstetrics and gynecology hospital.

Patients: Endometrial tissue samples are collected from each of 30 normal endometrium, proliferative, atypical endometrium, and 70 cases of endometrial cancer patients who undergoes surgery.

Intervention: With or without autophagy inhibitor (3-MA/CQ) or survivin inhibitor (YM155), Ishikawa survivin+/PR+, Ishikawa survivin-/PR+, HEC-1A survivin+/PR-, HEC-1A survivin-/PR-cells are treated with MPA (20 μmol) and/or thioridazine (10 μmol).

Measurements and Main Results: Transmission electron microscopy is used to observed the formation of autophagosome; qRT-PCR and Western blot are applied to assay progesterone receptor, autophagy-related genes (LC-3, Beclin1, DAPK), apoptosis, reactive oxygen species and signaling pathway protein molecule expressions (PI3K/Akt/mTOR); Co-immunoprecipitation experiments are used to determine the interaction sites between survivin and LC-3 proteins. Our previous result indicates that thioridazine can down-regulate the expression of survivin, regulate the activity of autophagy, and promote cell apoptosis of progesterin-resistance endometrial cancer cell.

Conclusion: The activity of autophagy might be related with the progesterin insensitivity in endometrial cancer, providing new ideas for the prevention and treatment of progesterin-resistance endometrial cancer.

197 Open Communications 16 - Surgical Trends / Techniques (12:10 PM - 1:10 PM)

1:03 PM – GROUP B

Underserved Premenopausal Women with Hormone Receptor Positive Breast Cancer Referred for Bilateral Salpingo-Oophorectomy – Is There a Benefit?



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Study Objective: The objective of this study is to analyze presurgical medical compliance and surgical outcomes of premenopausal women with estrogen receptor-positive (ER+) breast cancer who underwent bilateral salpingo-oophorectomy (BSO) with the subsequent intention of initiating aromatase inhibitor therapy.

Design: Retrospective Chart Review.

Setting: A safety net public teaching hospital serving uninsured, underserved patients of Los Angeles County.

Patients: 73 premenopausal patients with ER+ breast cancer were referred for BSO from 2007-2015 at our institution. 35 (48%) patients underwent BSO and comprised our study group. Patients with known BRCA genetic mutations were excluded from this analysis.

Intervention: Data on demographics, pre surgical compliance with medical therapy, procedural details and surgical complications as well as hormone receptor status were collected.

Measurements and Main Results: Compliance with tamoxifen and gonadotropin releasing hormone (GnRH) agonist prior to BSO were 57.1% and 17.1%, respectively. 23 patients (66%) underwent laparoscopic BSO alone while 12 patients (34%) underwent BSO with concomitant hysterectomy. Of those who had a hysterectomy, 10 (83%) underwent a minimally invasive approach. One patient had a Total Abdominal Hysterectomy (TAH) and one patient had an attempted Total Laparoscopic Hysterectomy (TLH) converted to TAH. All patients undergoing BSO alone had outpatient procedures with no complications. For the 12 patients who had concomitant hysterectomy, the average length of stay was 0.85 +/- 1.05 days. 24 patients (68.5%) did not complete the subsequent five years of recommended hormone therapy.

Conclusion: In our underserved patient population, premenopausal women with hormone receptor positive breast cancer have low compliance rates with risk-reducing adjuvant endocrine therapy. Almost all patients who underwent BSO were able to undergo a minimally invasive approach with a low complication rate. Our study suggests that BSO may provide a safe and permanent therapy to ensure reduction of endogenous hormones for women with poor access to medical care.

198 Open Communications 17 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:10 PM – GROUP A

Complication Rates for Total Laparoscopic Hysterectomy from the First Whole National Population with Data from the Norwegian Gynecological Endoscopic Registry 2013-2015



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Study Objective: Rates and types of complications intra- and postoperatively in total laparoscopic hysterectomy (TLH) in a whole population.

Design: Retrospective study with data from the national Norwegian Gynecological Endoscopic Registry (NGER). The surgeons fill out a web based database postoperatively. A follow-up questionnaire is sent to all patients after 4-6 weeks from the central NGER office.

Setting: All gynecological departments in Norway.

Patients: Registration in the national registry (NGER) is mandatory in Norway. Patients registered in NGER with a TLH procedure that have completed the follow-up questionnaire were included.

Intervention: Determination of intra- and postoperative complications in all patients registered in the NGER undergoing TLH in Norway.

Measurements and Main Results: 17 hospitals performed TLH in Norway and 864 patients were registered with complete registration in the period 2013-2015. Procedure numbers ranged from 1 to 182 per hospital. The intraoperative complication rate was 3,5%. The total postoperative complication rate was 19,1% in which infections represent the main group with 16,3% (urinary tract infections 7,9%, surgical wound infections 3,6%, intraabdominal infections 4,9%). Organ damage was found in 2,1% and reoperations were performed in 2,8%. The minor complication rate was 12,7%, the moderate complication rate was 4,5% and the serious complication rate was 1,9%.

Conclusion: Minor complications as wound infections and urinary tract infections were much higher than previously published in the literature. The rate of moderate and serious complications accorded to international measurements. With objective complication rates for a whole population it will be possible to identify targets for risk reduction and reduction of complications will improve quality of life for patients and impact health economics.

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12:17 PM – GROUP A

Surgical Flow Disturbances in Dedicated Minimally Invasive Surgery Suites: An Observational Study to Assess Its Supposed Superiority Over Conventional Suites



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Study Objective: The aim of this study was to compare a conventional cart-based operating room (OR) with an integrated OR with regard to the incidence and effect of equipment-related surgical flow disturbances.

Design: Observational cohort study of a consecutive series of laparoscopic hysterectomies (LH) performed between November 2010 and April 2012.

Setting: A university affiliated teaching hospital.

Patients: Using video recording, 40 LHs were analyzed by two different observers.

Intervention: 20 LHs performed in a conventional OR and 20 in an integrated OR were compared with regard to the number, duration and effect (on a seven-point ordinal scale) of the surgical flow disturbances (e.g. malfunctioning, intraoperative repositioning, set-up device).

Measurements and Main Results: A total of 103 hours and 45 minutes was observed. The interobserver agreement was high (kappa 0.85, $p < .001$). Procedure time was not significantly different (NS) (conventional OR versus integrated OR, mean \pm SD 161 \pm 27 versus 150 \pm 34 minutes). A total of 1,651 surgical flow disturbances were observed (mean \pm SD per procedure 40.8 \pm 19.4 versus 41.8 \pm 15.9, NS). The mean number of surgical flow disturbances per procedure with regard to equipment was 6.3 \pm 3.7 versus 8.5 \pm 4.0, NS. No clinically relevant differences in the effect of these disturbances on the surgical flow between the two OR set-ups were observed.

Conclusion: Performing LH in an integrated OR did not reduce the number of surgical flow disturbances nor the effect of these disturbances. Furthermore, in the integrated OR, repositioning of the monitors was a frequent and time-consuming source of disturbance. In order to maintain the high standard of surgical safety, the entire surgical team has to be aware that by performing surgery in an integrated OR different potential sources for disruption arise. State clearly the conclusions and clinical applications that are supported by the data. Advise if additional study is required before this information should be used in clinical settings.

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12:24 PM – GROUP A

Ovarian Remnant Syndrome in Ovarian Tissue Ectopically Implanted in Trocar Site: A Case Report



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Study Objective: Residual ovarian tissue has been identified on the pelvic sidewall, cervix, vagina and bladder after laparoscopic ovarian surgery. Only three cases describing ovarian remnant syndrome cause by residual ovarian tissue ectopically implanted within the laparoscopic trocar site. Here we present one such case.

Design: Case report.

A 38 year-old woman presented with pelvic pain and vaginal bleeding after laparoscopic supracervical hysterectomy and bilateral salpingo-oophorectomy. She had cyclic menstrual bleeding from her cervix associated with cyclic right-sided pain, indicating continued hormonal support. Because of her clinical presentation, she was counseled on the possibility of ovarian remnant syndrome preoperatively. In the operating room, ovarian and fallopian tube tissue was identified embedded in the right lower anterior abdominal wall, adjacent to the cecum, at the site of laparoscopic port placement.



This tissue was completely separate from the infundibulopelvic ligament. Furthermore, a hemorrhagic cyst was identified in the ectopic ovarian tissue, suggesting that the tissue was fully functional and able to ovulate.

Conclusion: Discussion

Ovarian remnant syndrome is a rare complication of laparoscopic oophorectomy. Ovarian remnant syndrome should always be considered in patients who continue to exhibit cyclic pain and/or bleeding, and lack menopausal symptoms after oophorectomy.

Our theory of ovarian retention in this case is that the bag was compromised during extraction and a small fragment of ovarian tissue and fallopian tube then underwent revascularization on the abdominal wall, and it became hormonally active again.

We recommend employing a larger trocar and an endobag. Any fragmentation that does occur is contained within the bag, which can then be pulled through a larger port site with minimal stress to the bag itself. In all circumstances, once extraction is complete, the pelvis and abdomen should be evaluated laparoscopically.

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12:31 PM – GROUP A

Initial Rise of Serum hCG Levels After Methotrexate Therapy Is Associated with a Lower Success Rate of Medical Treatment in Patient Diagnosed with Ectopic Pregnancy



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Study Objective: To determine the association between the magnitude of increase in hCG serum levels from day 0 to day 4 and treatment success. We hypothesized the degree of hCG rise from day 0 to 4 was correlated to the success of the treatment.

Background: Serum hCG levels rise immediately after MTX administration for ectopic pregnancy in 50%-70% of patients. This rise could be attributed to accelerated or continued pregnancy growth, altered hCG metabolism or excretion, or syncytiotrophoblast cell lysis with release of hCG into the systemic circulation. Currently, treatment success can be evaluated only after treatment on day 7.

Design: A case control study.

Setting: Gynecological department in a tertiary care hospital.

Patients: 140 patients treated by MTX for EUP, with hCG level rise between day 0 and 4.

Measurements and Main Results: Measurements: A “binary difference” variable was defined as 1 if the relative difference is greater than 0.5 and 0 otherwise. Next, a logistic regression model for the “failure of treatment” was fitted with the binary difference, patient age, pregnancy age at day-0, and day-0 beta-hCG level as predictors.

Main Results: A “binary difference” of 1 substantially (RR=4.38, 95%CI 1.19-18.41) and significantly (P=0.03) correlated with MTX treatment failure.

Conclusion: The results of this study indicate that having a bigger than average relative change in beta-HCG levels between day-0 and day-4 significantly increases the risk of MTX treatment failure. This novel information can be of value for both physicians and patients and may help optimize the selection of the most appropriate treatment.

202 Open Communications 17 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:42 PM – GROUP B

Treatment of Adnexal Masses in Pregnant Women



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Study Objective: Comparison of pregnancy outcomes in patients with adnexal masses in pregnancy who proceeded with laparoscopic, laparotomy, or expectant approaches.

Design: A retrospective and prospective analysis.

Setting: Federal State Institute, Research Center for Perinatology, Obstetrics, and Gynecology

Patients: Pregnant women who underwent laparotomy(Lt) or Laparoscopy(Ls) for adnexal masses during pregnancy or at the time of cesarean section (CS).

Intervention: Laparoscopy, laparotomy and observational approach for adnexal masses of c-section.

Measurements and Main Results: 131 women underwent laparotomy or laparoscopy during pregnancy (41 and 90 patients respectively) and 142 women proceeded with adnexal surgery at the time of CS. Malignancy included 2 dysgerminomas, 1 serous papillary cystadenocarcinoma, 1 endometrioid and 1 metastatic adenocarcinoma. Mean mass size was

significantly larger in the Lt group than in the Ls group (13,7+/-0,7 cm vs 10,0+/-0,6 cm, 0,05 p) and 5,3+/-0,3cm in CS group. Preterm labor was the single outcome that was significantly different between Ls and Lt groups (6,1% in Ls group vs 17,1% in Lt group, p<0,05). Lt surgery had a significantly higher risk of preterm labor than Ls (OR 7,8; 95% CI 1,98-30,78; p=0,003). Surgery at over 24 weeks also had a higher risk of preterm labor (OR 4,17; 95% CI 0,94-18,52; p=0,061). However, surgery performed during the 3rd trimester had a significantly higher risk of preterm labor than in the 2nd trimester (OR 10,6; 95% CI 1,35-83,54; p=0,025). Women with fetoplacental insufficiency had a significantly higher risk of preterm labor compared with those with adnexal mass alone (OR 17,5; 95% CI 3,33-92,09; p=0,001).

Conclusion: Laparoscopy has obvious benefits in pregnancy because of decreased postoperative pain, less narcotic use, lower risk of preterm labor, shorter hospital stays, and faster postoperative return to regular activity. We recommend observation after 24 weeks of gestation even for large size ovarian masses (over 6 cm) if they are asymptomatic and not suspicious for malignancy.

203 Open Communications 17 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:49 PM – GROUP B

Complexity Scoring System for Minimally Invasive Hysterectomy: A Validity Study



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Study Objective: To validate a complexity score based on peri-operative patient-criteria that will predict difficulty of hysterectomy.

Design: Retrospective cohort study.

Setting: Academic university hospital.

Patients: Robotic or laparoscopic hysterectomies for benign disease between January 2014 and December 2015.

Intervention: Robotic or laparoscopic hysterectomy.

Measurements and Main Results: A complexity score was created based on five clinical variables that surgeons believe would affect the difficulty of a hysterectomy and these were: BMI, uterine weight, uterine shape on imaging, extent of adhesions and size of adnexal cyst if present. Each variable was scored from 0 to 4 points and a total score ranging from 1 to 5 was obtained by adding individual variable scores. 196 hysterectomies were identified and scored based on the above criteria. Associations between each level of the complexity score and four clinical outcomes of interest were tested. Main outcome was operative time. Secondary outcomes were: length of stay, estimated blood loss, cost. Spearman correlations were significant between complexity score level and op time (r=.59, p<.0001), LOS (r=.34, p<.0001) and EBL (r=.41, p<.0001) but not with cost (r=.13, p=.017). Using linear regression, each 1-point increase in complexity score level increased operative time by 23 minutes (R² = .31 (p<.0001). Percentages of same day discharge (LOS=0) and EBL of more than 200 cc were 82% and 7 % respectively in cases with low complexity score (Level 1 or 2 or 3) versus 62 % and 19% in cases with high complexity score (Level 4 or 5) (p=0.0075 and p=0.011, respectively).

Conclusion: We have created a clinically based complexity score that could predict the degree of difficulty of a hysterectomy. This scoring system could become an objective way to identify hysterectomies requiring more work and better compensation.

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12:56 PM – GROUP B

Fibroid Morcellation and Sarcoma Thread



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Study Objective: In case of inadvertent morcellation of an unexpected uterine sarcoma the clinical outcomes, due to the rapid intraperitoneal dissemination of malignant tissue during the procedure can be negatively influenced.

Design: The purpose of this study was to determine the prevalence of uterine sarcoma in women undergoing hysterectomy or myomectomy for benign uterine fibroids in Kiel, Germany by a retrospective analysis over 12 years (2003 - 2014).

Setting: Kiel University Hospitals where fibroid morcellation was and is performed with the Rotocut Morcellator and bipolar resectoscope.

Patients: The total number of women operated for uterine fibroids was 2297. Of these 2297 interventions, 938 (42.5%) women had myomectomies and 1269 (57.5%) women had hysterectomies.

Intervention: In myomectomies the most frequently used surgical method was laparoscopic myomectomy in 591 (63%) cases, followed by hysteroscopy myomectomy in 306 (32.62%) cases, and laparotomic myomectomy only in 41 (4.37%) cases. In hysterectomies, laparoscopic approaches significantly dominated in 1163 cases (61.1%), showing laparotomic approaches in 491 (25.82%) cases and vaginal approaches in 247 (12.99%) cases.

Measurements and Main Results: Within our 2297 patients who were operated for myomas only one patient with endometrial stromal sarcoma (ESS) was not preoperatively diagnosed and treated as symptomatic uterine fibroid; this patient underwent laparoscopic supracervical hysterectomy. In the post-operative histopathological examination ESS was detected. Thus, our incidence of sarcomas among women who underwent benign uterine fibroid surgery is 1/2297 (0.043%), this compares well with other international studies on the incidents of sarcomas in larger collectives of fibroid surgery (AAGL statement 2014, Broelmann, H. et al 2015).

Conclusion: Laparoscopic power morcellation should be performed only in cases with no suspicious of malignancy. Patients, who undergo laparoscopic surgery with power morcellation should be informed about the possible risks of morcellation in cases of rare not suspected malignant disease.

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1:03 PM – GROUP B

Gasless Laparoscopic Myomectomy by the Abdominal Wall Lifting Technique

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Study Objective: To evaluate the usefulness of the subcutaneous abdominal wall lifting method (SAWL) in laparoscopic myomectomy (LM).

Design: Retrospective cohort study.

Setting: Department of Obstetrics and Gynecology, Tokyo Medical University.

Patients: A total of 1836 cases underwent LM using SAWL between January 2000 and December 2014 and the operative results were investigated.

Intervention: The procedures of SAWL are as follows. After a 1.2 mm stainless steel wire was inserted subcutaneously in the middle of the abdominal wall and the abdominal wall was lifted and fixed, an abdominal wall incision 1.5 cm in size was made on the right side using open procedure, then the Lap Protector[®] was fixed in it. And then, the trocar for a 5mm endoscope was punctured at the navel fold under the surveillance of the endoscope. LM was performed using one operated hole and enucleated fibroids were extracted using a scalpel.

Measurements and Main Results: LM using one operated hole was carried out in 1511 cases out of 1836 cases (82.3%). They contained 735 cases (42.5%), which had 5 or more multiple nodes and 149 cases (8.6%) had heavy nodes over 300g. The average number of extracted fibroids was 4.6 (1 to 32). There were three cases converted to laparotomy (0.20%), two carried out blood transfusion (0.13%), and one moved to the re-operation (0.06%).

Conclusion: Strong traction of a fibroid by tenaculum, easy, rapid and reliable suture of uterine wall by needle holder for the conventional operation, extraction of fibroids using a scalpel and so on could be done by SAWL. Gasless LM by SAWL using one operated hole is a unique

procedure and it is concluded that the indication of LM for uterine fibroids expand widely by the use of this lifting technique.

206 Open Communications 18 - Basic Science/Research/Education (12:10 PM - 1:10 PM)

12:10 PM – GROUP A

Quality Improvement Through an Integrated Program for Fibroids (IPF): Effect on Referrals, Procedures, and Time to Consult

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Study Objective: The Integrated Program for Fibroids (IPF) is a newly established center where a multidisciplinary team of Interventional Radiologists, Gynecologists, Reproductive Endocrinologist and Minimally Invasive Surgeons collaboratively treat fibroids. We study how its implementation has affected referral rates, surgical volume, time to consult and procedure in patients with symptomatic uterine fibroids.

Design: Retrospective case-control study.

Setting: Academic tertiary care center.

Patients: 557 patients who had been referred to the Massachusetts General Hospital (MGH) for consult between January 2013 and November 2014 were studied. Our study group consisted of 317 patients who were referred after the establishment of the IPF and 240 controls who were referred prior. Statistical analysis was performed using a Fisher's exact test and unpaired t test.

Intervention: Establishment of a multidisciplinary program to treat symptomatic uterine fibroids.

Measurements and Main Results: There were no significant differences in demographics and fibroid procedure indications between the control (n=240) and study groups (n=317) aside from a trend to larger fibroid size after the IPF was established. Referral rates to MGH for fibroids increased in the study group (28.8 referrals per month) as compared to the control group (20 referrals per month). The number of days from consult to UFE procedure in the study group decreased significantly from an average of 97.6 days before IPF establishment to 55.9 days afterwards (p=0.016). The number of UFE procedures and myomectomy increased significantly from an average of 0.5 per month to 2.16 per month (p=0.05) for UFE and from 5.7 per month to 11.3 per month (p=0.0001) for myomectomy.

Conclusion: In this study, the implementation of an Integrated Program for Fibroids (IPF) significantly increased referral rates, increased the number of UFE and surgical procedures, and has decreased the time from consult to intervention. Multidisciplinary programs help increase access and efficiency in caring for patients with symptomatic uterine fibroids.

207 Open Communications 18 - Basic Science/Research/Education (12:10 PM - 1:10 PM)

12:17 PM – GROUP A

Trends in Hysterectomies and Tissue Extraction from 2010-2015 at a Single Institution

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Study Objective: To assess the trends in the routes of hysterectomies and mode of tissue extraction for hysterectomies performed at Montefiore Medical Center to see how recent recommendations by the FDA regarding power morcellation and ACOG regarding recommended routes of hysterectomies have changed the practices within this institution.

Design: Retrospective chart review of all scheduled hysterectomies.

Setting: Academic medical center in an urban community.

Patients: All patients who underwent scheduled hysterectomies from January 2010 to June 2015 at Montefiore Medical Center.

Intervention: Hysterectomies (all methods).

Measurements and Main Results: Manual review of medical records identified by reviewing operating room schedules identified all patients who underwent scheduled hysterectomies from January 2010 to June 2015 at Montefiore Medical Center.

During the study period, 558 women underwent hysterectomies and 77.4% (n = 432) were performed for benign indications. The most common indications for the hysterectomies were leiomyomas and abnormal uterine bleeding.

In 2010, 24.7% were laparoscopic (LH), 59.1% abdominal (AH), and 16.2% vaginal hysterectomies (VH). By 2015, LH represented 65%, AH 30%, and VH 5%. The rates of laparoscopic converted to open (LH to AH) were 8.7% for all years. The average patient age was 49.7 +0.7 years for LH, 51.8 +0.7 years for AH, and 50.5 +1.7 years for VH.

Compared to the 51 months preceding the FDA safety communication, in the 15 months afterward, utilization of LH increased by 29.3%, and both AH and VH decreased (20.7% and 8.6%, respectively). Rates of laparoscopic supracervical hysterectomy (LSH) declined from 14.8% to 11.3%, and rates of power morcellation declined from 16.8% of all LH to 0%.

Conclusion: Following the April 2014 FDA safety communication regarding power morcellation, utilization of minimally invasive hysterectomies increased overall, but VH rates decreased, along with rates of power morcellation.

208 Open Communications 18 - Basic Science/Research/Education (12:10 PM - 1:10 PM)

12:24 PM – GROUP A

Resident Understanding of Operating Room Equipment Cost in Gynecology



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Study Objective: To determine the baseline knowledge of operating room equipment cost among gynecology residents.

Design: A voluntary anonymous survey with no incentives was designed asking residents to write in the cost of commonly used surgical equipment in gynecology. Accuracy was defined to be within 20% of the hospital cost at Lahey Medical Center to allow for differences in hospital contracts.

Setting: Academic residency programs in Boston, Massachusetts.

Patients: Obstetrics and Gynecology residents.

Measurements and Main Results: 41 of the 107 gynecology residents among 4 accredited obstetrics and gynecology programs responded (response rate 38%). One respondent was excluded as their survey indicated costs of all equipment as zero dollars. Of the 14 devices listed, accuracy of cost ranged from 12-35%. 95% of residents indicated that they were unsure to very unsure of the equipment cost and 88% did not have easy access to equipment cost information. 80% of residents indicated they think about equipment cost rarely or not very often. However, interestingly 57.5% stated that they would consider switching to a less expensive instrument if they were aware of the cost differential. There was no difference in the accuracy of the 13% of residents who stated they had access to cost data compared to those who did not have access. There was also no correlation seen between the use of an instrument greater than 50% of time and accuracy in determining the cost of that instrument.

Conclusion: Despite the rise of health care costs and much discussion regarding costs among hospital administration as well as politically, training physicians are unaware of the costs of commonly used surgical equipment in gynecology. Our preliminary data suggests that information regarding costs of potentially equivalent surgical equipment may lead to more fiscally wiser choices among future providers.

209 Open Communications 18 - Basic Science/Research/Education (12:10 PM - 1:10 PM)

12:31 PM – GROUP A

The Effect of Resident Training on Vaginal Hysterectomy Outcomes



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Study Objective: Hysterectomy is the most commonly performed gynecologic surgery and whenever safe to do so, a vaginal approach is preferred and recommended. This is a core competency of any gynecologic surgeon; however, growing institutional concern over patient safety and satisfaction; resident duty-hour restrictions; and more stringent budgets discourage experiential learning. This study evaluates the influence of trainee presence during vaginal hysterectomy (VH) procedures on outcomes.

Design: Retrospective cohort study.

Setting: North American hospitals enrolled in the National Surgical Quality Improvement Program (NSQIP).

Patients: Patients who underwent VH performed for benign indications between 2006 and 2012.

Intervention: VH cases were stratified by the presence or absence of resident physician(s).

Measurements and Main Results: 6,730 cases were identified through cross-referencing current procedural terminology (CPT) and International Statistical Classification of Diseases and Related Health Problems (ICD-9) codes and excluding cases with incomplete/duplicate data. Resident(s) were present in 2,714 (40.3%) cases. Bivariate analysis identified resident presence was associated with higher rates of urinary tract infections, sepsis, longer operative time, inpatient admission and unplanned readmission. Multivariate logistic regression (controlling for age, body mass index, cardiovascular, cerebrovascular diseases, smoking, diabetes, bleeding disorders, American Society of Anaesthesiologists classification, surgical indication and concomitant adnexal surgery) isolated an association between resident presence and post-operative urinary tract infection (odds ratio (OR), 1.83; 95% confidence interval (CI), 1.42-2.36) and operative time exceeding 2 hours (OR, 3.28; 95% CI, 2.94-3.65).

Conclusion: Resident presence during VH performed for benign indications was associated with an increased risk of post-operative urinary tract infection and lengthier operative time.

210 Open Communications 18 - Basic Science/Research/Education (12:10 PM - 1:10 PM)

12:42 PM – GROUP B

Predictors of Laparoscopic Virtual Reality Simulation Performance in Attending Obstetrician/Gynecologists to Establish Cut-Offs for Additional Training and Annual Testing



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Study Objective: To correlate laparoscopic virtual reality (VR) simulation performance measures with physician characteristics and determine if any can be predictors of laparoscopic simulation performance for attending Ob/Gyns.

Design: Prospective cohort.

Setting: Academic institution.

Patients: 99 Ob/Gyn attending physicians with laparoscopic privileges.

Intervention: Physicians completed self-report survey that included fellowship training, years in practice, and monthly volume/type of laparoscopic procedures. Each participant completed 3 VR simulation

Table 1. Regression Analyses of Simulation Task Outcome Measures and Physician Characteristics (N= 99)

<!--Col Count:10-->	Peg Transfer: Time (sec)	Peg Transfer: Mean Drops (#)	Lifting & Grasping: Time (sec)	Lifting & Grasping: Tissue Damage (#)	Cutting: Time (sec)	Cutting: Tissue Damage (#)
Mean	221.6	0.4	96.5	9.2	110.8	8.7
+ 1 SD	290.8	0.7	134.3	18.3	151.4	20.6
+ 2 SD	360.0	1.0	172.1	27.4	40.6	32.5
Intercept Procedure Volume	224.9	0.4	78.0	5.1	117.6	6.7
2-5 vs. 0-1	-32.8 (0.0393)	-0.2 (0.0551)	-0.1 (0.9919)	0.8 (0.0057)	-14.7 (0.0016)	0.97 (0.6991)
6-10 vs. 0-1	-55.1 (0.0141)	-0.2 (0.0718)	1.3 (0.9237)	1.2 (0.1699)	-21.6 (0.0027)	1.4 (0.0170)
11+ vs. 0-1	-70.7 (0.0009)	-0.1 (0.2643)	-20.4 (0.1126)	0.9 (0.3830)	-33.1 (<.0001)	0.4 (<.0001)
Years in Practice	1.4 (0.0109)	0.01 (0.0425)	1.2 (0.0007)	1.04 (<.0001)	0.5 (0.0160)	1.03 (<.0001)
Fellowship Training	-17.0 (0.2620)	-0.04 (0.6457)	-2.7 (0.7750)	0.8 (0.0062)	-14.9 (0.0011)	0.5 (<.0001)

Regression analyses were performed for selected performance outcomes for each of the three tasks and average monthly laparoscopic surgical volume, while controlling for years in practice and completion of fellowship. Values are estimate (p-value); p-values < 0.05 are in bold. 20% scored >2SD (20/99) in any measure. 2 scored >2SD in 2 measures, both in separate tasks. 49.5% scored >1SD.

Table 2. Physician Characteristics 1SD and 2SD Above the Mean

# of Outcome Measures	>1SD above the Mean (49)				>2SD above the Mean (20)	
	1	2	3	4+	1	2
n (%)	20 (40.8)	18 (38.8)	7 (12.2)	4 (8.2)	18 (90)	2 (10)
Procedure Volume						
0-1	14	14	7	3	15 (75)	
2-5	4	1	0	1	3 (15)	
6-10	1	2	0	0	1 (5)	
11+	1	1	0	0	0	
Yrs in Practice	3-30 (21.7)	2-50 (21.7)	13-27 (19.8)	17-43 (31.3)	9-50 (22.6)	
Fellowship						
No	14	14	7	4	18 (90)	
Yes	6	4	0	0	2 (10)	
Tasks	>1SD above the Mean in ≥2 Tasks (24)			>1SD Above the Mean in 2 Unique Outcome Measures (22)		
n (%)	2 Tasks	3 Tasks		Within Same Task	Different Tasks	
Procedure Volume	19 (38.8)	5 (10.2)		6 (27.3)	16 (72.7)	
0-1	15	4		5	15	
2-5	1	1		0	1	
6-10	2	0		1	0	
11+	1	0		0	0	
Yrs in Practice	2-50 (21.8)	13-43 (27.6)		2-31 (17.6)	9-43 (20.8)	
Fellowship						
No	15	5		5	15	
Yes	4	0		1	1	

Physicians who performed 1SD and 2SD above the mean in 1, 2, 3, and 4+ outcome measures were characterized by their procedure volume, years in practice, and fellowship training. Additionally, physicians who performed >1SD above the mean in ≥2 tasks and also in 2 unique outcome measures (time AND error score) within the same or different tasks were also characterized in a similar manner. Values are n, n(%), or range (mean).

38.8% of these scored >1SD in 2 tasks, 10.2% in all 3 tasks. Most performed ≤5 laparoscopic cases/month and had no fellowship training.

44.9% of those who scored >1SD did so in time AND error score; 27.3% within same task, 72.7% within different tasks. Most performed ≤1 laparoscopic case/month and had no fellowship training.

tasks: Peg Transfer, Lifting/Grasping, and Cutting. Outcome measures assessed include time and error scores. Correlations to survey data were analyzed for participants who scored 1SD and 2SD above the mean (higher score, poorer performance).

Measurements and Main Results: Regression analyses were performed for outcome measures and surgical volume, controlling for years in practice and fellowship training.

Conclusion: Using >2SD in any measure as the cut off, 20% would require additional training; >2SD in 2 separate tasks would decrease this to 2%.

Using >1SD in any measure, 49% would require additional training; >1SD in 2 parameters would be 29%, and in 3 parameters would be 11%. Although surgical volume, fellowship and years in practice correlated to VR simulation scores, all of these included physicians with scores >1SD. There is no group of physicians who could be excluded from initial testing. With subsequent testing we may be able to identify initial VR simulation scores below which annual testing will not be necessary, if combined with surgical volume.

211 Open Communications 18 - Basic Science/Research/ Education
(12:10 PM - 1:10 PM)

12:49 PM – GROUP B

Identify Them Early – Using Visuospatial and Psychomotor Testing to Identify Low Aptitude Students Interested in Pursing a Procedural Career



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Study Objective: Sparked by increasingly widespread use of laparoscopy, research on visuospatial and psychomotor learning curves has shown distinct “tiers” of student aptitude. Among lower aptitude students, studies suggest that some – but not all – will achieve proficiency. However, current medical education affords limited opportunities for students to gain skills. As the first step in designing a targeted, early-intervention program, we sought to identify students interested in procedural specialties but with lower psychomotor aptitude.

Design: Prospective cohort study.

Setting: Academic medical center.

Patients: Second-year medical students were eligible. 42 students (34.7%) participated.

Intervention: Participants completed: 1) survey about demographics, self-rated visuospatial and psychomotor skill, surgical experience, and interest in a procedural career, 2) four validated, visuospatial aptitude assessments (VSP), and 3) psychomotor aptitude assessment using a Fundamentals of Laparoscopic Surgery (FLS) simulator (peg transfer).

Measurements and Main Results: 54.8% reported an interest in a procedural specialty. Analysis included Pearson and Spearman correlations. Faster FLS time was associated with self-rated dexterity ($p < .001$) and procedural interest ($p = .018$), but not with VSP performance. FLS scores for the high-interest group had a significantly tighter interquartile range (23.7sec) and a lower (faster) mean (105.5sec), compared to the low/no-interest group (IQR=62.7sec, mean=133.3sec, $p < .001$). The high-interest group accounted for 5/19 students (26.3%) with FLS scores slower than the mean. In the high-interest group alone, 8/11 students (72.7%) who were slower than the mean considered themselves to have above-average dexterity.

Conclusion: Despite a small sample size, our findings contribute to existing data describing tiers of aptitude; however, in contrast to other research, VSP was not a predictor of performance. We identified a cohort of “high-interest, lower-aptitude” students who we believe will benefit from a deliberate practice model, or “surgical boot camp”. The majority of this cohort has confidence in their psychomotor aptitude, and thus might not otherwise seek help.

212 Open Communications 18 - Basic Science/Research/ Education
(12:10 PM - 1:10 PM)

12:56 PM – GROUP B

Impact of Pre-Operative Warm Up for Residents on Performance in Laparoscopic Hysterectomy: The POWeR Study



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Study Objective: Assess impact of preoperative warm-up with a laparoscopic simulator on laparoscopic hysterectomy (LH) performance.

Design: Randomized Controlled Trial.

Setting: Tertiary-care, university hospital.

Patients: Ob/Gyn residents, PGY 2–4.

Intervention: Residents were randomized to warm-up activity or no warm up immediately prior to LH. Warm-up consisted of 15 minutes of structured laparoscopic exercises (peg transfer, suturing, and intracorporeal knot-tying) using a high fidelity laparoscopic box trainer.

Measurements and Main Results: 11 residents (5 junior, 6 senior) were randomized. Surgeries with high anticipated complexity were excluded. Video-recorded performance of intraoperative salpingectomy, colpotomy and cuff closure were graded on a Global Rating Scale (GRS) by two master surgeons, masked to randomization. The maximum GRS composite score is 25.

28 surgeries were collected (16 with warm up, 12 without warm up). GRS composite scores for residents who had a warm up were not significantly different compared to residents who did not warm up: salpingectomy (16.4 vs. 18.2, $p = 0.26$), colpotomy (17 vs. 18.1, $p = 0.48$), and cuff closure (15.9 vs. 17.8, $p = 0.17$).

Among junior residents, there was no significant difference in GRS scores for those who had a warm up compared to those who did not, except for cuff closure: salpingectomy (14.5 vs. 17.8, $p = 0.08$), colpotomy (15.4 vs. 17.2, $p = 0.32$), cuff closure (14.2 vs. 16.9, $p = 0.03$). Among senior residents, there was no significant difference in GRS scores for those who had a warm up compared to those who did not: salpingectomy (19.6 vs. 21.5, $p = 0.57$), colpotomy (19.2 vs. 22, $p = 0.32$), cuff closure (18.3 vs. 23.5, $p = 0.19$).

Conclusion: Based on GRS score, preoperative warm-up does not appear to improve resident performance during LH. These findings may be impacted by the small number of participants and randomization events. Further study is required to determine if preoperative warm-up positively impacts performance.

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(12:10 PM - 1:10 PM)

1:03 PM – GROUP B

The Sterility of Selected Operative Sites During Total Laparoscopic Hysterectomy



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Study Objective: To describe the type and quantity of bacteria found intra-operatively on the abdomen, vagina, surgical gloves, instrument tips and uterus during total laparoscopic hysterectomy (TLH).

Design: Descriptive study.

Setting: Academic affiliated hospital.

Patients: 25 Women undergoing TLH for benign indications in 2016.

Intervention: After antibiotic prophylaxis and chlorhexidine preparation, swabs were collected from the vaginal fornices and abdomen. During TLH, additional swabs were collected from the following sites: surgeon's gloves following placement of the uterine manipulator, tips of instruments used to close the vaginal cuff, uterine fundus after extraction, and surgeon's gloves following removal of the uterus. A calibrated loop was used to inoculate each specimen onto 5% blood and chocolate agars for growth of aerobes and onto brucella blood, phenylethyl alcohol, kanamycin vancomycin, and Bacteroides bile esculin agars for growth of anaerobes. Manual colony counts were tabulated for all cultures and reported in colony forming units/ml (CFU/ml). Positive cultures were reported by genus and by species when applicable.

Measurements and Main Results: Anaerobic bacterial growth was not seen on the abdomen, in the vagina, or on the instrument tips of any patient. Aerobic bacterial growth was not seen in the vagina of any patient. On the surgeon's gloves following uterine manipulator placement, no patients demonstrated sufficient growth of anaerobic or aerobic bacteria to potentially cause surgical site infection (≥ 5000 CFU/ml). On gloves following uterus extraction, one patient demonstrated sufficient growth of anaerobic bacteria to potentially cause infection. None of the patients developed surgical-site infections postoperatively.

Conclusion: Swabs from multiple operative sites yielded bacterial growth, but the bacterial concentrations did not exceed the threshold for potential infection in 98% of cultures. Further studies are indicated before surgeons may consider

approaching the perineum and abdomen as a single surgical field when performing TLH.

214 Open Communications 19 - New Instrumentation or Technology (2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Image Comparison of a Mobile Colposcope (EVA) versus a Standard Colposcope for Directing Cervical Biopsies in Women with Abnormal Pap Smears: A Non-Inferiority Trial



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Study Objective: Cervical Pap screening and colposcopy are proven tools which aide in the diagnosis and management of dysplasia, which can ultimately prevent the development of cervical cancer. Although cervical Pap screening is widely available across the U.S., over 10 million women have limited access to a trained colposcopist, thus receive inadequate follow up when an abnormal Pap smear is encountered. This study served to compare an inexpensive cell-phone based mobile colposcope (EVA) with the more expensive standard colposcope in the evaluation of women with abnormal Pap smears.

Design: Prospective, non-inferiority trial.

Setting: A large community-based hospital system in San Diego, California, and a community health clinic in Tijuana, Mexico.

Patients: Woman ages 30-45 who were referred for colposcopy following an abnormal Pap smear or HPV DNA test.

Intervention: Each patient had images obtained with a traditional colposcope and the mobile colposcope. Experienced gynecologists then evaluated paired images (plain and green filter) in random order using a web based program. The expert would make an assessment of 1) normal, or 2) abnormal. For abnormal images, the expert would electronically mark the site(s) on the image where a biopsy would be recommended.

Measurements and Main Results: The image was divided into 12 radial sectors and the marked site for biopsy was compared. Images that were considered normal, or those where biopsy site recommendations were within +/- 30 degrees were considered equivalent; unmatched biopsy sites were considered non-equivalent. Initial review of the data reveals equivalence between images.

Conclusion: Through digital image capture and internet-connection, the Enhanced Visual Assessment (EVA) System can allow remote interpretation and recommendations in settings without an expert colposcopist. The EVA system can help more providers perform more advanced cervical cancer screening and diagnosis to women in low resource settings within the U.S., and around the world. This could help lower the morbidity and mortality related to cervical cancer.

215 Open Communications 19 - New Instrumentation or Technology (2:15 PM - 3:15 PM)

2:22 PM – GROUP A

First In Vitro Results of a Manually Controlled Hysteroscopic Tissue Removal System (RESECTR®)



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Study Objective: To evaluate resection time of a new manually controlled disposable hysteroscopic tissue removal device, an in vitro setting was built, using umbilical cord tissue as polyp-like surrogate.

Design: In vitro trial for two different sizes of RESECTR device; 9 French (Fr.) (3mm O.D.) and 5 Fr. (1.65mm O.D.)

Setting: Clinical skills laboratory of a non-university teaching hospital

Patients: Umbilical cord tissue as a polyp surrogate.

Intervention: RESECTR (Distal Access, LLC, Park City, Utah, USA) devices were provided in two different diameters. A 9 Fr. (3mm) device was used in a larger 5mm hysteroscope with 5 Fr. working channel, whereas the 5 Fr. (1.65mm) RESECTR was used in a 3.6mm hysteroscope. Pieces of umbilical cord were weighed, attached on the inner side of a tap water filled glass bowl and resected. Suction (2 bar) was applied. The period of time for complete resection of the tissue was measured for both RESECTR devices.



Measurements and Main Results: Twenty-five tissue fragments (n=25, mean weight 1.156g (median 1.2g; range 0.9-1.3g)) were resected with the 9 Fr.(3mm)devices. The mean resection rate was 2.2836g/min (m:0.6;r:1.34-2.95). Twelve tissue fragments (n=12, mean weight 0.79g (m:0.8;r:0.5-1.2)) were resected with the 5 Fr. (1.65mm)devices. The mean resection rate was 0.56g/min (m:0.52;r:0.45-0.79).

Conclusion: Both devices resected tissue within acceptable time limits (<3 minutes). The cutting speed depends on the number of squeezes of the handpiece per minute, with each squeeze initiating 6 cutting movements. The small diameter device resected significantly slower than the larger size RESECTR (mean rate 0.56g/min versus 2.28g/min, p<0.0001). However, this thin instrument would serve best for hysteroscopic tissue removal in an ambulatory setting. These promising devices offer similar potentials as the commercial available hysteroscopic tissue removal systems whereas introduction needs less investment. They can decrease the complexity of the existing motorized morcellation procedures. Clinical implementation studies have to be done to provide more insight in future possibilities.

216 Open Communications 19 - New Instrumentation or Technology (2:15 PM - 3:15 PM)

2:29 PM – GROUP A

Mini-Laparoscopy by Using Percutaneous Instrument in Total Laparoscopic Hysterectomy: Single Institution Experience



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Study Objective: To evaluate the feasibility of mini-laparoscopy (M-LPS) by using percutaneous endoscopic instrument in total laparoscopic hysterectomy (TLH).

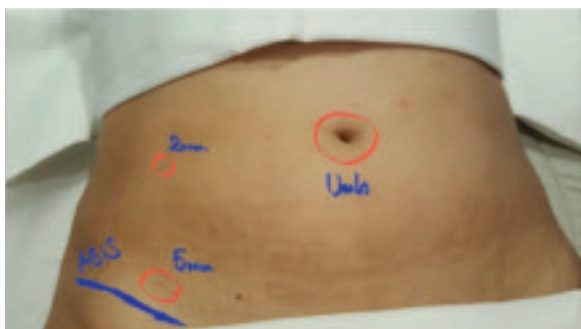
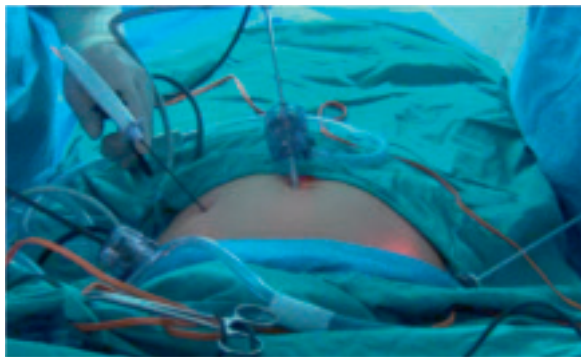
Design: Prospective observational study.

Setting: Tertiary-care university-based teaching hospital and academic affiliated private hospital.

Patients: Ten women who underwent mini-laparoscopic hysterectomy, between December 2015 and March 2016.

Intervention: M-LPS was performed through one optical transumbilical 5-mm trocar, one 5-mm ancillary port on the right side, one 3-mm ancillary port on left and one 2-mm percutaneous endoscopic instrument (MiniGrip® Handle, Teleflex, USA)

A 5-mm 0-degree endoscope, 3 mm laparoscopic instruments and integrated bipolar and ultrasonic technology (Thunderbeat, Olympus, Japan) were



used. The umbilical incision was sutured with a 4/0 Monocryl, whereas 3- and 2-mm incisions were closed with sterile strip.

The data were re-analyzed by re-watching un-edited videos of the operations and reviewing special laparoscopic hysterectomy files. All operations were performed by the same surgeon.

Measurements and Main Results: A total of 10 patients were included. The median age was 46 years (range, 41-51 years); body-mass index was 28 kg/m² (range, 25- 32 kg/m²), and uterine weight was 180 gr (range, 80-210 gr). Of the 10 patients, 6 had uterine myomas; 2 had endometrial hyperplasia; and 2 had adnexal mass. The median operating time was 100 minutes (range, 80-185 min), and estimated blood loss was 80 ml (range, 60-180 ml). Conversion to laparotomy and transfusion was not required. Recovery of gastrointestinal activity and spontaneous urination started at median 16 hours (range, 12-24 hour) and 6 hours (range, 4-8 hour), respectively. Post-operative abdominal pain at rest was evaluated via VAS (Visual Analog Scale) score 0 to 10 and median VAS score was 2 (0-6). Intra- and postoperative complications were not observed.

Conclusion: Mini-laparoscopy by using percutaneous instrument is feasible and nearly “scar-free” procedure that promotes quick recovery and acceptable operation time with minimal blood loss and excellent post-operative pain scores.

217 Open Communications 19 - New Instrumentation or Technology (2:15 PM - 3:15 PM)

2:36 PM – GROUP A

Changes in Maturation Index and Vaginal pH After Treatment with a Fractional CO₂ Laser for Atrophic Vaginitis



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Study Objective: To determine if women treated with a fractional CO₂ laser for atrophic vaginitis had a change in vaginal pH and maturation index.

Design: A retrospective chart review of women receiving vaginal laser treatments for atrophic vaginitis was conducted.

Setting: Treatments were performed in an outpatient private office with approximately six weeks between each treatment.

Patients: Thirty women were treated with the fractional CO₂ laser. Six women were excluded due to lack of collection of maturation index or invalid results. Two additional women were excluded from pH analysis, due to no baseline pH. Median age was 57 years old.

Intervention: Women diagnosed with atrophic vaginitis received treatment with a fractional CO₂ laser. Number of treatments ranged from one to three treatments. A vaginal pH and maturation index were performed prior to each treatment.

Measurements and Main Results: The mean decrease in parabasal cells compared to baseline after one, two, and three treatments was 8.5% (p=0.31, N=13), 1.7% (p=0.19, N=9), and 20% (p=0.57, N=2) respectively. The mean increase in superficial cells compared to baseline after one, two, and three treatments was 0% (p=1, N=13), 6.1% (p=0.56, N=9), and 5% (p=0.7, N=2) respectively. The mean decrease in pH compared to baseline was 0.67 after one treatment (p=0.04, N=12), 1.0 after two treatments (p = 0.07, N= 8) and 2.25 after three treatments (p=0.07, N=2).

Conclusion: Maturation index and vaginal pH are non-invasive objective tools to assess for vaginal changes post-treatment. Analysis of this cohort shows a decrease of parabasal cells and vaginal pH after one, two, and three treatments and an increase of superficial cells after two and three treatments. This study is limited by the sample size and a larger cohort is needed to determine statistical significance and to correlate objective outcomes with patient perception.

218 Open Communications 19 - New Instrumentation or Technology (2:15 PM - 3:15 PM)

2:47 PM – GROUP B

Radiofrequency Ablation of Uterine Fibroids Is Safe and Efficacious in Symptomatic Patients with Uteri of 15 Weeks Gestational Size and Larger



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Study Objective: To report for the first time the feasibility, safety, and efficacy of laparoscopic, ultrasound-guided radiofrequency ablation in symptomatic women with fibroid uteri ≥ 15-week size (574 cm³).

Design: Retrospective review of charts of patients treated by one surgeon between July 29, 2014 and March 30, 2015. Baseline uterine volumes were ≥ 574 cm³ as calculated using the formula for the prolate ellipse (L x W x H x 0.52). Follow-up is ongoing and data will be updated in August.

Setting: Office based private practice with procedures performed at two free-standing ambulatory surgery centers and one community hospital.

Patients: Thirty-four subjects met criteria for inclusion (symptomatic uterine fibroids, baseline uterine volume ≥ 574 cm³, underwent radiofrequency ablation).


Intervention: Laparoscopic, ultrasound-guided radiofrequency ablation.

Measurements and Main Results: Mean patient age was 46.6±5.4 years (n=34). Mean baseline uterine volume was 1211.7±550.8 cm³ (range 588.2–2716.4 cm³). Twenty-one patients (61.8%) had both baseline and postoperative volume assessments (mean follow-up 6.5 months, range 3–12 months). Mean uterine volume decreased by 44.2% from 1163.2±592.8 cm³ at baseline to 649.6±410.2 cm³ at follow-up. Statistically significant volume reduction was achieved: -513.7 cm³ (95% CI 342.4, 684.8, matched pairs t-test p<0.0001). The dominant mean fibroid diameter was 9.2±3.0 cm (4.6–13.9 cm). Twenty (58.8%) patients reported 97 symptoms at baseline. At a mean follow-up of 6.6±3.2 months (3–12 months), 73 (79.3%) symptoms resolved, 16 (17.4%) improved, and 3 (3.3%) were unchanged. No patients reported worsening of any symptom. There were no transfusions, complications, transfers to other facilities, or re-interventions. All patients were discharged the day of the procedure.

Conclusion: Radiofrequency ablation of uterine fibroids in this limited series of patients with very large uteri was safe and effective and produced significant volume decrease.

219 Open Communications 19 - New Instrumentation or Technology
(2:15 PM - 3:15 PM)

2:54 PM – GROUP B

Pregnancy Outcomes Following Hyperthermic Fibroid Ablation 

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Study Objective: To review reproductive outcomes of women following radiofrequency fibroid ablation (RFA) and magnetic resonance-guided focused ultrasound surgery (MRgFUS).

Design: Systematic Review of Literature.

Setting: Academic and private centers.


Patients: Using PubMed and Medline, all publications with data on women who underwent RFA or MRgFUS and subsequently conceived were reviewed.

Measurements and Main Results: There were a total of 122 pregnancies following hyperthermal fibroid ablation. There were 20 pregnancies following RFA. One (0.05%) SAB and 7 (35%) elective terminations were described. The remaining 12 pregnancies had live full term deliveries, 9 (75%) via cesarean and 3 (25%) vaginally. No reports of uterine window, uterine rupture, abnormal placentation, or uterine scarring / thinning were described. There was 1 report of a delayed postpartum hemorrhage post NSVD with expulsion of a degenerated fibroid, requiring transfusion. There were 102 pregnancies reported following MRgFUS. There were 21 (20.6%) SAB and 22 (21.6%) elective terminations. 11 were ongoing at the time of report, and 48 (47%) delivered live infants. There was one preterm delivery at 36weeks due to placenta previa and the remaining deliveries were full term. Complications included vaginal spotting (12.5%), delayed placental separation (4%), and placenta previa (4%). There were no cases of uterine rupture. A major complication reported was post cesarean delivery at 38weeks complicated by a fibroid in the lower uterine segment obstructing the pelvic outlet requiring myomectomy. The patient developed severe bleeding, DIC and ARDS but ultimately recovered and had a second delivery two years later.

Conclusion: Hyperthermic ablation of fibroids may be a reasonable alternative for the treatment of fibroids. This data suggests that pregnancy outcomes are similar to the general population. However, prospective analysis would be crucial to determine true reproductive outcomes and to understand effects on fertility.

220 Open Communications 19 - New Instrumentation or Technology
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3:01 PM – GROUP B

Training Basic Laparoscopic Surgical Skills with the New Nintendo Wii-U™ Laparoscopic Simulator: 
Residents Opinion

Overtom EM,¹ Jansen F-W,² Santbrink EJ,³ Schraffordt-Koops SE,⁴ Veerema B,¹ Schreuder HWR.¹ ¹Gynecology and Reproductive Medicine, University Medical Center Utrecht, Utrecht, Netherlands; ²Gynecology, Leiden University Medical Center, Leiden, Netherlands; ³Gynecology and Reproductive Medicine, Reinier de Graaf Hospital, Delft, Netherlands; ⁴Obstetrics and Gynecology, Meander Medical Center, Amersfoort, Netherlands

Study Objective: Serious games are relatively new in the field of laparoscopic surgical training. We evaluate the opinion of Ob/Gyn

residents of a new serious game ‘Underground.’ The game is played on the new laparoscopic simulator for the Nintendo Wii-U™ platform and is especially designed for training basic laparoscopic skills.

Design: Prospective study.

Setting: Two University Teaching Hospitals

Patients: Ob/Gyn residents Post Graduate Year (PGY) 1-6 (n=59) from several European countries.

Intervention: The Nintendo-Wii™ controllers are placed in the special laparoscopic tool shell to form the laparoscopic simulator instruments (figure). Participants received a standardized introduction and completed level 3 and 4 of the game ‘Underground.’ Afterwards they filled out a questionnaire concerning demographics and their opinion on realism, usefulness, suitability, haptic feedback and home training-use of the game.

Measurements and Main Results: Subjects were divided into two groups based on laparoscopic experience: Group A (n=38) and Group B (n=21). There were no significant differences between groups opinions with respect to realism, usefulness and suitability. The realism of different aspects of the game received mean scores around 3 on a 5-point Likert scale. The hand-eye coordination was regarded most useful for training with a mean of 3.92 (0.93SD) and the game was considered most suitable for residents in the first part of their post-graduate training with a mean of 3.73 (0.97SD). In the statements section both groups differed especially concerning the usefulness of the game as a training tool.

Conclusion: Most residents like the new serious game for the Nintendo Wii-U™. The usefulness and suitability as a laparoscopic training tool are rated at an acceptable to high level. However, the game does require improvements such as inclusion of a good scoring system before it can be integrated in resident training curricula.

221 Open Communications 19 - New Instrumentation or Technology
(2:15 PM - 3:15 PM)

3:08 PM – GROUP B

CystoSure® at Time of Hysterectomy 

Davis S, Gan S, Jaspan D, Goldberg J. Ob/Gyn, Albert Einstein Medical Center, Philadelphia, Pennsylvania

Study Objective: Universal versus selective cystoscopy at time of hysterectomy to detect ureteral and bladder injuries is controversial. Cystoscopy may not be performed universally due to user inexperience, increased OR time to perform procedure, and possible increased risk of infection due to multiple urinary catheter insertions. The CystoSure Urinary Catheter Access System® has been invented to help conduct cystoscopy in a faster, safer, and easier manner. We report the use of the CystoSure Urinary Access System® at time of a supracervical hysterectomy.

Measurements and Main Results: A 45-year-old woman with a symptomatic 24-week-sized fibroid uterus was consented for a supracervical hysterectomy. The patient was placed in the supine position. After prepping the patient in the OR, a CystoSure® silicone access bladder catheter was inserted through the urethra. A supracervical hysterectomy was then performed with no complications suspected. After closing her skin, 1 ml IV sodium fluorescein was administered. The patient was frog-legged. The drainage funnel of the CystoSure® catheter was clamped off. 200 cc of saline was instilled into bladder through the Cystosure universal irrigation port. The 2.7 mm 70 degree CystoSure® cystoscope was inserted through the sealed Cystosure® scope access port. The bladder was visualized, with no evidence of bladder injury. Bilateral ureteral jets were visualized. The cystoscope was removed. The Cystosure® catheter was left with a plan to remove it on post-operative day #1. She was discharged with an uneventful post-operative course.

Conclusion: The CystoSure Urinary Access System® is simple to set up and use. Cystosure® avoids the usual removal and reinsertion of a bladder catheter, possibly decreasing infection and saving OR time. Cystosure's®

ease of use and convenience may increase the performance of cystoscopy at the time of hysterectomy.

222 Open Communications 20 - Hysteroscopy, Endometrial Ablation and Sterilization (2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Diagnostic Sensitivity and Cost Effectiveness of Sonohysterography versus Office Hysteroscopy for Evaluation of Uterine Cavity Disorders



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Study Objective: To compare the diagnostic accuracy, sensitivity and cost effectiveness of Sonohysterography versus Hysteroscopy in the diagnosis of uterine cavity disorders.

Design: Prospective cross sectional Study.

Setting: Gynecology Unit of high Volume dedicated Women's Hospital.

Patients: Fifty five patients between 22-52 years age group, attending the Gynaecology OPD at Luthra Hospitals< Dehradun, India were invited to participate in this study between March, 2015 till February 2016.

These patients had TVS findings suggestive of uterine cavity lesions like Polyp, Growth, Septum or endometrial hyperplasia.

The exclusion criteria were suspected pregnancy, acute PID and suspicion of malignancy.

Intervention: Transvaginal ultrasound was performed on 55 women with complains of infertility or abnormal uterine bleeding. In women with suspected lesions in the cavity, SHG was performed using SHG catheter. The catheter was placed in the cervical canal. Normal saline was instilled slowly using 20ml syringe to distend the uterine cavity. Observations were recorded while doing 7.5 MHz transvaginal scan.

Hysteroscopy was performed on all the cases along with tissue sampling for histopathology.

All patients had undergone TVS, Sonohysterography and Hysteroscopy followed by histopathology results.

Measurements and Main Results: Upon comparison of Sonohysterography and Diagnostic hysteroscopy with histopathology ,hysteroscopy results were sensitivity 97.1%, specificity 88.3%, positive predictive value 95.8% and negative predictive value 94.3%. While for SHG, results were sensitivity 90.2%, specificity 87.5%, positive predictive value 95.4% and negative predictive value 78.3%.

Sensitivity, Specificity, PPV and NPV of SHG and Hysteroscopy

	SHG	Hysteroscopy
Sensitivity	90.2%	97.1%
Specificity	87.5%	88.3%
Positive predictive value	95.4%	95.8%
Negative predictive value	78.3%	94.3%

Conclusion: SHG is a Simple, cost effective, safe procedure,available in most gynecologist's office.

Although Hysteroscopy is superior to SHG for diagnosis of intracavity lesions, SHG should be considered as First line test for screening and evaluation of the Uterine cavity due to its feasibility and easy acceptance by most of the patients.

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2:22 PM – GROUP A

Essure Permanent Birth Control Effectiveness and Safety: An Italian Ten-Year Survey



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Study Objective: To describe safety, tolerability, and effectiveness results through minimum 5-year follow-up of Essure inserts.

Design: A retrospective multicenter study.

Setting: 3 general hospitals and 2 clinical teaching centers in Italy.

Patients: A total of 797 women, mean age 38 years (range 23-48 years) who underwent office hysteroscopic sterilization using Essure between January 1, 2003, and January 30, 2011.

Intervention: Office hysteroscopic bilateral Essure insert placement with satisfactory device location and tube occlusion based on hysterosalpingography [HSG].

Comparison of Sonohysterography and Hysteroscopy Findings with Histopathology

	Sonohysterography N:55		Hysteroscopy N:55		Histopathology N:55	
Normal	16	30%	19	35%	19	34%
Fibroid polyp	13	24%	14	26%	14	26%
Submucous fibroid	6	10%	5	9%	6	10%
Endometrial hyperplasia	7	12%	4	8%	3	6%
Endometrial polyp	4	7%	5	9%	5	9%
Intrauterine adhesions	5	9%	8	14%	5	10%
Septate uterus	3	4%	4	8%	-	-
Bicornuate uterus	1	2%	0	0%	-	-
Endometrial atrophy	1	2%	2	3%	2	3%
Total	55		55		55	

Measurements and Main Results: Placement rate, successful bilateral tubal occlusion, perioperative adverse events, early postoperative (during the first 3 months of follow-up) and late complications were evaluated. Satisfactory insertion was accomplished in 97.1% of women and in 2 asymptomatic perforation and 1 expulsions were detected during HSG test. 5 unintended pregnancies occurred before the 3-months confirmation test. No pregnancies were reported among women relying on the Essure inserts who completed minimum 5-year follow-up. Postprocedure pain was minimal and brief, in 5 pelvic pain became intractable requiring removal of the devices laparoscopically. All 5 women were patch-test positive to nickel.

Conclusion: The findings from extended Italian follow-up further support the effectiveness, tolerability, and satisfaction of Essure hysteroscopic sterilisation when women are well informed of the potential risks of the device. Patients with a known hypersensitivity to nickel may be less suitable candidates for the Essure system. Moreover the results from this study did not demonstrate any increased incidence of long-term complications associated with Essure more than five years after placement.

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2:29 PM – GROUP A

Levonorgestrel Intrauterine Device Outperforms Endometrial Ablation by Cost and Utility Metrics: A Decision Analysis



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Study Objective: To provide comparative estimates of clinical outcomes and 5-year, cumulative quality adjusted life years (QALYs) following the levonorgestrel intrauterine system (LNG-IUS), resectoscopic and non-resectoscopic endometrial ablation, and hysterectomy for the treatment of heavy menstrual bleeding.

Design: Decision modeling.

Setting: Tertiary-care, academic hospital.

Patients: Hypothetical cohort of 100,000 premenopausal women who have heavy menstrual bleeding.

Intervention: We generated a decision tree to compare the clinical outcomes following LNG-IUS, resectoscopic and non-resectoscopic endometrial ablation, and hysterectomy. We evaluated morbidity resulting from complications, mortality, and treatment outcomes over a five-year period and calculated cumulative QALYs for each modality. Base-case estimates and transition probabilities were determined by existing published data. We also conducted a two-way sensitivity analysis to determine percent improvement in QALYs for each comparison across the range of utility estimates seen in the literature.

Measurements and Main Results: Using base case estimates, LNG-IUS had the highest 5-year, cumulative QALYs (407, 288), followed by hysterectomy (403,466), then non-resectoscopic endometrial ablation (400,721), and lastly resectoscopic endometrial ablation (397,551). Both types of endometrial ablation were associated with nearly twice the number of complications per 100,000 women over 5 years (61,827 for non-resectoscopic ablation and 53,747 for resectoscopic ablation), compared to LNG-IUS (26,696) and hysterectomy (30,877). A two-way sensitivity analysis varying expected utilities following procedure-related recovery showed LNG-IUS and hysterectomy remained preferable to endometrial ablation across the majority of scenarios. LNG-IUS and hysterectomy yield similar quality of life estimates. Either type of endometrial ablation costs twice as much as LNG-IUS.

Conclusion: For women who have failed other medical therapies, weighing both the risk of complications and the need for future procedures, endometrial ablation has the lowest quality of life outcomes compared to LNG-IUS and hysterectomy. Compared to endometrial ablation and

hysterectomy, LNG-IUS remains the most cost-effective option for the treatment of heavy menstrual bleeding.

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2:36 PM – GROUP A

A Novel Hysteroscope Technique Excision of Adenomyosis: Two-Year Follow-Up Results



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Study Objective: To explore the efficacy and safety of a novel hysteroscope technique excision of myometrial adenomyosis.

Design: A case series study.

Setting: Gynecology department of an university medical center.

Patients: From January 2013 to February 2016, 51 patients with symptomatic adenomyosis who had indication of surgical intervention and were willing to preserve the uterus without further desire of fertility.

Intervention: Hysteroscopic excision of myometrial adenomyosis were introduced. Patients were followed up during 24 months after operation at 3-months interval to estimate the degree alleviating of dysmenorrhea and menorrhagia by visual analogue scale score. Satisfaction with the surgery and the improvement in symptoms were primary outcomes.

Measurements and Main Results: All the patients successfully treated by the technique. Among the 51 patients, 31 of them completed the two years follow-up. The mean patient age was 40.5±5.1(31-50) years, the mean surgical time was 35.7±20.1(19-79) minutes, the mean blood loss was 24.2±18.5(15-56) ml, and the postoperative fever morbidity was 3.23%(1/31). No event complicated the intraoperative and the postoperative course of these cases, and no case was converted to laparotomy or laparoscopy. 30 patients were treated by 1-step resection and one patient was managed by 2-step resection. All patients gained clinical effective alleviating in menorrhagia(P<0.001) and dysmenorrhea(P=0.001) after surgery from baseline. The recurrence rate of menorrhagia and dysmenorrhea was 16.1%(5/31) and 25.8%(8/31), respectively during 24 months after surgery. Hysterectomy was performed in one patient because of recurrence of menorrhagia at 20 months after surgery.

Conclusion: Hysteroscopic excision of myometrial adenomyotic lesions appears to be effective and safe treatment for adenomyosis.

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2:47 PM – GROUP B

Treatment Patterns Among Women with Newly Diagnosed Abnormal Uterine Bleeding



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Study Objective: To describe time to treatment among commercially insured women with newly diagnosed abnormal uterine bleeding (AUB).

Design: US retrospective administrative claims analysis.

Setting: N/A.

Patients: Women with newly diagnosed AUB and at least 12 months of continuous medical and pharmacy enrollment in the Truven Health MarketScan[®] Commercial and Medicare Supplemental Databases prior to and following the new AUB diagnosis. Women with evidence of pregnancy, delivery, or non-AUB bleeding disorders were excluded.

Intervention: N/A.

Measurements and Main Results: Utilization and timing of AUB-specific diagnostic and therapeutic interventions were described in the 12 months following AUB diagnosis. Out of 1.59M women aged 18-65 years with

AUB diagnosis between 2010-2014, 1.28M (80.4%) were newly diagnosed with AUB. Mean age at time of new AUB diagnosis was 39 years (29.9% were 18-34, 34.8% were 35-44, 30.8% were 45-54, 4.5% were 55-64). Nearly two-thirds (60.0%) of newly diagnosed women underwent a diagnostic or therapeutic procedure within 12 months of diagnosis, with the most common being diagnostic ultrasound, occurring in nearly one-half of patients (48.9%) an average of 44.5 days post-diagnosis. The next most common diagnostic procedure was biopsy (22.6%), occurring an average of 36.0 days post-diagnosis. Among newly diagnosed AUB patients, 15.8% received a therapeutic procedure within 12 months, most commonly hysterectomy (8.0%), ablation (6.9%), and myomectomy (1.2%). On average, therapeutic procedures occurred 80.7 days post-diagnosis. Patients had an average of 2.24 office visits between diagnosis and their therapeutic intervention. Pharmacotherapy (e.g., oral contraceptives, progestin, medroxyprogesterone) was used by 25.4% of patients post-diagnosis.

Conclusion: Relatively few patients receive treatment for AUB within 12 months of new diagnosis, and those receiving AUB therapy typically have a delay of approximately three months after their new diagnosis. Interventions that can reduce or eliminate this delay have potential to substantially improve patient outcomes and save healthcare resources and costs.

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2:54 PM – GROUP B

Endometrial Ablation with the AEGEA Vapor System in an Office Setting



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Study Objective: To evaluate patient tolerance of and recovery from endometrial ablation performed using the AEGEA Vapor System in a variety of settings using different anesthesia regimens.

Design: Prospective multicenter single arm clinical trial.

Setting: Private practice, outpatient and hospital settings in the U.S., Canada, Mexico and the Netherlands.

Patients: 155 women aged 30-50 years participating in the AEGEA Pivotal Clinical Trial for pre-market approval.

Intervention: Patients underwent endometrial ablation for heavy menstrual bleeding in an office setting, an outpatient center, or an operating room, using varying anesthesia regimens.

Measurements and Main Results: 53% of procedures were performed in an office setting, 44% in an outpatient facility, and 3% in a hospital operating room. 76% of patients had combined anesthesia/analgesia consisting of IV, oral and local agents; 18% had oral and local agents only; 6% had general anesthesia. Pain scores were assessed by a 10 point scale at 24 hours postoperatively with a mean of 3.7 (median 4.0), where 4.7 represented the baseline mean estimation of usual menstrual pain. Subjects returned to work at a mean of 1.9 days (range 1-10 days), and return to normal activities in 2.3 days (range 1-14 days). No serious device or procedure-related adverse events were noted.

Conclusion: The AEGEA Vapor System can be safely conducted in an office setting with combined anesthesia/analgesia regimens consisting of IV, oral and local agents allowing excellent patient tolerance and rapid recovery.

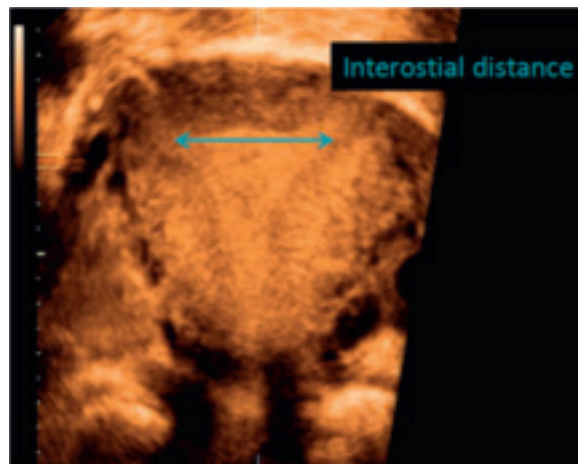
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3:01 PM – GROUP B

Intra- and Inter-Rater Reliability of the 3D-US Control of Essure® Implants



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Study Objective: To assess the reproducibility of obtaining a high-standard frontal section of the uterus in 3D ultrasound and to assess the reproducibility of the Essure implants classification.

Design: Single-center prospective study.

Setting: G&O department of a Teaching Hospital.

Patients: Patients coming for the 3-months follow-up after positioning of Essure implants were included.

Intervention: 3D ultrasound control was performed with the multiplanar mode by a senior operator. All volumes were saved and anonymized. For each patient two measures were taken: (i) a quantitative measure to check the quality of the reconstruction of the frontal section of the uterus (interstitial distance - DIO) (figure 1), (ii) a subjective qualitative measure (positioning of implants) using the validated classification of Legendre et al. After a short practical training in 3D ultrasound, a novice operator performed by himself the measures based on stored volumes. To investigate intra-rater reliability second series of measurements was carried out by the novice operator one month later. The intra-class correlation coefficient (ICC) was used to measure the DIO. Coefficient kappa was used to measure concordance regarding the position of implants.

Measurements and Main Results: Thirty-five 3D ultrasound were performed to monitor the position of the implants, 35 Inter-ostial distance were measured and 70 positions of implants were recorded. Regarding the intra-observatory reproducibility, ICC of measured DIO was 0.93 (95% CI: 0.86; 0.96). Weighted Kappa was 0.72 for an agreement rate of 92.38% for the position of Essure. Regarding the inter-trader reliability, the ICC of DIO was 0.889 (95% CI 0.777, 0.944). Weighted Kappa was 0.53 with an agreement rate of 88.1% for the first session, and 0.62 in the second session with an agreement rate of 90.5%, regarding positioning of the implant.

Conclusion: Obtaining a frontal section of the uterus is easy with good reproducibility between novice and expert operators. Analysis of the implant position requires greater experience.

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3:08 PM – GROUP B

The AEGEA Vapor System and Endometrial Ablation: Results in Patient Sub-Populations Treated in the Pivotal Clinical Trial Who Have Large Cavities, Uterine Myomata, Müllerian Anomalies and Intrauterine Contraceptive Inserts



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Study Objective: To evaluate the safety and efficacy of endometrial ablation using the AEGEA Vapor System in patients excluded from

treatment with other commercially available second-generation endometrial ablation technologies as compared to the cohort of the Pivotal Trial that would be acceptable for conventional existing treatment.

Design: Prospective, multicenter, single arm, open label, Pivotal Clinical Trial.

Setting: Private practice, outpatient and hospital settings in 15 sites in the U.S., Mexico, Canada and the Netherlands.

Patients: 155 premenopausal women aged 30 to 50 years with heavy menstrual bleeding as determined by a Pictorial Blood Loss Assessment (PBLAC) (Higham) score ≥ 150 . Preoperative evaluation included ultrasound, sono-hystero-graphy or hysteroscopy, and endometrial biopsy. Screening inclusion allowed up to 12 cm uterine sound lengths, uterine septa up to 1/3 of the cavity length, non-cavity obstructing myomata which measured by ultrasound up to 4cm in diameter, and intratubal contraceptive inserts.

Intervention: Endometrial ablation (120 second treatment time) was performed under varying anesthesia regimens using the AEGEA Vapor System.

Measurements and Main Results: The primary effectiveness endpoint was a reduction of menstrual blood loss to a PBLAC score ≤ 75 . Subpopulations were analyzed independently. Seventy-three (53%) subjects had one or more elements that would render them unfavorable or excluded for treatment with endometrial ablation using currently approved second generation endometrial ablation devices.

Conclusion: Data collection for the Pivotal Clinical Trial is currently still ongoing at the time of this abstract submission. Full results for each sub-group will be reported at the 2016 AAGL Global Conference.

230 Open Communications 21 - Oncology (2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Dramatic Rise of Sarcomas Among a Continuous Cohort of Patients Referred for Treatment of Fibroids by MIS on Over Fourteen Years: Real Incidence Rise or Improved Pre Operative Diagnosis?



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Study Objective: We present one of the largest series of sarcomas diagnosed among a continuous cohort of 3275 patients referred for fibroid treatment by MIS and discuss the dramatic increase of the incidence over fourteen years.

Design: Prospective study (Canadian Task Force classification II-3).

Setting: University Hospital, Tertiary Center.

Patients: 3275 Referred patients for treatment of fibroids between 01.01.2002 and 01.01.2015.

Intervention: All patients had a clinical examination, endometrial sampling, pelvic ultrasound, MRI. Patients were treated by laparoscopy, hysteroscopy, vaginal procedure, Uterine Artery Embolization (UAE) or a combined procedure of UAE and MIS, both first described in our department in 1997 and 2002 respectively, or by laparotomy. Every diagnosis of sarcoma was reviewed by a panel of pathologists.

Measurements and Main Results: 3275 patients were referred for treatment of uterine fibroids during a 14 years period. 865 patients were treated by laparoscopy, 674 by hysteroscopy, 359 patients with a vaginal procedure, 286 patients by UAE. Fifteen patients had a final diagnosis of sarcoma, none of them having a MIS nor a morcellation. The PPV and NPV of MRI was 100%. From less than 1/500 symptomatic fibroids in 2002, the overall incidence of sarcomas evolved to 1/400 in 2013, 1/285 in 2014 and 1/217 in 2015, with no changes in our pre-operative diagnosis method nor further specific referral.

Conclusion: The incidence of uterine sarcoma in a continuous population of 3275 patients of diverse ethnical origins referred for treatment of fibroids was 0.46%. 1/217 symptomatic fibroids was a sarcoma. Assessed on one of the largest series of sarcomas diagnosed among fibroids we

emphasize the role of MRI and Endometrial Sampling as key investigations prior to surgery. No hazard was reported due to the morcellation of an unrecognized sarcoma. The dramatic increase of sarcomas in the past three years to 1,8% in one year needs to be compared with other prospective studies.

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2:22 PM – GROUP A

A New Model to Preoperatively Exclude the Risk of Sarcoma in Patients Affected by Uterine Mass: The Uterine Mass Magna Graecia (U.M.G.) Risk-Score



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Study Objective: The aim of this study was to identify a new predictive model to preoperatively exclude the risk of sarcoma in patients affected by uterine mass.

Design: Retrospective study. January 2004 December 2015.

Setting: Unit of Obstetrics and Gynecology, “Pugliese-Ciaccio” Hospital, Department of Experimental and Clinical Medicine, UMG, Catanzaro.

Patients: Among 3100, data from 2273 patients who underwent surgical treatment for uterine mass at our Institution, were reviewed.

Intervention: Clinical, biochemical, ultra-sonographic and pathological data were retrieved from the charts.

Measurements and Main Results: The linear logistic regression was applied on the patients dataset and the strongest predictors of sarcoma risk were selected to generate a Risk Score. The model was evaluated using a receiver operating characteristic curve (ROC). From the charts, 44 out of 2273 patients resulted affected from uterine sarcomas and 2229 from uterine fibroids. Parameters selected to generate the Risk Score were: patient’s age, mass growth, failure to respond to therapy, CA125, LDH, LDH3, LDH4 and LDH5 levels, and vascularity pattern (central/peripheral). Each parameter was weighted to create a risk score named Uterine mass Magna Graecia (U.M.G.) Risk-Score that is the sum of the individual variables. The individual and total Score correlates with a percentage risk of having a sarcoma.

Two most accurate cut-off values, as the minimum and maximum value that predicts respectively occurrence and non-occurrence of the event, were identified by ROC analysis. Therefore, the model allows to identify 3 class of risk: “virtually no-risk,” “low-risk” and “risk.” The sensitivity and specificity of the model were 98% and 98%, respectively. The positive predictive value was 68% and the negative predictive value was 100%.

Conclusion: The U.M.G. Risk-Score accurately stratifies patients with uterine mass according to the risk of having a sarcoma. It could help gynaecologists in choosing, according to the identified class of risk, the most appropriate treatment.

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2:29 PM – GROUP A

Laparoscopic Radical Trachelectomy: Technique, Feasibility and Outcomes. Experience Hospital Italiano Buenos Aires, Argentina



Saadi J, Perrotta M, Giavedoni M, Odetto D, Saraniti G, Testa R. Hospital Italiano de Buenos Aires, Ciudad Autónoma de Buenos Aires, Buenos Aires, Argentina

Study Objective: Describe our surgical technique for laparoscopic radical trachelectomy, to evaluate its feasibility and show the perioperative results at Hospital Italiano of Buenos Aires, Argentine.

Design: Retrospective study.

Setting: Tertiary care teaching hospital

Patients: 15 patients with early-stage cervical cancer and desire of fertility sparing.

Intervention: A review of a prospectively maintained database of all fertility-sparing radical laparoscopic trachelectomy procedures performed for early-stage cervical cancer between December 2011 and February 2016.

Measurements and Main Results: We included 15 patients, in which 14 of them underwent laparoscopic radical trachelectomy with pelvic lymphadenectomy for early-stage cervical cancer. 1 case was abort for positive lymph node in intraoperative frozen study. Histology included 4 cases (27%) with adenocarcinoma, 10 cases (67%) with squamous carcinoma and 1 case (6%) adenosquamous. Tumor stage was IA2 in 2 patients, IB in 12 patients, and IIA1 in one patient. The mean tumor size was 16.5 mm (range 7–30 mm). The mean age was 29 years old (range 19–39), the mean body mass index was 24 (range 18–48) and the mean length of hospital stay was 40 hours (range 24–72). The mean of operative time was 250 minutes (180–360) and no intraoperative complications were reported. In the 14 patients who completed the radical trachelectomy, pelvic and parametrial lymph nodes were negative. Median number of pelvic nodes evaluated was 16 (range, 10–25). No patient required conversion to laparotomy.

Conclusion: We consider that laparoscopic radical trachelectomy, performed by trained surgeons, is a feasible and safe therapeutic option, as a fertility-sparing surgical technique, with good perioperative outcomes for women with early-stage cervical cancer with fertility desire. Minimally invasive surgery provides the widely known benefits of this type of approach.

233 Open Communications 21 - Oncology (2:15 PM - 3:15 PM)

2:36 PM – GROUP A

Assessment of Myometrial and Cervical Invasion in Endometrial Cancer by Magnetic Resonance Imaging and 2D, 3D and HDLive Ultrasonography

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Study Objective: To compare the diagnostic performance of two-dimensional transvaginal ultrasonography (2D-TVS), three dimensional transvaginal ultrasonography (3D-TVS), high definition real-time transvaginal ultrasonography (HDLive-TVS), and magnetic resonance imaging (MRI) for the assessment of deep myometrial invasion and cervical involvement in endometrial cancer (EC).

Design: Prospective study.

Setting: University Hospital.

Patients: This study included 53 patients with histologically proven EC.

Intervention: Patients underwent TVS and MRI within 4 weeks prior to treatment. 3D-TVS and HDLive-TVS were obtained at the time of 2D-TVS and they were evaluated by an ultrasonographer blinded to the findings of 2D-TVS. Myometrial involvement (categorized as \geq or $<$ 50%) and cervical involvement were assessed.

Measurements and Main Results: The median age of the study population was 69 years (range, 52–96 years). 47.2% of the patients had FIGO stage IA EC, 15.1% stage IB, 7.5% stage II and 30.2% stage III. 81.1% of the patients had endometrioid EC, 13.2% serous EC, 2% clear cell EC and 1% mucinous EC. The histological grade of EC was grade 1 in 26.4% of the patients, grade 2 in 45.3% and grade 3 in 28.3%. There was no significant difference in the accuracy of 2D-TVS and MRI in predicting myometrial invasion ($p = 0.125$); 3D-TVS and HDLive-TVS did not increase the accuracy of 2D-TVS in predicting myometrial invasion. Uterine fibroids, adenomyosis and body mass index > 30 kg/m² were associated with a lower accuracy of 2D-TVS in diagnosing myometrial invasion. There was no significant

difference in the accuracy of MRI, 2D-TVS, 3D-TVS and HDLive-TVS in diagnosing cervical involvement.

Conclusion: 2D-TVS and MRI are comparable in predicting myometrial and cervical invasion in EC. 3D-TVS and HDLive-TVS do not increase the accuracy of 2D-TVS in predicting myometrial and cervical invasion. MRI may be used when low quality scans are obtained because of obesity, uterine fibroids and adenomyosis.

234 Open Communications 21 - Oncology (2:15 PM - 3:15 PM)

2:47 PM – GROUP B

Unexpected Malignancy at Routine Laparoscopic Adnexal Surgery: A Review of Single Surgeon's Experience Over Six Years

Addley S, Johnston K. *Obstetrics and Gynaecology, Antrim Hospital, Antrim, United Kingdom*

Study Objective: To report occurrence and types of unexpected malignancy found during routine adnexal surgery; to identify any pre-operative indicators of potential malignancy.

Design: A retrospective chart, electronic record and histopathology review, in laparoscopic adnexal surgeries performed between 2008 and 2014.

Setting: Gynaecology Department of a United Kingdom District General Hospital.

Patients: 136 patients had laparoscopic adnexal operations over a six year period under a single surgeon.

Measurements and Main Results: 136 cases were identified. Mean age was 40 years (range 20–81), 67.6% (92/136) were premenopausal, 32.4% (44/136) postmenopausal. Average BMI was 26 (range 18–44). CA125 was performed in 52% (71/136) of patients and elevated in 17/71 (23.9%); none of these had a malignancy.

Prophylactic laparoscopic bilateral salpingo-oophorectomy (BSO) accounted for approximately one quarter of patients' operations, 26% (35/136). Indications included strong family history of breast or ovarian cancer, personal previous history of breast carcinoma and/or oncogene carrier for BRCA 1/2. Overall there were 1.4% (2/136) unexpected malignancies, this equated to an incidence of 4.5% (2/44) in the post menopausal group. Both malignancies were tubal.

Patient 1: 58 years, Para 3, indication was a significant family history, pre-operative ultrasound was normal, no indication for CA125/RMI calculation. BSO performed with histopathological diagnosis of "high grade fallopian tube carcinoma."

Patient 2: 59 years, Para 2, indication BRCA 2 carrier, pre-operative ultrasound was normal, no indication for CA125/RMI calculation. BSO performed with histopathological diagnosis of "fallopian tube serous carcinoma."

Conclusion: Fallopian tube cancer is undoubtedly more of a "silent" malignancy than ovarian cancer. Evidence now strongly suggests it is the precursor for ovarian cancer. Often the only tool in the laparoscopist's pre-operative armament is history, sometimes genetics. Clinical examination, imaging and tumour markers remain very non-predictive. The possibility of malignancy must be included in patient pre-operative counselling.

235 Open Communications 21 - Oncology (2:15 PM - 3:15 PM)

2:54 PM – GROUP B

Laparoscopic Mapping in Endometrial Cancer Following Hysteroscopic Injection of Indocyanine Green

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Study Objective: To evaluate detection rate (DR) of sentinel nodes (SLNs) in endometrial cancer patients after Hysteroscopic injection of indocyanine green (ICG) and Laparoscopic near-infrared (L-NIR) fluorescence mapping.

Design: Prospectively collected data.

Setting: Gynecologic oncology referral center.

Patients: Consecutive patients with early stage endometrioid endometrial cancer scheduled for surgical treatment: total laparoscopic hysterectomy, bilateral salpingo-oophorectomy, SLNs mapping.

Intervention: Mapping technique consisted in a intraoperative hysteroscopic peritumoral injection of 5mg of ICG (after tubal coagulation) followed by L-NIR Fluorescence mapping using the Storz Professional Image Enhancement System (SPIES) with D-Light P light source (Karl Storz Endoskope GmbH & Co. KG, Tuttlingen, Germany). Evaluation of SLNs DR was performed, as well as site of mapping.

Measurements and Main Results: A total of 53 procedures were performed. Mean age was 60 years (28-80) and mean BMI was 28.2 Kg/m²(19-43). At least one SLN was detected in the 88.7% of the whole population (47/53). When evaluating the latter 37 patients in which mapping was performed with a new scope allowing dissection under NIR vision, the DR was 94.6% (35/37). Mean number of detected SLNs was 4.2 (1-8) and in more than half of cases the aortic area mapped. Bilateral pelvic mapping was found in the 74.5% of cases (35/47). Three patients had SLNs involvement: one in the pelvic area only, one both in the pelvic and aortic area and one presented two metastatic aortic SLNs (1 partial node metastasis and 1 node with isolated tumor cells) with negative pelvic SLNs. No adverse events were reported.

Conclusion: Laparoscopic mapping following hysteroscopic injection of ICG has comparable DR to both radioactive tracers series and ICG series with cervical injection, overcoming the usage of radioactive substances. As reported in literature, hysteroscopic injection of tracer leads to a higher mapping in the aortic area compared to cervical injection. Further investigation is warranted on this topic.

236 Open Communications 21 - Oncology (2:15 PM - 3:15 PM)

3:01 PM – GROUP B

The Role of Laparoscopic Radical Hysterectomy in Early-Stage Adenocarcinoma of the Uterine Cervix



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Study Objective: To compare long-term survival outcomes and patterns of recurrence of laparoscopic radical hysterectomy (LRH) and open radical hysterectomy (ORH) in early-stage adenocarcinoma of the cervix.

Design: Retrospective comparative study.

Setting: University hospital in Korea.

Patients: 293 patients with stage IA2-IIA cervical cancer with adenocarcinoma.

Intervention: Laparoscopic radical hysterectomy and open radical hysterectomy.

Measurements and Main Results: In total, 186 patients underwent LRH and 107 underwent ORH. There was no difference between the two surgery groups in clinicopathologic characteristics. There were no differences in disease-free survival (DFS) and overall survival (OS) between the LRH and ORH groups (88.7% vs. 84.1%, $P = .725$; and 93.0% vs. 86.9%, $P = .735$) in univariate analysis and in multivariate analysis after adjusting for other significant prognostic factors. There was no difference in the patterns of recurrence between the two surgery groups ($P = 0.220$). The median time interval between surgery and the first recurrence were 25 months (range, 3-100 months) for LRH group and 14 months (range, 3-128 months) for ORH group ($P = 0.230$). The LRH group showed significantly fewer postoperative complications ($P < .001$), less estimated blood loss ($P < .001$), faster bowel movement recovery ($P < .001$), shorter postoperative hospital stay ($P < .001$), and a lower rate of wound dehiscence, ileus, lymphedema, and lymphocele and pelvic abscess ($P = .004, .011, .017$, and $.040$, respectively).

Conclusion: LRH has comparable survival outcomes with ORH and did not affect the pattern of recurrence in early-stage adenocarcinoma of the uterine cervix. The surgical outcomes were more favorable than ORH.

237 Open Communications 21 - Oncology (2:15 PM - 3:15 PM)

3:08 PM – GROUP B

DJ-1 a New Biomarker to Preoperatively Discriminate Between High-Risk and Low-Risk Endometrial Cancer



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Study Objective: To validate the accuracy of DJ-1 dosage for discriminating preoperatively between high-risk and low-risk endometrial (EC). To evaluate the potential prognostic value of this biomarker.

Design: Prospective experimental study. June 2013 to December 2015.

Setting: Unit of Obstetric and Gynecology, Pugliese Ciaccio Hospital, Department of experimental and clinical Medicine,UMG, Catanzaro.

Patients: 101 patients affected by EC and underwent surgical treatment were prospectively enrolled as cases and 44 healthy women were enrolled as controls.

Intervention: Clinical, biochemical, surgical and pathological data were collected at diagnosis and follow-up.

Measurements and Main Results: The association between pathological factors (grading and histotype) and DJ-1 levels variation were analyzed. Receiver operating characteristic (ROC) curve was used to evaluate the role of preoperative serum DJ-1 in diagnosis of EC and in prediction of the class of risk. Survival analysis was also performed in our population divided according to the preoperative DJ-1 serum levels (DJ-1 positive and DJ-1 negative patients). Serum DJ-1 levels were significantly higher in high-risk EC compared with low-risk EC ($p=0.001$). The ROC curve analysis shows that DJ1 has a very good diagnostic accuracy in discriminating between EC patients and controls (AUC 0.883; CI 0.829-0.937) and an excellent accuracy in discriminating, among EC patients, low and high-risk cases (AUC 0.991; CI 0.980-0.999). The most accurate cut-off values to discriminate between EC patients and controls, between low- and high-risk were identified. Survival analysis revealed that patients with high DJ-1 levels had a poor prognosis compared to those with low DJ-1 levels.

Conclusion: Preoperative serum DJ-1 is a new accurate serum biomarker for EC diagnosis and, moreover, for high-risk EC identification. DJ-1 could be considered as an important prognostic predictor for patients with EC and it should be taken into consideration when surgical management has to be performed.

238 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

3:25 PM – GROUP A

Surgical Experience with Ulipristal Acetate or Gonadotropin Releasing Hormone Agonists for Uterine Fibroids



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Study Objective: Our objective was to evaluate if there exists a difference in surgical experience at myomectomy between fibroids that are pre-treated with Ulipristal Acetate (UA) compared to no medical pre-treatment.

Design: A multi-center prospective study of hysteroscopic, open and laparoscopic myomectomy procedures was conducted using a web-based questionnaire. Based on the responses, a global surgical experience score (SES) was calculated for every procedure.

Setting: Five hospitals, both academic and community, across a large Canadian city.

Patients: All surgeons scheduled to perform a myomectomy received an email the day of their procedure with a link to the questionnaire.

Intervention: The questionnaire evaluated various aspects of the surgical experience. For hysteroscopic myomectomy the surgeon evaluated visualization, fibroid-myometrium relationship, fluid deficit, blood loss and overall ease of the procedure. For laparotomy/laparoscopic myomectomy the surgeon evaluated surgical planes, blood loss, ease of fibroid separation and overall ease of the procedure.

Measurements and Main Results: 274 myomectomies were performed by 46 surgeons in five institutions over 18-months. There was no difference in mean SES for 123 laparotomy/laparoscopic myomectomies between the UA and no-treatment groups (12.8 vs 12.2). Ease of separation of the fibroid from myometrium and delineation of planes was rated more difficult in myomectomies with UA pre-treatment compared to no pre-treatment (51% vs 22%, $p < 0.01$). However, surgeon perception of overall ease of the myomectomy was similar between groups. There was no difference in mean SES for 106 hysteroscopic myomectomies between UA and no-treatment groups (13.7 vs 13.3). UA-treated myomectomies were more likely to have partially atrophic endometrium (42% vs 19%, $p = .02$) and cobblestone/cystic endometrial appearance (25% vs 6%, $p = 0.01$). Surgeon perception of overall ease of hysteroscopic myomectomy was similar between groups.

Conclusion: Despite some differences in surgical nuances at myomectomy, the surgical experience scores were similar for myomectomies with UA pre-treatment compared to no pre-treatment.

239 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

3:32 PM – GROUP A

Administration of Pre-Operative Gabapentin to Patients Undergoing Laparoscopy: A Prospective Double-Blind, Placebo-Controlled Randomized Trial



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Study Objective: To determine the influence of immediate pre-operative gabapentin on postoperative pain in patients undergoing laparoscopy for benign gynecologic indications.

Design: Prospective double-blind, placebo-controlled randomized trial.

Setting: Academic tertiary care hospital.

Patients: One-hundred-nine gynecologic patients undergoing laparoscopy between June 2015 and January 2016.

Intervention: Patients received pre-operative gabapentin (300 mg) or placebo, and pain scores were assessed at 2 and 6 hours post-operatively as well as post-operative days 1-7.

Measurements and Main Results: We randomized 109 patients to receive pre-operative gabapentin or placebo. They were stratified based on a history

Table 1. Post-Operative Hourly Pain Scores Adjusted for Morphine Dosage

		Gabapentin	Placebo	Gabapentin vs. Placebo
	Hour	Adjusted Mean (95% CI)	Adjusted Mean (95% CI)	Difference (95% CI) [p-value]
VAS	2	37.9 (29.0, 46.7)	33.9 (25.2, 42.6)	3.9 (-8.0, 15.9) [0.51]
	6	37.9 (28.0, 47.8)	37.9 (28.0, 47.7)	0.0 (-13.4, 13.5) [1.00]
NRS	2	3.3 (2.6, 4.1)	2.7 (2.0, 3.5)	0.6 (-0.4, 1.6) [0.21]
	6	4.3 (3.4, 5.1)	3.8 (2.7, 4.8)	0.5 (-0.8, 1.9) [0.45]

There was no significant difference in pain scores on post-operative days one through seven.

Table 2. Post-Operative Daily Pain Scores using the Numeric Pain Rating Scale

	Gabapentin	Placebo	Gabapentin vs Placebo
Post-Operative Day	Mean (95% CI)	Mean (95% CI)	Difference (95% CI) [p-value]
1	4.7 (4.0, 5.5)	5.1 (4.3, 5.9)	-0.4 (-1.5, 0.7) [0.44]
2	4.4 (3.7, 5.0)	4.2 (3.5, 5.0)	0.1 (-0.9, 1.1) [0.79]
3	3.7 (3.1, 4.4)	3.9 (3.2, 4.6)	-0.2 (-1.2, 0.7) [0.66]
4	3.1 (2.4, 3.7)	3.6 (2.9, 4.2)	-0.5 (-1.4, 0.4) [0.29]
5	2.8 (2.2, 3.3)	3.0 (2.4, 3.6)	-0.2 (-1.0, 0.6) [0.56]
6	2.5 (2.0, 3.0)	2.6 (2.1, 3.2)	-0.1 (-0.9, 0.6) [0.72]
7	2.6 (1.9, 3.2)	2.1 (1.4, 2.8)	0.5 (-0.5, 1.4) [0.33]

of chronic pelvic pain. There was no difference between the groups in terms of age, body mass index, gravidity, parity, or past surgical history. Post-operative pain was assessed using the numeric pain rating scale (NRS), rated as 0-10, and the visual analog scale (VAS), rated as 0-100. These values were adjusted for morphine dose received. NRS Scores were 3.34 vs 2.72 and 4.27 vs 3.75, and VAS scores were 37.86 vs 33.94 and 37.89 vs 37.86, at 2 and 6 hours, respectively.

Conclusion: A single dose of pre-operative gabapentin did not significantly decrease post-operative pain in gynecologic patients undergoing laparoscopy for benign indications.

240 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

3:39 PM – GROUP A

Is Single Incision Laparoscopy Associated with Increased Incidence of Incisional Umbilical Hernia?



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Study Objective: To evaluate the incidence of incisional umbilical hernia in patients who underwent either single incision laparoscopic hysterectomy (SILH) or multiple incision hysterectomy (MILH).

Design: Retrospective chart review of patients who underwent SILH or MILH from January 2008 to January 2015 by an experienced laparoscopic surgeon. Patients with malignancy were excluded. Factors evaluated included post-operative umbilical hernia, additional intervention for repair of hernias, suture material, stitch, BMI and smoking.

Setting: Mohawk Valley Health System and Little Falls Hospital, community based teaching hospitals in central New York.

Patients: Patients from a private gynecology practice.

Intervention: Patients were categorized into two groups, SILH and MILH. The SILH group underwent hysterectomy with one 20mm umbilical incision and placement of the Covidien SILS port. The MILH group had 3 or 4 incisions, which included a 10mm umbilical incision and 2 or 3 additional 5mm incisions on the abdomen.

Measurements and Main Results: 16 out of 220 SILH patients were diagnosed with incisional hernia and 1 out of 163 MILH patients was diagnosed with incisional hernia. The incidence of incisional umbilical hernia in the SILH group was 7.2 % and 0.6% in the MILH group. Incidence of incisional umbilical hernias was significantly higher in the SILH group. This difference was found to be statistically significant with a p-value < 0.0005, 95% CI (0.0320174, 0.107371). 69% of incisional hernias with SILH were identified with PDS suture and 19% with V-Loc

180. 69% of the SILH patients with incisional hernia required re-operation to repair the hernia.

Conclusion: PDS suture and closure of the umbilical incision with a running stitch in the SILH group was associated with a higher incidence of incisional hernias.

241 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

3:46 PM – GROUP A

Comparison of Hysterosalpingography with Laparoscopic-Hysteroscopic Findings in Predicting Genital Tract Tuberculosis in Infertile Patients



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Study Objective: To compare diagnostic efficacy of Hysterosalpingography (HSG) with operative findings during Laparoscopy and Hysteroscopy in assessing uterine cavity and tubal patency and also in predicting genital tract tuberculosis (TB) in infertile patients.

Design: Prospective clinical trial.

Setting: Department of Obstetrics & Gynaecology, All India Institute of Medical Sciences, New Delhi

Patients: Total 156 infertile women were included in the study.

Intervention: Infertility workup was done for all subjects. All patients underwent hysterosalpingography followed by laparoscopy and hysteroscopy. Histopathology was also taken. Laparoscopic findings were categorized into definitive (caseation, tubercles, beaded tubes) and probable (hydrosalpinx, tubo-ovarian mass, tubal block, adhesions) for TB and normal.

Measurements and Main Results: Of 156 cases, HSG revealed tubal block in 77 (49.6%) cases, out of which 20 (12.8%) did not have blocked tubes on laparoscopy. HSG was suggestive of pelvic adhesions in 20 (12.8%), hydrosalpinx in 17 (10.9%), calcifications in 4 (2.6%) and extravasation in 11 (7.1%), beaded tubes 5 (3.1%) cases; however, laparoscopy revealed adhesions in 41 (26.3%), hydrosalpinx in 21 (13.5%), beaded tubes in 7 (4.4%) and extravasation in 3 (1.9%) cases. Laparoscopy additionally detected straw coloured fluid in 16 (10.3%), Fitz Hugh Curtis Syndrome in 19 (12.2%), tubo-ovarian mass in 9 (5.8%) and tubercles/caseation in 13 (8.3%) cases. Laparoscopy diagnosed TB in 64 (41%) with definitive findings in 13 (8.3%) and probable in 51 (32.7%) cases. Genital tuberculosis was suspected on HSG in 77 (49.6%) cases and in 43 (27.6%) on hysteroscopy. Tubal patency correlated in 59 (37.8%) patients with sensitivity of HSG being 53.1% and specificity being 90.2%. Laparoscopy was positive in 26% patients with normal HSG, but was normal in 4.3% with abnormal HSG. Histopathology was positive in 3 (2%) cases.

Conclusion: Abnormal HSG predicts genital tuberculosis. One fourth cases are likely to be missed by HSG. Hysteroscopy and Laparoscopy are required to predict/diagnose genital tuberculosis.

242 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

3:57 PM – GROUP B

Sexual Function After Modified Laparoscopic Vecchiatti's Vaginoplasty with Phalus Shaped Dilator



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Study Objective: To evaluate the time to first sexual intercourse and relation between time after surgery and sexual satisfaction after own modification of Vecchiatti's laparoscopic vaginoplasty with phalus shaped dilator in patients with Mayer-Rokitansky-Küster-Hauser (MRKH) syndrome.

Design: Descriptive study.

Setting: Faculty hospital, tertiary care center.

Patients: From October 1997 to February 2016, 155 patients underwent the Vecchiatti's laparoscopic procedure with own designed phalus shaped dilator. 152 patients have begun sexual intercourse and were enrolled into the study.

Intervention: Female Sexual Function Index (FSFI) was measured with relation to time elapsed from the surgery. Questionnaire was completed and returned by 145 patients, the rest refused participation in the study.

Measurements and Main Results: Time of dilation was 10.1 days (7-13). Time to first sexual intercourse was 45.5 days (22-360) from the date of surgery. Mean FSFI was 22.6. Value of FSFI after 1.3, 3.5 years and later was 20.2, 23.1, 22.9 and 22.6 respectively ($p=0.15$). Only 1 serious complication with neovaginaorectal fistula occurred the 5th postoperative day and was treated with temporary stomy. Minor complication occurred in 9% and didn't influence on result of dilation.

Conclusion: Laparoscopic Vecchiatti operation modified by the use of phalus shaped dilator is procedure to create a neovagina, with early start of sexual intercourse and fast onset the high level satisfaction of coital activity. Sexual satisfaction doesn't change for long period from the surgery.

243 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

4:04 PM – GROUP B

Learning Curve for Systemic Laparoscopic Para- Aortic Lymphadenectomy Up to the Left Renal Vein Level for Gynecologic Cancers: Assessment After 324 Consecutive Patients



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Study Objective: To investigate the learning curve (LC) for performing laparoscopic para-aortic lymphadenectomy (LPAL) to the level of the left renal vein for patients with gynecologic malignancies.

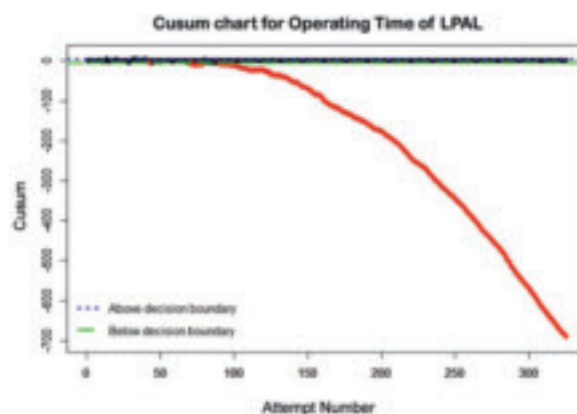
Design: Retrospective clinical study (Canadian Task Force classification III).

Setting: University teaching hospital.

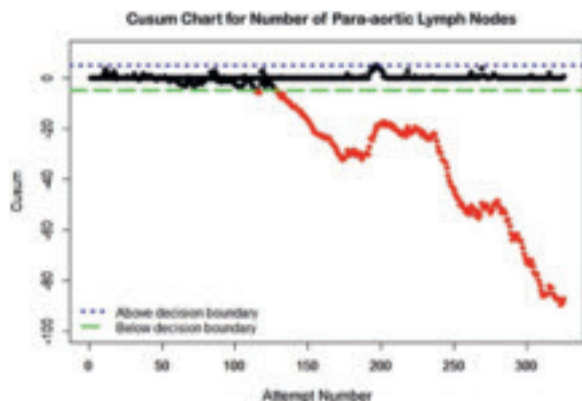
Patients: Three hundred and twenty four patients who underwent LPAL to the level of the left renal vein for various gynecologic malignancies.

Intervention: LPAL to the level of the left renal vein.

Measurements and Main Results: The variables for measuring LC for LPAL were operating time, the numbers of harvested para-aortic lymph nodes, and complication incidence. The LC was evaluated using the cumulative summation (CUSUM) technique. The median operating time was 60 min (range 24–135 min), and the median number of harvested para-aortic lymph nodes was 12 (range 6–49). There were eleven cases of LPAL-specific complications. With increasing experience, the operating time of LPAL was decreased significantly after 90 procedures.



The number of para-aortic lymph nodes harvested increased significantly at turning point of 128 cases. The LC for LPAL-specific complications was 71 cases.



Conclusion: Following a learning curve, there is significant decrease in operating time for LPAL after 90 cases, increase in the number of harvested para-aortic lymph nodes after 128 cases, and decrease in LPAL-specific complications. The ability to execute LPAL to the level of the left renal vein for patients with gynecologic malignancies is affected by surgeon experience and improves over time.

244 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

4:11 PM – GROUP B

Incidence of Urinary Tract Injury in Benign Gynecologic Laparoscopy: A Systematic Review

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Study Objective: To describe the incidence, location, cause, timing, and management of urinary tract injury in benign gynecologic laparoscopy.

Design: A systematic review of PUBMED, EMBASE, Cochrane Library, and Clinicaltrials.gov was conducted. Articles reporting the incidence of urinary tract injury in benign gynecologic laparoscopy were included. Exclusion criteria comprised malignancy, surgery by urogynecologists, and research not in English.

Setting: N/A.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: Ninety studies published between 1975 and 2015 met inclusion criteria, representing 140,444 surgeries. A total of 458 lower urinary tract (LUT) injuries were reported, with an incidence of 0.33% (95% CI: 0.32-0.33%). Laparoscopic hysterectomy not otherwise specified (1.76%, 95% CI: 1.69-1.83%) and laparoscopically assisted vaginal hysterectomy (1.02%, 95% CI: 0.96-1.08%) had the highest rates of LUT injury. Bladder injury (0.25%, 95% CI: 0.24-0.25%) was overall more frequent than ureteral injury (0.081%, 95% CI: 0.076-0.086%). Most ureteral injuries resulted from electrosurgery (33.33%, 95% CI: 26.57-40.10%), while most bladder injuries resulted from lysis of adhesions (23.26%, 95% CI: 18.88-27.64%). The majority of ureteral injuries (59.65%, 95% CI: 51.97-67.13%) were recognized postoperatively, in contrast to the minority of bladder injuries (15.41%, 95% CI: 13.13-17.69%). Ureteral injuries were most commonly repaired by open ureteroneocystostomy (47.47%, 95% CI: 40.13-54.61%), while bladder injuries were managed by laparoscopic suturing (34.88%, 95% CI: 30.22-39.55%).

Conclusion: The incidence of LUT injury in benign gynecologic laparoscopy remains low at 0.33%. Bladder injury was three times more common than ureteral injury, although ureteral injuries were more often unrecognized intraoperatively and frequently required open surgical

repair. Care should be exercised during use of electrosurgery and lysis of adhesions, as the most common causes of ureteral and bladder injury, respectively.

245 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

4:18 PM – GROUP B

Reproducible Laparoscopic Approach in Identifying Ureters During Complex Gynecologic Surgery: Simple and Safe Technique

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Study Objective: The overall incidence of a lower urinary tract injury during total laparoscopic hysterectomy is approximately 4 percent. Several variables predispose a patient to ureteral injury however knowledge of pelvic anatomy and identification of pelvic wall structures may minimize these dreaded complications in complex gynecological surgery.

Design: Case Series.

Setting: University Teaching Hospital.

Patients: 46 consecutive patients undergoing a total laparoscopic hysterectomy with stage III/IV endometriosis from January 2014 to April 2016.

Intervention: All patients underwent total laparoscopic hysterectomy with bilateral ureterolysis for moderate to severe endometriosis (stage III/IV).

Measurements and Main Results: All patients with stage III/IV endometriosis underwent a total laparoscopic hysterectomy using a posterior broad ligament parametrial approach. The utero-ovarian ligaments were transected and the round ligaments were left intact, providing traction to the underlying structures (umbilical artery, uterine artery, internal iliacs, ureter) for retroperitoneal dissection. Intraoperative cystoscopy was performed to evaluate for the presence or absence of extravasation or ureteral injury.

Total laparoscopic hysterectomy with bilateral ureterolysis was performed in 46 consecutive cases. Post-operatively, one patient developed a right spontaneous pneumothorax with confirmation of endometriosis on thoracentesis. There were no ureteral injuries and all patients with the exception of the patient who developed spontaneous pneumothorax, were discharged home on post-operative day 1.

Conclusion: The present case series verifies that ureteral dissection can be safely performed using a posterior broad ligament parametrial approach during complex gynecologic surgery. We have found that our surgical approach has allowed us to perform challenging gynecologic surgery in a reliable and reproducible manner.

246 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

4:29 PM – GROUP C

Determining a Learning Curve for Contained Hand Morcellation

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Study Objective: After the FDA warning against laparoscopic power morcellators, minimally invasive surgeons transitioned from power morcellation to contained hand morcellation but the learning curve of this new method has not been elucidated.

Design: This retrospective cohort study compares all laparoscopic hysterectomies done by power morcellation before the FDA warning to a

hand morcellation protocol developed after the FDA warning to determine a learning curve for the new procedure.

Setting: Academic suburban tertiary care center.

Patients: From 2010-2015, 88 cases of laparoscopic hysterectomies requiring morcellation were identified.

Intervention: Of these, 46 underwent power morcellation while 42 underwent hand morcellation, with only two surgeons performing contained hand morcellation.

Measurements and Main Results: The two groups were overall similar in BMI (28.9 vs. 29.5, $p=0.7$), prior laparoscopy (28% vs. 17%, $p=0.5$) or laparotomy (39% vs. 21% $p=0.07$) removal of cervix (56% vs. 69%; $p=0.2$), and uterine weight (581g vs. 628g, $p=0.6$). The hand morcellation group had an average operating room time of 170 min compared to power morcellation, which took 154 min, $p=.08$. The two surgeons performing hand morcellation had 32 and 10 cases respectively with a decrease in 0.7 min and 2 min respectively (p value 0.2, 0.6 respectively) with each additional case they performed as shown in figure 1. For a virtual patient with the average characteristics of the hand morcellation group described above, both surgeons had a trend toward decreased OR time.

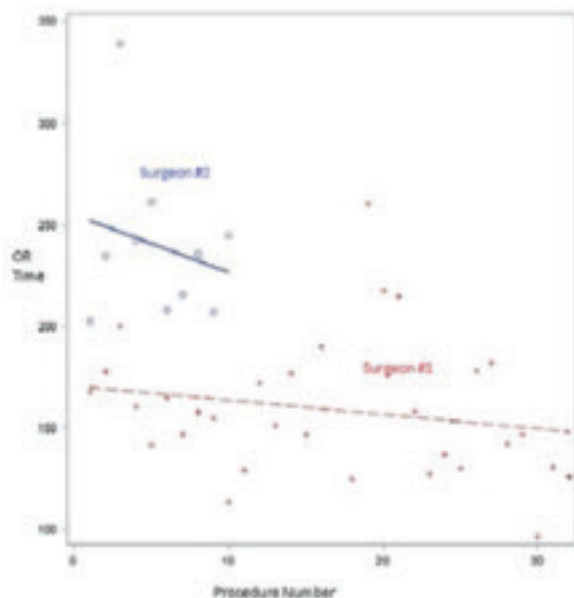


Figure 1. Improvement in operating room time with increasing procedure number.

Conclusion: Hand morcellation was similar to power morcellation in total OR time. There was a trend toward improvement in hand morcellation time with increasing number of cases, though it was not statistically significant.

247 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

4:36 PM - GROUP C

Laparoscopic Hysterectomy for the Greater Than 1,000 gram Uterus: A Single Institution Experience

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Study Objective: To describe a single institutions experience and complications with uteri larger than 1,000 grams.

Design: Retrospective chart review (Canadian Task Force Classification II-3).

Setting: Academic tertiary care hospital.

Patients: Patients with pathology confirmed uterus of more than 1,000 grams who underwent hysterectomy by a fellowship trained minimally invasive surgeon at the Brigham and Womens Hospital from 2010 to 2016.

Intervention: Clinical data were collected from patient medical records who met inclusion criteria.

Measurements and Main Results: From 2010 to 2016, 88 patients between the ages of 34 and 66 years old (Mean 47.5) underwent hysterectomy for a uterus greater than 1,000 g. Their average BMI was 30.7 (Range 19 - 52) and 28 % reported previous laparoscopy or laparotomy. Ninety-seven percent of cases were performed via laparoscopy and the mean uterine weight was 1485 g (SD 546 g, Range 1000 to 3869 g). The mean estimated blood loss (EBL) was 294 ml (SD 371 ml, Range 0 - 2000 ml) with an average operating time of 152 min (Range 64 - 437 min). Eight laparoscopic cases were converted to laparotomy (9%). One was for poor visualization, 3 for specimen extraction via mini-lap, 2 for bleeding, and 1 due to unexpected malignancy. Two organ injuries were identified (2.2 %), both to the bladder, one of which required conversion. The average specimen weight, BMI, EBL, and operating time were not significantly different from the cohort of 80 that did not require conversion. Eighty four percent of patients were discharged by post-operative day one with the conversions being hospitalized, on average, an additional 2.1 days longer.

Conclusion: Hysterectomy of the large uterus is a safe procedure in the hands of a skilled minimally invasive surgeon. We demonstrate that under a wide variety of uterine sizes, complications are minimal and conversions are mostly due to intra-operative difficulties with visualization or specimen extraction.

248 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

4:43 PM - GROUP C

Laparoscopic Hypogastric Plexus Block - Retrospective Pilot Study of a Novel Local Anaesthetic Technique in Patients Undergoing Laparoscopic Radical Resection of Rectovaginal Endometriosis



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Study Objective: To determine whether laparoscopic hypogastric plexus block is a safe and effective technique compared to infiltration of local anaesthetic at port sites after radical laparoscopic surgery.

Design: Retrospective cohort study.

Setting: Tertiary referral endometriosis centre.

Patients: All patients undergoing laparoscopic radical resection of rectovaginal endometriosis between August 2015 to April 2016.

Intervention: All patients undergoing laparoscopic radical resection of rectovaginal endometriosis either received laparoscopic hypogastric plexus block (infiltration of 30ml 0.5% Bupivacaine into the presacral peritoneum and uterosacral ligaments) or infiltration of local anaesthetic agent into laparoscopic port sites (20ml 0.5% Bupivacaine into the subcutaneous tissues).

Measurements and Main Results: 36 patients underwent laparoscopic radical resection of rectovaginal endometriosis in the study period.

The mean pain score for laparoscopic hypogastric block vs. port site infiltration on arrival to recovery was 0.8 vs 3.6 ($p=0.1$) and at 60 minutes was 1.9 vs 3.9 ($p=0.15$). The mean total opioid use (IV morphine equivalent) was 1.8mg vs 7.3mg ($p=0.16$) on Day 0 and 5.2mg vs 7.2mg ($p=0.58$) for Day 1. Mean total IV morphine patient controlled analgesia use was 21mg vs 40mg ($p=0.4$). There were no significant differences between time of passing trial without catheter or day of first mobilisation post-operatively. The mean length of stay for hypogastric plexus block vs port site infiltration was 2.3 days vs 3.7 ($p=0.05$) days respectively. No complications were reported associated with laparoscopic hypogastric block and there was 1 case of urinary retention in the port-site infiltration group.

Conclusion: We present a novel method of injection of a local anaesthetic agent targeted at blockade of the superior and inferior hypogastric plexus. Although the primary outcomes do not reach statistical significance, there is a trend towards lower pain scores post-operatively, reduced opioid use, shorter time to mobilisation and earlier discharge. This study supports the instigation of a randomized controlled trial to further evaluate this technique.

249 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

4:50 PM - GROUP C

Visual Enhancement of Cervical Ring Reduces Ureteric Injury and Complications in TLH



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Study Objective: To investigate the reduced complications associated with a measuring margin and ureteric landmark during TLH and other advanced laparoscopic surgery.

Design: Surgery was performed using a colpotomizer with two raised margins 20mm apart, indicating (respectively) the position of the vaginal fornices and the position of the ureteric tunnels.

Setting: Laparoscopic procedures performed in private hospitals in Australia, Europe and Southeast Asia.

Patients: Over 500 patients undergoing total laparoscopic hysterectomy and laparoscopic radical hysterectomy.

Intervention: Total laparoscopic hysterectomy was performed by experienced gynaecologists and by gynaecological fellows under the supervision of experienced gynaecologists.

Measurements and Main Results: Real-time X-Ray video footage confirmed displacement of the ureters away from the colpotomizer's first raised margin at the vaginal fornices. This was interpreted as a "green light" safety signal showing the safe position to perform dissection and colpotomy incisions in line with the uterine arteries' ascending branches. The raised margin lifted tissue and the increased traction resulted in less than typical bleeding from incisions.

The proximity of the ureteric tunnels to the colpotomizer's second raised margin was interpreted as a "red light" warning signal showing the dangers of dissecting close to the ureters where their position is fixed lateral to the uterine arteries' descending branches. No ureteric injuries or complications requiring intervention were encountered in this study.

The second raised margin also indicated the 20mm oncology clearance margin for radical hysterectomy after the ureters were freed from their tunnels.

Conclusion: Gynaecologists and fellows enjoyed confidence and certainty during surgery, with predictable positions of the uterine arteries and ureters

pinpointing the appropriate site of uterine artery coagulation and avoiding progressive coagulation approaching the ureters that can cause thermal spread injuries. Precise physical reference landmarks during straight stick laparoscopy reduces ureteric injuries during TLH and mesh placement and would seem to be of equal benefit in robotic surgery.

250 Open Communications 22 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

4:57 PM - GROUP C

Preoperative Evaluation of Women with Uterine Leiomyosarcoma in Norway in 2000-2012



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Study Objective: The objective was to evaluate the use of available preoperative diagnostic tools in women with verified uterine leiomyosarcomas (LMS). The goal was to investigate the results of the preoperative tests and ability to suspect LMS.

Design: Retrospective cohort study.

Setting: Nationwide study with data from 34 Norwegian hospitals.

Patients: The included patients were all women with histopathologically verified uterine LMS in Norway in the period 2000-2012. The collected information was obtained from the Norwegian Cancer Registry and from the patients' medical records.

Intervention: N/A

Measurements and Main Results: A total of 212 women were diagnosed with LMS in Norway in 2000-2012. In 209/212 medical records, diagnostic examinations were described and the results available. Preoperatively, Transvaginal ultrasonography (TVUS) were performed in 99.5% (208/209), and MRI and/or CT was performed in 115 women (55.0%). A malignant condition was suspected in 21.6% (45/208) of the TVU examinations, in 81.8% (45/55) of the MRI images, and in 63.4% (64/101) of the CT images.

Conclusion: Diagnostic tools refrained from suspecting malignancy prior to surgery in more than 50% of women suffering from LMS. These women were surgically treated as having benign fibroids. MRI examination is recommended in cases where malignancy is suspected.

Preoperative Imaging Modalities in LMS Diagnosed Women

Imaging modality	Number of examined patients		Malignancy suspicion	
	Number of patients	Percent	Number of patients	Percent
TVUS	208/209	99.5	45/208	21.6
MRI	55/209	26.3	45/55	81.8
CT	101/209	48.3	64/101	63.4

LMS: Leiomyosarcoma, TVUS: Transvaginal Ultrasonography, MRI: Magnetic Resonance Imaging, CT: Computed Tomography

In 202 women, status for fractional curettage were available. Of the 65/202 women who underwent fractional curettage, LMS was found in 28/65 (43.1%) and there was unspecific malignancy suspicion in 5/65 (7.7%). Status for blind uterine biopsies were available in 185 women, and was performed in 102/185. The biopsies revealed LMS in 23/102 (22.5%) and found unspecific malignancy suspicion in 13/102 (12.5%) women.

Preoperative Sampling Tools Used in LMS Diagnosed Women

Sampling tool	Number of examined patients		LMS suspected		Unspecific malignancy suspicion	
	Number of patients	Percent	Number of patients	Percent	Number of patients	Percent
Blind Uterine Biopsies	102/185	55.1	23/102	22.5	13/102	12.7
Fractionated Curettage	65/102	32.2	28/65	43.1	5/65	7.7

LMS: Leiomyosarcoma

In 30/209 (14.4%), no preoperative tissue sampling or imaging except from TVUS was performed. In 49/212 (23.1%) LMS was diagnosed preoperatively and the women treated accordingly. In 115/212 women, there were no preoperative suspicion of malignancy and the women were treated according to treatment protocol for fibroids.

251 Open Communications 23 - Endometriosis
(3:25 PM - 5:05 PM)

3:25 PM – GROUP A

Robotic Surgical Management of Endometriosis: A Prospective Randomized Trial 

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Study Objective: To compare excision and ablation of endometriosis for treatment of chronic pelvic pain.

Design: Prospective randomized clinical trial with 12 month follow-up.

Setting: Tertiary academic medical center.

Patients: Patients undergoing robot-assisted laparoscopy for chronic pelvic pain or known endometriosis.

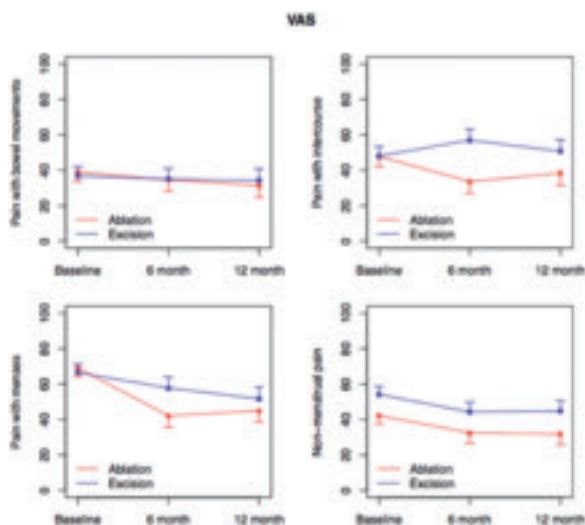
Intervention: Patients with mild to moderate endometriosis at the time of robot-assisted laparoscopy randomized to excision or ablation.

Measurements and Main Results: Seventy-three patients met criteria for randomization intra-operatively after confirmation of diagnosis and exclusion of deeply infiltrating endometriosis and stage four disease. Randomized patients received excision or ablation (with Argon Beam Coagulation) of all visible disease. Our primary outcome was a change in Visual Analog Scale (VAS) scores for dysmenorrhea, non-menstrual pain, dyspareunia and dyschezia. Secondary outcomes were obtained from pain questionnaires: The Short Form Health Survey (SF-12) (divided into Physical and Mental Component summary scores) and a Sexual Function Questionnaire (PISQ-12). Before randomization, no differences in demographics or survey responses existed. We collected follow-up at 6 and 12 months.

Dyspareunia VAS scores improved at 6 but not 12 months with ablation and were unchanged with excision. Dysmenorrhea improved at 6 and 12 months with ablation. After excision, dysmenorrhea trended toward improvement without statistical significance. VAS scores for non-menstrual pain or dyschezia were unchanged.

In the ablation group, the Physical Component score improved at 6 and 12 months.

This improved in the excision group at 6 but not 12 months. The Mental Component score and the PISQ-12 scores were unchanged at 6 and 12 months.



Conclusion: In the short-term, dyspareunia improved with ablation. Treatment with excision or ablation decreased dysmenorrhea at 12 months without a difference between the two groups. Careful patient counseling regarding expectations of surgical intervention is important in the management of mild to moderate endometriosis.

252 Open Communications 23 - Endometriosis
(3:25 PM - 5:05 PM)

3:32 PM – GROUP A

Prospective Validation of the Ultrasound Based Endometriosis Staging System (UBESS) 

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Study Objective: To prospectively validate the recently developed Ultrasound Based Endometriosis Staging System (UBESS).

Design: Multicenter prospective observational study.

Setting: Tertiary referral laparoscopic unit.

Patients: Consecutive women presenting with chronic pelvic pain +/- history of endometriosis from July 2013 to March 2015.

Intervention: All women with symptoms of chronic pelvic pain +/- history of endometriosis underwent a detailed specialized transvaginal ultrasound (TVS) in a tertiary referral unit to stage the endometriosis prior to laparoscopy using the three stage UBESS.

Measurements and Main Results: 136/141 (96.5%) women with pre-operative TVS and laparoscopic outcomes were included in the final analysis. 48 (34%) of the women had a history of previous endometriosis with the mean age of diagnosis was 25.3 +/- 10.3 years. The accuracy,

The ultrasound based endometriosis staging system (UBESS) with sonographic features assessed with TVS, preoperative interpretations of findings and its correlation with levels of surgical complexity required

UBESS Stages	Features Assessed on Transvaginal Ultrasound + Gel SVG	Interpretation	Complexity Level of Surgery
Stage I	Positive SST in PC Mobile ovaries, No Endometrioma POD: Positive sliding sign DIE nodules: Absent	No hard markers for endometriosis	Level 1 (Negative laparoscopy or Mild stage disease)
Stage II	Positive SST in PC + Endometrioma Present +/- mobile ovaries POD: Positive sliding sign DIE nodules: +/- Non bowel DIE	Endometrioma +/- mobile +/- Non bowel DIE + Normal POD	Level 2 Moderate stage disease
Stage III	Positive SST in PC +/- Endometrioma +/- mobile ovaries POD: Positive or Negative sliding sign DIE nodules: +/- bowel DIE	Bowel DIE +/- Abnormal POD	Level 3 Higher stage disease

PC: posterior pelvic compartment; DIE: deep infiltrating endometriosis, POD: Pouch of Douglas.

The findings from UBESS were correlated with surgical gold standard.

Laparoscopic Procedures and Levels of Training Required

Level of Training	Laparoscopic Procedures
Level 1	laparoscopic sterilization, needle aspiration of simple cyst, ovarian biopsy, minor adhesiolysis, partial salpingectomy for tubal pregnancy, linear salpingostomy for tubal pregnancy, endoscopic surgery for AFS stage I and II endometriosis
Level 2	Laparoscopic division of uterosacral ligament, adhesiolysis for moderate to severe adhesions or adhesions involving the bowel, laser / diathermy drilling to ovaries for PCOS, neosalpingostomy for hydrosalpinges, salpingectomy or salpingo-oophorectomy, endoscopic management of endometriomas or ovarian Cystectomy, Laparoscopic assisted vaginal hysterectomy, endoscopic surgery for AFS stage III and IV endometriosis, appendectomy
Level 3	Pelvic lymphadenectomy, extensive pelvic sidewall dissection, pre-sacral neurectomy, dissection of an obliterated POD, bowel surgery, retro pubic bladder neck suspension, hernia repair, and ureterolysis

Source: Society for reproductive surgeons. American fertility society. Guidelines for attaining privileges in gynaecologic operative endoscopy. Fertil steril 1994; 62: 118

sensitivity, specificity, positive predictive value and negative predictive value for the performance of UBESS at predicting level 1 laparoscopic surgery were 86.5/86.6/86.5/85.3/87.7 per cent, level 2 were 84.4/67.6/89.7/67.6/89.7 per cent and level 3 were 90.8/82.5/94.1/84.6/93.1 per cent, respectively.

Conclusion: UBESS can be used to pre-operatively stage women to the most appropriate level of laparoscopic endometriosis surgery required. It needs to be externally validated in order to assess its general applicability in other centres.

253 Open Communications 23 - Endometriosis (3:25 PM - 5:05 PM)

3:39 PM – GROUP A

Fertility Outcomes After Ablation Using Plasma Energy Compared with Cystectomy in Women with Ovarian Endometrioma



Mircea O,² Roman H,¹ Puscasiu L.² ¹Gynecology and Obstetrics, Rouen University Hospital, Rouen, Seine Maritime, France; ²Targu Mures University Hospital, Targu Mures, Mures, Romania

Study Objective: Endometrioma ablation using plasma energy allows good postoperative pregnancy rates, however studies comparing this technique with endometrioma cystectomy have not been reported.

The aim of our study was to compare the probability of postoperative pregnancy in infertile women with ovarian endometrioma larger than 3 cm in diameter, managed by either ablation using plasma energy or cystectomy.

Design: Prospective multicentric comparative study.

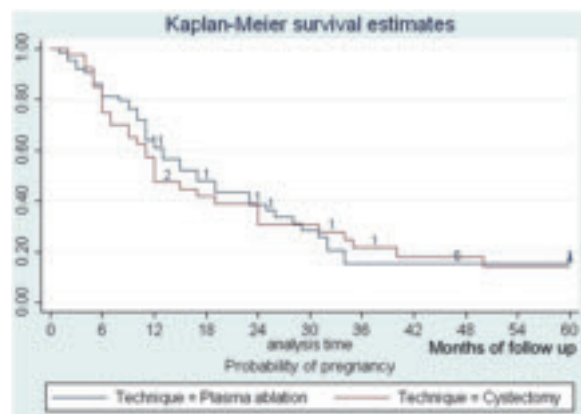
Setting: Patients were enrolled in CIRENDO prospective cohort database (NCT02294825) from June 2009 to June 2014 and managed in six different facilities.

Patients: 104 infertile patients managed for ovarian endometrioma larger than 3 cm diameter.

Intervention: 64 patients underwent ablation using plasma energy (cases) and 40 underwent cystectomy (controls). The minimum length of follow up was 1 year.

Measurements and Main Results: Postoperative probabilities of pregnancy in cases and controls were estimated using Kaplan Meier method with 95% confidence intervals, and compared using the Log-Rank test. The Cox model was used to assess independent predictive factors for pregnancy.

Mean follow up was 35.3 ± 17.5 months (range 12 to 60 months). Patients managed by plasma energy were significantly older than patients managed by cystectomy, had significantly higher overall rAFS score and higher rate of Douglas pouch obliteration, deep endometriosis and colorectal localizations. Fertility outcomes were comparable.



During the follow-up period 76 pregnancies were recorded (73.1%). Twenty-four pregnancies were due to spontaneous conception (31.6%) more frequently in plasma energy group: 18 cases (40.1%) vs. 6 (18.8%). The probability of pregnancy at 24 and 36 months after surgery in plasma energy and cystectomy groups was respectively 61.3% (95%CI 48.2-74.4%) vs. 69.3% (95%CI 54.5-83%) and 84.4% (95%CI 72-93.4%) vs. 78.3% (95%CI 63.8-90%).

Conclusion: Postoperative pregnancy rates were comparable after management of ovarian endometrioma by either ablation using plasma energy or cystectomy despite an overall higher rate of unfavorable fertility predictive factors in women managed by ablation.

254 Open Communications 23 - Endometriosis (3:25 PM - 5:05 PM)

3:46 PM – GROUP A

Digestive Functional Outcomes Following Conservative or Radical Surgery in Large Deep Endometriosis Infiltrating the Rectum: ENDORE Randomized Trial



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Study Objective: To compare postoperative digestive outcomes following respectively conservative and radical surgery in large deep endometriosis infiltrating the rectum DEIR (NCT 01291576).

Design: Prospective, in intention to treat, randomized trial, enrolling patients with DEIR up to 15 cm from the anus, for whom rectal involvement exceeds 20 mm on length, the muscular layer on depth, and up to 50% on rectal circumference.

Setting: Three tertiary referral centers.

Patients: 60 patients.

Intervention: Patients underwent conservative (shaving or disc excision) or radical rectal surgery (colorectal resection).

Measurements and Main Results: Main outcome focused on postoperative digestive function assessed 24 months postoperatively using the Knowles-Eccersley-Scott-Symptom Questionnaire (KESS), the Gastrointestinal Quality of Life Index (GIQLI), the Wexner scale, the SF36 score and the Bristol Stool Chart.

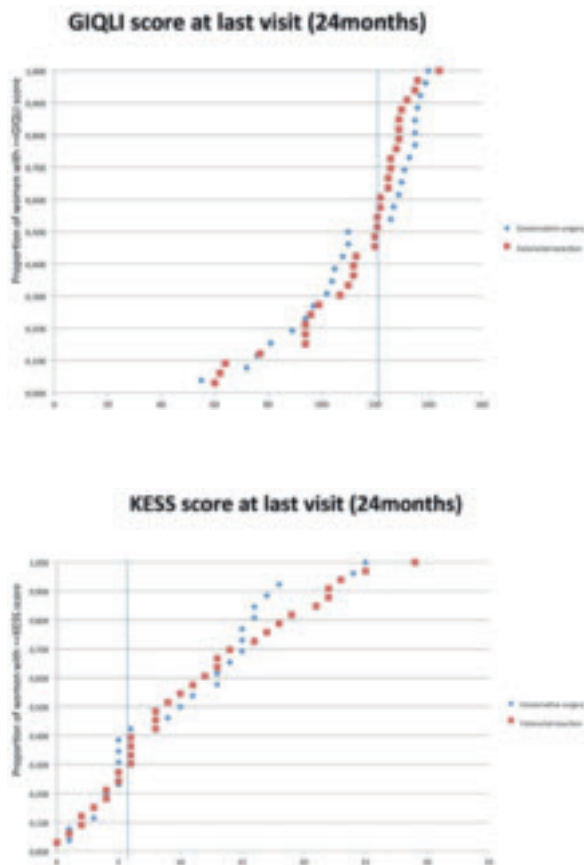
In the arm of the conservative surgery, shaving was performed in 10 patients (37%), disc excision in 15 (55.6%) while 2 patients underwent conversion to colorectal resection (7.4%).

In the arm of radical surgery, 33 patients had colorectal resection.

Two rectovaginal fistulae occurred in 2 patients in the conservative surgery arm (7.4%), however one of them actually underwent colorectal resection. Four patients (12.1%) presented a stenosis at the level of colorectal

anastomosis in the arm of radical surgery, requiring complementary procedures (P=0.06).

In intention to treat and per protocol comparisons of overall values of KESS, GIQLI, Wexner and Bristol scores did not reveal significant differences between the two groups.




Respectively 63% and 57% of patients estimated having normal bowel movements 2 years after the surgery (P=0.66).

Two years after the surgery, women with pregnancy intention got pregnant in respectively 64.3% and 52.4%, while 66.7% and 72.7% of pregnancies were spontaneous.

Conclusion: Conservative surgery is feasible in more than 90% of patients managed for large rectal endometriosis. Two years postoperatively, women managed by either conservative or radical surgery for large rectal endometriosis present comparable digestive functional outcomes.

255 Open Communications 23 - Endometriosis (3:25 PM - 5:05 PM)

3:57 PM – GROUP B

Accuracy of Different Imaging Techniques to Assess POD Obliteration: A Systematic Review and Meta-Analysis  CrossMark
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Study Objective: Pouch of Douglas (POD) obliteration in women with potential endometriosis will warrant referral to a specialized endosurgery

unit. Advanced laparoscopic skills are required to manage women with complex endometriosis and underlying POD obliteration. Imaging modalities such as transvaginal ultrasound (TVS) and magnetic resonance imaging (MRI) have been utilized to pre-operatively predict POD obliteration. The purpose of this meta-analysis is to assess the performance of these imaging modalities in the prediction of POD obliteration.


Design: This was a systematic review conducted in accordance with the PRISMA statement. We searched MEDLINE, Embase, PubMed and Google scholar from database inception to March 2016. Studies included compared imaging prediction of POD obliteration with laparoscopic gold standard confirmation with at least 10 affected and 10 unaffected participants were considered eligible.

Measurements and Main Results: The electronic searches retrieved 3881 records. We excluded 3780 by reading titles/abstracts and more 82 after reading the full text as they were clearly not eligible. Regarding the other 19 records we excluded more 1 record because it evaluated the same population of other included study and more 8 records because they were related to studies that included less than 10 affected/unaffected women. We included 10 studies in the meta-analysis, four evaluating MRI and the other six evaluating TVS.

Conclusion: MRI and TVS demonstrated high sensitivity and specificity to diagnose POD obliteration. As TVS is more readily available and cost less this should be the first line diagnostic tool for the women with suspected POD.

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4:04 PM – GROUP B

Does the Transvaginal Ultrasound Uterine “Sliding Sign” Alone Outperform Direct Visualization Using Sonovaginography for the Prediction of Rectal/Rectosigmoid Deep Infiltrating Endometriosis?  CrossMark

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Study Objective: It has been previously reported that a negative transvaginal ultrasound (TVU) uterine “sliding sign” (i.e. pouch of Douglas (POD) obliteration/uterorectal adhesions) may be used to predict the presence of rectal/rectosigmoid deep infiltrating endometriosis (DIE) in women with suspected endometriosis. We aim to compare the performance of the uterine “sliding sign” alone to the direct visualization using sonovaginography (SVG) for the prediction of rectal/rectosigmoid DIE.

Design: Multicentre prospective observational study undertaken between from January 2009 to February 2013.

Setting: Tertiary referral centre for women with chronic pelvic pain/suspected endometriosis.

Patients: All eligible women were of reproductive age, had a history of chronic pelvic pain and/or history of endometriosis, and were scheduled for operative laparoscopy.

Intervention: All women included in the analysis underwent TVU to ascertain whether the uterine “sliding sign” was positive or negative, followed by assessment of the posterior pelvic compartment for rectal/rectosigmoid DIE with SVG. All women then underwent laparoscopic endometriosis surgery.

Measurements and Main Results: The association between a negative TVU uterine “sliding sign” alone and the presence of rectal/rectosigmoid

Accuracy of Transvaginal Ultrasound (TVS) and Magnetic Resonance Imaging (MRI) to Detect Pouch of Douglas Obliteration (POD).

	Studies	Number	Affected	Sensitivity	Heterogeneity	Specificity	Heterogeneity
MRI	4	296	121	84%	High (I ² =57%)	93%	High (I ² =52%)
TVS	6	759	224	87%	Very high (I ² =78%)	96%	Moderate (I ² =40%)

DIE at laparoscopy was analyzed using Fisher's exact test. This was compared to direct visualization of rectal/rectosigmoid DIE using SVG. Complete ultrasound and laparoscopic data were available for 189/220 (86%) women. POD obliteration was present in 47/189 (25%) and rectal and/or rectosigmoid DIE was noted in 43/189 (23%) of women at laparoscopy. The accuracy, sensitivity, specificity, PPV, and NPV for a negative uterine "sliding sign" vs. SVG in the prediction of DIE affecting the rectum/rectosigmoid were 88% vs. 92%, 74% vs. 88%, 93% vs. 93%, 74% vs. 79%, and 93% vs. 97%, respectively. There were 11/43 (26%) false negative cases, where the TVU "sliding sign" was positive and rectal DIE was confirmed at laparoscopy.

Conclusion: Direct visualization with SVG outperforms the negative TVU uterine "sliding sign" in the prediction of rectal/rectosigmoid DIE.

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4:11 PM – GROUP B

Rectal Shaving in Deep Endometriosis Infiltrating the Rectum: A 5-Year Continuous Retrospective Series



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Study Objective: To report postoperative outcomes following rectal shaving for deep endometriosis infiltrating the rectum.

Design: Retrospective study using data prospectively recorded in CIRENDO database.

Setting: University tertiary referral center.

Patients: 122 consecutive patients managed by surgery for deep endometriosis infiltrating the rectum whose follow-up ranged from 1 to 6 years.

Intervention: Rectal shaving was performed using ultrasound scalpel and plasma energy in 68 and 54 women, respectively.

Measurements and Main Results: Postoperative digestive function was assessed using standardized gastro-intestinal questionnaires: the Gastrointestinal Quality of Life Index (GIQLI) and the Knowles-Eccersley-Scott-Symptom Questionnaire (KESS). The rate of rectal recurrence, assessment of pelvic pain and fertility outcomes were recorded. Nodules were between 1 and 3 cm, <1 cm and >3 cm in diameter, in 73.8%, 11.5% and 14.8% of cases, respectively. They were located on the mid (49.2%) and upper rectum (50.8%). Laparoscopic route was used in 98% of cases and various procedures were required by associated localization of the disease. Clavien-Dindo 3a, 3b, 4a and 4b complications occurred in 0.8, 5.7, 1.6 and 0.8% of cases, respectively. Except for two rectal fistulae (1.6%), the majority of complications were not related to rectal shaving itself. Gastrointestinal scores revealed significant improvement in digestive function and pelvic pain at 1 and 3 years after rectal shaving, except for constipation. Rectal recurrences occurred in 4.1% of patients, 2.4% of whom had segmental resection, 0.8% shaving and 0.8% disc excision. Three years postoperatively, pregnancy rate was 65.4% among patients with pregnancy intention, 59% of whom conceived spontaneously.

Conclusion: Our data suggest that rectal shaving is a valuable treatment for deep endometriosis infiltrating the rectum, providing a low rate of postoperative complications, good improvement in digestive function and satisfactory fertility outcomes.

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4:18 PM – GROUP B

Comparative Study Between Endorectal Tridimensional Ultrasound and Transvaginal Ultrasound on the Diagnosis of Deep Infiltrating Endometriosis (DIE) with Rectal Involvement



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Sensitivity, Specificity, Accuracy and Predictive Positive (PPV) and Negative (NPV) Values of 3D ERUS and TVUS for DIE.

Sensitivity, Specificity, Accuracy and predictive positive (PPV) and negative (NPV) values.

	3D ERUS (%)	TVUS (%)
Sensitivity	72	45
Specificity	97	100
Accuracy	85	75
PPV	95	100
NPV	79	68

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Study Objective: To compare the findings of endorectal tridimensional ultrasound (3D ERUS) versus transvaginal ultrasound (TVUS) on staging deep infiltrating endometriosis (DIE) lesions invading rectum.

Design: Retrospective cohort study.

Setting: Academic hospital.

Patients: Patients with symptoms of DIE attended on a reference center in Brazil from February 2008 to July 2015 submitted to 3D ERUS and TVUS after clinical evaluation after clinical evaluation.

Intervention: 3D ERUS was performed in a B&K Profocus Blue with a 2050 probe 16MHz, acquisition of a cube of informations built with 255 images, 0,25 mm each. The 3D cube were analyzed without patients presence in axial, sagittal or coronal planes. Three scans of 6 cm of extensions were acquired, starting at 12 to 14 cm from the anal verge. TVUS was performed in a GE Voluson E8 with transvaginal convex probe 4D RIC 6-12-D high resolution 5-9MHz, abdominal probe c1-5D and transitory linear probe ML6-15. We analyzed the presence of lesions suggesting endometriosis on both exams and the correlation with the Laparoscopy.

Measurements and Main Results: The median age was 35 yo (21 to 52 yo). 60 patients were submitted to laparoscopy and the results were compared with the exams. In 53(28,4%) patients we identified lesions suggestive of endometriosis. For the 3D ERUS the sensibility, specificity, accuracy, positive predictive value (PPV) and negative predictive value (NPV) were respectively 72%, 97%, 85%, 95% and 79%. The Kappa of the 3D ERUS compared with laparoscopic confirmation was 0,69. For USTV the sensibility, specificity, accuracy, PPV and NPV were respectively 45%, 100%, 75%, 100% and 68%. The Kappa of the 3D ERUS compared with laparoscopic confirmation was 0,47.

Conclusion: 3D ERUS and USTV provided informations to the surgical planning for DIE. The ERUS had better sensitivity and kappa correlation than USTV, but both of them had good specificity, accuracy, PPV and NPV.

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4:29 PM – GROUP C

Is There Implication of Bowel Surgery Type in Complications After Deep Infiltrating Endometriosis ?



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Study Objective: Evaluate the implication of bowel surgery type (shaving, discoid or segmental resection) in complications after surgery for deep infiltrating endometriosis.

Design: Prospective cohort.

Setting: University hospital.

Patients: All 136 patients with endometriosis symptoms (pain or infertility) were submitted a laparoscopic surgery for deep infiltrating endometriosis (DIE) between 2009 to 2016.

Intervention: After clinical evaluation patients were submitted to laparoscopic surgery for bowel DIE. The bowel surgery type, shaving, discoid or segmental resection, was performed according to characteristics of lesions. The same surgical team performed all surgeries. Intra and post-operative complications were evaluated.

Measurements and Main Results: Complication were evaluated according to Clavien-Dindo classification. In 136 operated women with bowel endometriosis, shaving, discoid or segmental resection were performed in 26,5%, 29,4% and 44,1% respectively. The postoperative complication rate was 7,35%(10/136). We observed a rate of 2,20%(3/136) grade II, 0,73%(1/136) grade IIIa, 2,91%(4/136) grade IIIb and 1,47%(2/136) grade IIIb-d with Clavien-Dindo. Leakage was observed in 5(2,91%), abscess in 2(1,47%), rectal bleeding in 2(1,47%), subcutaneous hematoma in 1(0,73%) and peritonitis in 1 case (0,73%). One of these patients presented a rectal bleeding and localised pelvic abscess. The conversion and re-operation rate were 0,73% and 3,63% respectively. In addition, 1(0,73%) case of ureteral and 1 (0,73%) case of bladder injury occurred. Recto-vaginal fistula occurred in 2 out of the 5 leakage cases. Furthermore, 3 patients that had leakage developed late complications, 2 vesical and 1 intestinal dysfunction. According with type of bowel surgery the complication rate in shaving, discoid and segmental resection groups was 2,77%(1/36), 2,5%(1/40) and 13,3%(8/60) respectively.

Conclusion: The study data is comparable to the literature. Segmental resection of bowel endometriosis has a highest rate of complications compared to shaving and discoid resection. Therefore, endometriosis surgeons have to look about that to choose an affective approach but with lowest risks for patients.

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4:36 PM – GROUP C

Association Between Diaphragmatic Lesion and Other Locations in Women with Deep Infiltrating Endometriosis



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Study Objective: To correlate the presence of endometriosis in the diaphragm and other locations in women with deep infiltrating endometriosis.

Design: Prospective observational study.

Setting: Women submitted to laparoscopy for deep infiltrating endometriosis in a private institute in Rio de Janeiro for the last 04 years.

Patients: 153 women in reproductive age, with any indication for surgical treatment of deep infiltrating endometriosis.

Intervention: Lesions of endometriosis were identified during surgical approach and data were collected for analysis.

Measurements and Main Results: Patients were separated according to having or not lesion in diafragma. Then, we analyse the presence of endometriosis in other locations between the groups.

Only 2.53% of women with deep infiltrating endometriosis had diaphragmatic lesions. Women with diaphragmatic endometriosis did not have different symptoms compared to the other group. There were no significant difference between groups when compared by the prevalence of lesion in other locations.

Conclusion: The incidence of diaphragmatic endometriosis in laparoscopy for deep infiltrating endometriosis is rare. Women with endometriosis in diaphragm can have the same prevalence of lesions in other locations than women free of diaphragmatic endometriosis.

261 Open Communications 23 - Endometriosis (3:25 PM - 5:05 PM)

4:43 PM – GROUP C

Ovarian Reserve Following CO₂ Laser Fiber Vaporization in the Treatment of Ovarian Endometriomas



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Study Objective: The objective of the present study is to determine whether and to what extent CO₂ laser fiber vaporization for ovarian endometriotic cyst affects ovarian reserve.

It has been documented that CO₂ laser vaporization is a safe and effective treatment; nevertheless, to date no data are available about the impact of CO₂ laser fiber vaporization on the ovarian reserve.

Design: This prospective cohort, includes ten patients who have been operated for endometriomas. The primary outcome of the study is to assess the changes in antral follicle count (AFC) at 1 and 3-month follow-up. The secondary outcome of the study is to analyze changes in serum AMH levels, at the same follow-up.

Setting: San Raffaele Scientific Institute, Milan.

Patients: Inclusion criteria are: symptomatic pain and infertility; primary unilateral or bilateral endometriomas; largest diameter of the endometrioma between 3 cm and 8 cm.

Intervention: Patients have undergone drainage of the cyst content and vaporization of the internal wall with CO₂ laser fiber (Lumenis, Acu Pulse Duo Laser).

Measurements and Main Results: The mean size of endometriomas is 3.9 cm (range 3 - 8 cm). There are bilateral endometriomas in two cases and these are operated with the same technique as the contralateral ovary. AFC at 3 month-follow-up is significantly higher compared to baseline (from 9 to 9.6, P=0.001).

AMH at 3 month-follow-up do not differ from baseline (P=0.08). The AFC of the operated ovary also is increased significantly after treatment (from 4.7 to 4.9 ng/mL, P=0.001).

No complications and no recurrences are noted during follow-up.

Conclusion: CO₂ laser vaporization for endometrioma using the flexible fiber yields a higher functional ovarian tissue as determined by higher AFC count and no change in AMH. These are preliminary data of an on-going study, and the results need to be confirmed at longer follow-ups.

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4:50 PM – GROUP C

Surgical Management of Deep Infiltrating Endometriosis of the Rectum and Sigmoid Colon in 2015 in France: A 1,122 Case-Series



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Study Objective: To assess the characteristics of surgical management of patients with deep infiltrating endometriosis of the rectum and the sigmoid colon (DIERS) in 2015 in France.

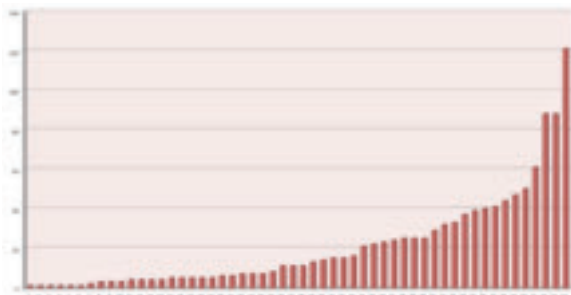
Design: Retrospective study.

Setting: 55 French facilities (33 university, 4 general public and 18 private facilities).

Patients: 1122 patients with DIERS involving muscularis, submucosa or mucosa, managed from January 1 to December 31, 2015.

Intervention: Surgeons filled in questionnaires which data were pooled in a unique database.

Measurements and Main Results: Deep endometriosis infiltrated only the rectum in 57.3% of cases, the rectum and the sigmoid colon in 35.8% and solely the sigmoid colon in 6.9%. Associated localizations involved the



caecum in 6.5%, small bowel in 4.7%, bladder in 9.4%, and were responsible for stenosis of ureters in 13.6% and for hydronephrosis in 6.9%. The surgery was performed using conventional laparoscopy in 84%, robotic-assisted laparoscopy in 9.9% and open surgery in 6.1%. Rectal shaving was carried out in 49.7%, disc excision in 7.4%, colorectal segmental resection in 40.9% and sigmoid colon segmental resection in 6.1% (2 procedures could be associated). Ureters resection was carried out in 4%, representing 29.4% of cases with ureters stenosis. Bladder resection was carried out in 7%. Vaginal resection and hysterectomy were performed in respectively 33.7 and 14.6% of cases, while temporary stoma was used in 19.3%. Rectovaginal fistula occurred in 2.8% of patients, anastomosis leakage in 0.8%, pelvic abscess in 3.5%, ureter fistula in 0.8%, while 8.6% of patients either required catheterization after recovery or had post-voiding bladder volume superior to 100mL. The risk of rectovaginal fistula was 1.3, 4.8 and 4% following respectively shaving, disc excision and segmental resection. Intensive cares were required in 1.1% .

Conclusion: Surgical management of DIERS is performed laparoscopically in a very large majority of cases, involves complex procedures usually requiring multidisciplinary teams, with low risk of postoperative complications.

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4:57 PM – GROUP C

Influence of Diet on Development of Fibroids and Endometriosis, Analysis of the National Health and Nutrition Examination Survey



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Study Objective: To determine the association between dietary habits and presence of endometriosis and fibroids.

Design: Retrospective cohort study.

Setting: Data were collected from the National Health and Nutrition Examination Survey (NHANES) survey, administered in the US from 1999 to 2005.

Patients: Women who self-reported a diagnosis of endometriosis and fibroids were compared to those without such diagnoses.

Intervention: Nutrition data was gathered based on daily food frequency questionnaires. Macronutrient intake variables (total energy, fat, protein, fiber, and carbohydrate) were distributed in quartiles for the analysis. Multinomial logistic regression analyses was performed to assess the relationship nutritional intake and diagnosis of endometriosis or fibroids, adjusted for age, BMI, race, OCP use, smoking, and gravidity status.

Measurements and Main Results: Complete case analysis was available for 4,153 women in the database. There were 288 (prevalence 6.93%) women who reported a diagnosis of endometriosis and 522 (prevalence 12.57%) reported a diagnosis of fibroids. Upon analysis of nutritional trends, increased consumption of fiber is associated with a decreased odds of endometriosis, with OR 0.63 (95%CI: 0.43 0.92) quartile 4 compared to quartile 1. Increased consumption of fat is associated with increased odds of fibroids, with OR 1.39 (95% CI 1.02-1.91) for quartile 2 compared to quartile 1, OR 1.57 (95%CI 1.15 -2.13) for quartile 3 compared to quartile 1 and OR 1.39 (95%CI 1.03 -1.89) for quartile 4 compared to quartile 1.

Conclusion: Our study suggests a link between dietary habits and presence of two common gynecological, hormone dependent conditions – endometriosis and fibroids. In particular, we suggest that the relationship between fat intake and fibroids should be further explored.

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3:25 PM – GROUP A

Novasure Global Endometrial Ablation Interim Analysis



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Study Objective: Collect data prospectively on patients undergoing Novasure Global Endometrial Ablation to assess satisfaction, symptom improvement, quality of life and sexual quality of life.

Design: Prospective Cohort Study.

Setting: Tertiary Teaching Hospital.

Patients: All patients undergoing Novasure procedure are eligible for enrollment.

Intervention: Novasure Global Endometrial Ablation. Patients with clinically enlarged uterus or dysmenorrhea were offered pelvic sonography to evaluate the uterus.

Measurements and Main Results: 166 patients were scheduled for Novasure procedure between September 2014 and March 2016. 119 patients were enrolled in the study as the rest of the patients declined to participate, had the procedures cancelled or were ineligible to participate in the study.

A total of 55 patients completed 6-month follow-up evaluation. 51 patients (93%) claim that their symptoms have resolved. 54 (98.2%) patients would recommend this procedure to a friend. 46 (83.6%) patients are either very satisfied or satisfied with the procedure.

A total of 24 patients have completed one-year follow-up to date. Of these, 22 patients (92%) claim that their symptoms have resolved. 21 patients (87.5%) will recommend this procedure to a friend and 20 (83.3%) are very satisfied or satisfied with the procedure. One patient (4.2%) had re-intervention and had a hysterectomy. Pathology report showed extensive adenomyosis.

The mean WHO-QOL score was 81.1 (SD 24.3) at baseline, 85.8 (SD 14.6) at 6 months and 84.8 (SD 15.2) at 1 year. The mean SSS score was 84.9 (SD 31.8) at baseline, 91.6 (SD 20.7) at 6 months and 89.2 (SD 22.6) at 1 year. Neither scoring system showed a statistically significant improvement.

Conclusion: In appropriately selected patients, Novasure endometrial ablation has high satisfaction and symptom resolution rates one year after the procedure. Adenomyosis may result in re-intervention.

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3:32 PM – GROUP A

Comparison Between the Findings on Transvaginal 3D Ultrasound Scan and Hysteroscopy in Patients



Diagnosed with Subtle Incomplete Uterine Septum/ Arcuate Uterine Anomaly on Hysteroscopy

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Study Objective: The aim of this study is to determine if there is discrepancy between the measurement of the mid fundal length of subtle incomplete uterine septum or arcuate uterine anomaly on hysteroscopy

and on trans-vaginal 3D ultrasound scan (TV 3D US) with or without saline infusion sonohysterogram (SIH).

Design: Retrospective Study.

Setting: Tertiary Referral Center.

Patients: Two hundred sixty three patients who had a subtle incomplete uterine septum (30.0%) or arcuate uterine anomaly (70.0%) on hysteroscopy (2010-2015) were studied.

Intervention: We compared findings on hysteroscopy and on 3D TVUS with and without SIH with respect to mid fundal length.

Measurements and Main Results: All patients had TV 3D US with and without SIH as part of their work up for reproductive failure and subsequently had a hysteroscopy. The length of the mid fundal protrusion in the endometrial cavity was calculated on 3D TVUS with and without SIH. At time of hysteroscopy the type of uterine anomalies according to ASRM classification (Class IV b or Class V) was documented and its mid fundal length was measured using the tip of a straight resectoscope loop. Paired t-test and correlation analysis were used. Overall mean fundal length on TV 3D US (6.4 + 2.9 cm) was significantly lower than mean actual length on hysteroscopy (13.5 + 3.3 cm), $p < 0.001$. A correlation analysis between the findings on TV 3D US and the findings on hysteroscopy revealed a moderate overall correlation ($r = 0.40$, $p < 0.001$); a stronger correlation for incomplete septum ($r = 0.58$, $p < 0.001$) and lack of correlation for arcuate uterine anomaly.

Conclusion: In patients with subtle incomplete septum and arcuate uterine anomaly mid fundal length on TV 3D US with or without SIH tend to be underestimated. Diagnostic hysteroscopy is the only gold standard for accurate diagnosis of such anomalies.

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3:39 PM – GROUP A

How to Increase Accuracy in Hysteroscopic Diagnosis of Endometrial Cancer in Menopause: Definition of a Clinical-Diagnostic Score

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Study Objective: Definition of a clinical score in order to increase accuracy in diagnosis of endometrial cancer and reducing unnecessary hysteroscopic procedures.

Design: A retrospective observational study.

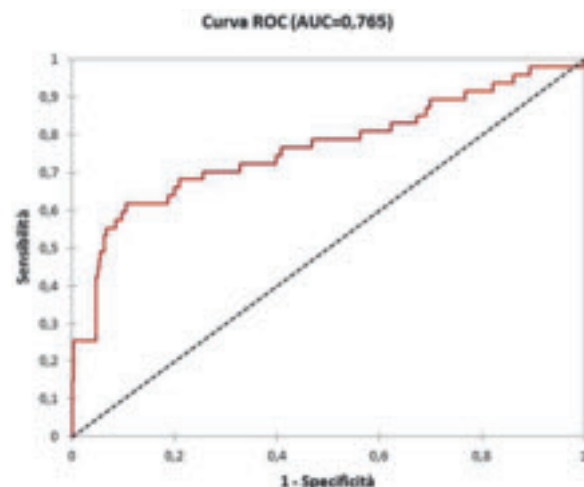
Setting: Gynecology Department at Perugia Hospital, Italy.

Patients: 458 menopausal patients who underwent diagnostic hysteroscopy for suspected endometrial pathology.

Risk Factor and Endometrial Cancer

	Sensitivity	Specificity	PPV
AUB	1	0.861	0.451
DM2	0.255	0.929	0.292
BMI > 30	0.638	0.798	0.265
Age >65 yrs	0.489	0.583	0.118
Hypertension	0.893	0.493	0.168
Breast Cancer	0.063	0.827	0.040

By combining these predictive factors with ultrasound parameters, it was possible to create two different predictive models – model A, using as a reference a system existing in the literature, and model B, using only our own data. A score was attributed to each predictive factor through the predictive Odds Ratio and, using the diagnostic Odds Ratio, a cut-off value was established for each model. 97.8% of patients had scores above the cut-off. Both models have proven extremely sensitive for identifying 97.8% of patients with endometrial cancer and, according to the area under the ROC curve (0.76), they showed moderate diagnostic accuracy in differentiating patients with and without cancer



Intervention: We evaluated the incidence of endometrial pathology. We defined a score in order to predict the risk of endometrial cancer while trying to increase the accuracy of diagnostic hysteroscopy and reducing the number of unnecessary hysteroscopic procedures.

Measurements and Main Results: All the patients enrolled were evaluated in order to define Obesity, Type II Diabetes Mellitus, Hypertension, Uterine Bleeding and endometrial thickness. Out of 458 patients, 47 (10.2%) had endometrial cancer, 197 (43%) were diagnosed with a benign endometrial pathology (polyp, myoma, simple hyperplasia), while 214 (46.8%) had a regular uterine cavity. Logistic regression identified abnormal uterine bleeding, Type II diabetes mellitus, obesity, hypertension, advanced age (>65 years) and endometrial thickening as the most significant predictive factors for endometrial cancer.

Conclusion: The introduction of a predictive model in clinical practice would be an effective way to allow for early diagnosis with a view to reduce the large number of invasive inappropriate procedures.

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3:46 PM – GROUP A

Endometrial Biopsy and Sonography in the Evaluation of Abnormal Bleeding After Endometrial Ablation

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Study Objective: Currently, there is little data to guide clinicians in the evaluation of a uterine cavity in the setting of abnormal bleeding after endometrial ablation. Our objective was to compare the accuracy of transvaginal 2D ultrasound and endometrial biopsy in identifying uterine causes for postablation vaginal bleeding to pathology findings at hysterectomy.

Design: Retrospective cohort study.

Setting: Academic Medical Center.

Patients: Women who presented with abnormal uterine bleeding after endometrial ablation between April 2002 to January of 2015 and who subsequently underwent hysterectomy.

Intervention: Pelvic sonography and/or endometrial biopsy (EMB) after endometrial ablation.

Measurements and Main Results: Comprehensive chart review identified 153 women who underwent an evaluation at our institution for abnormal bleeding after endometrial ablation. Within that cohort, 67 patients (43.8%) eventually underwent a hysterectomy. Prior to definitive management, 36/67 (53.7%) had a postablation EMB. Both cases of endometrial neoplasia were identified preoperatively by EMB,

one patient with atypical hyperplasia and one with FIGO grade 1 endometrioid adenocarcinoma. EMB was unsatisfactory in 16.7% of samples (6/36). However, final pathology was benign endometrium for all of those women. Pelvic ultrasound was also performed for evaluation of abnormal bleeding in 58/67 (86.6%) of the hysterectomy patients. Ultrasound-identified adenomyosis was confirmed in 70% (7/10) upon gross and histologic inspection. Fibroids of any type identified sonographically were confirmed by hysterectomy in 74% (23/31) of cases. Specifically, submucosal fibroids identified sonographically were found in 40% (4/10) of cases at the time of hysterectomy.

Conclusion: Endometrial biopsy successfully diagnosed neoplastic etiologies of uterine bleeding after endometrial ablation in our cohort. Adenomyosis and fibroids were accurately diagnosed by sonography after endometrial ablation in the majority of cases.

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3:57 PM – GROUP B

Incidence of Failed Second Generation Endometrial Ablation



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Study Objective: To determine the rate of failed second-generation endometrial ablation defined by the need for surgical re-intervention.

Design: Retrospective cohort study.

Setting: Academic affiliated community hospital.

Patients: Patients undergoing second-generation endometrial ablation for benign indications.

Intervention: Patients who underwent Radiofrequency Ablation (RFA), Hydrothermablation (HTA), or Uterine Balloon Ablation performed between January 2003 and December 2015 were identified using a contemporaneous database.

Measurements and Main Results: 5,933 women were identified who underwent endometrial ablation at a single institution. Device distribution was as follows: 3,749 RFA (63.19%), 1,853 HTA (31.23%), and 331 uterine balloon ablations (5.58%). Our primary outcome was patients who subsequently underwent hysterectomy. Of the 5,933 women, 822 (7.2%) underwent hysterectomy. Women who underwent hysterectomy were younger (41.4 versus 42.9 years, $p < 0.001$) and of an ethnicity other than Asian, Caucasian, or African American (3.89% versus 2.92%, $p < 0.001$). No other demographic differences were noted. The indications for hysterectomy following ablation were menorrhagia (81.87%), followed by abnormal uterine bleeding (27.74%), polyps/fibroids (19.22%), and pain (10.22%). The incidence of hysterectomy was not statistically significant based on the ablation device utilized. For women undergoing HTA, the hazard ratio was 1.10 (0.80 – 1.50 95% CI) compared to 1.34 (0.98 – 1.83 95% CI) for women undergoing RFA (Ref uterine balloon 1.0).

Conclusion: Of women undergoing second-generation endometrial ablation, 7.2% required hysterectomy. Menorrhagia was the leading indication for

Table 1

Variable	Hysterectomy (N=822)	No Hysterectomy (N=5114)	p value
Age at procedure	41.4	42.9	<0.001
Race			
Asian	0.24%	0.70%	
Black	21.90%	16.28%	
White	73.97%	80.10%	
Other	3.89%	2.92%	<0.001
Weight	80.84	80.71	0.92
Height	163.70	164.33	0.12

hysterectomy following ablation. Consistent with previous studies, age was a significant risk factor for hysterectomy following endometrial ablation. There was no difference noted amongst the three techniques utilized.

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4:04 PM – GROUP B

A Comparison of the Efficacy and Safety of Thermal Balloon versus Bipolar Radiofrequency Endometrial



Ablation: A Retrospective Review

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Study Objective: To compare the efficacy and safety of two types of global endometrial ablation in a large community private practice.

Design: Retrospective chart review.

Setting: Community based private practice.

Patients: Patients who underwent bipolar radiofrequency (BRA) or thermal balloon (TB) endometrial ablation by general obstetrician gynecologists in a 14 physician practice between January 2007 and June 2011 with at least 1 year of follow up after procedure.

Intervention: na.

Measurements and Main Results: 996 charts were reviewed and 724 met criteria for inclusion in the study. 119 subjects were included in the TB group and 605 in the BRA group. The two groups were nearly identical on all baseline demographic and clinical variables. The incidence rate of amenorrhea was significantly greater in the BRA group (22.39%) as compared to TB (8.40%, $p < 0.0005$). There was no significant difference in rate of reduced bleeding based on patient report, or hysterectomy. There was a statistically significant difference in incidence of concurrent procedures at time of initial ablation with TB group having more in both patients achieving amenorrhea ($p < 0.0001$) and patients not achieving amenorrhea ($p < 0.0019$). There was no statistically significant association between incidence of amenorrhea and incidence of prior cesarean section, adenomyosis, prior cesarean section or concurrent procedure at the time of initial ablation. There were no major complications in either group.

Conclusion: In a community-based private practice, endometrial ablations were performed by 14 physicians of varied experience and surgical volume with no major complications noted during the study period. The BRF method was more effective in achieving amenorrhea than TB. There was no statistically significant difference in incidence of subsequent hysterectomy, reduced bleeding and complications in the 12 months after ablation procedure between the two treatment groups. Amenorrhea rate was not affected by concurrent procedure at time of initial ablation or presence of uterine pathology such as adenomyosis or prior cesarean section.

270 Open Communications 24 - Hysteroscopy, Endometrial Ablation and Sterilization (3:25 PM - 5:05 PM)

4:11 PM – GROUP B

Long Term Reproductive Outcomes After Hysteroscopic Outpatient Metroplasty to Expand Dysmorphic Uteri (HOME- DU Technique)



Di Spiezo Sardo A,¹ Da Cunha Vieira M,² Troise S,¹ Foreste V,¹ Zizolfi B,¹ Nappi C.¹ ¹Unit of Obstetrics and Gynecology, University of Federico II, Naples, Naples, Italy; ²Department of Gynecology and Obstetrics, ABC Foundation School of Medicine, Santo Andre, SP, Brazil

Study Objective: Evaluate the long term reproductive outcomes in patients with dysmorphic uterus (T-shaped and tubular-shaped infantilis uterus) treated by Hysteroscopic outpatient metroplasty to expand dysmorphic uteri (HOME-DU technique).

The Main Reproductive Outcomes of the Three Groups

Inclusion criteria	Clinical Pregnancy rate	Abortion rate	Term delivery rate*	Live birth rate*	Mode of Delivery - CS	Mode of Delivery - VG
GROUP1 (n=54)	29/54 (54%)	4/29 (14%)	19/29 (66%)	18/29 (62%)	11/19 (58%)	8/19 (32%)
GROUP2 (n=9)	7/9 (80%)	2/7 (29%)	5/7 (71%)	5/7 (71%)	4/5 (80%)	1/5 (20%)
GROUP3 (n=1)	0/1 (0,0%)	-	-	-	-	-
Total (n=64)	36/64 (56%)	6/36 (17%)	24/36 (67%)	23/36 (64%)	15/24 (63%)	9/24 (37%)

*6 on going pregnancies GROUP 1= Primary infertility GROUP 2= repeated early abortions GROUP 3= severe preterm delivery CS= Caesarean section VG= Vaginal Delivery

Design: Prospective observational.

Setting: University of Federico II, Naples.

Patients: 64 women with dysmorphic uterus (Class U1 by ESHRE/ESGE Classification) diagnosed by office hysteroscopy and 3D-transvaginal ultrasound and with at least one of the following criteria: primary infertility after exclusion of other infertility factors (GROUP 1), repeated early miscarriages (more than 2) (GROUP 2) or severe preterm delivery (less than 25 weeks) (GROUP 3).

Intervention: Patients were treated by HOME-DU technique in outpatient setting. Longitudinal incisions were performed on the fibro-muscular constriction rings in the isthmic area and on the anterior and posterior uterine walls with a 5 Fr bipolar electrode. An antiadhesive gel was applied to avoid post-operative adhesions. Post-surgical assessment was conducted by hysteroscopy and 3D-TVS. The long-term reproductive performance was evaluated with a minimum follow-up of 6 months in which naturally conception or assisted reproductive methods were tried.

Measurements and Main Results: HOMEDU technique was successful in all cases with a significant increase of uterine cavity volume and amelioration in the morphology of the uterus. At mean follow-up of 26 months, an overall clinical pregnancy rate of 56% (n=36/64) and a live birth rate of 62% (n=18/29) were observed with a mean time of conception of 6.5 months. Twenty-four out of these 36 women (68%) conceived spontaneously and 4 of these 24 women (17%) had already tried an Assisted Reproductive Technology.

Conclusion: Our data seem to confirm that HOME-DU technique is associated with a significant improvement of the reproductive outcomes. Despite our small cohort, these promising functional results support the benefit of the minimally invasive approach in infertile women with dysmorphic uterus.

An ongoing study is evaluating the changes in endometrial receptivity before and after HOMEDU technique.

271 Open Communications 24 - Hysteroscopy, Endometrial Ablation and Sterilization (3:25 PM - 5:05 PM)

4:18 PM – GROUP B

Clinical Pregnancy Rates After Correction Unsuspected Intrauterine Pathologies via Office Hysteroscopy in Patients Who Had One or More Failed IVF Cycles



Oktem M, Isik G, Utkan ZE, Erdem A, Erdem M. *Ob/Gyn, Gazi University School of Medicine, Ankara, Turkey*

Study Objective: Hysteroscopy is the gold standard test for assessing the uterine cavity. Hysteroscopy not only provides accurate visual assessment of the uterine cavity, but also provides a chance to treat any pathology detected during the examination. Currently, there is evidence that performing hysteroscopy before starting IVF treatment could increase the chance of pregnancy in the subsequent IVF cycle in women who had one or more failed IVF cycles. The aim of this study is to evaluate hysteroscopic findings and clinical pregnancy rates after treatment in women with a history of one or more failed IVF attempts.

Design: It was a retrospective and descriptive study.

Setting: This study was conducted at Assisted Reproduction Unit in Gazi University Hospital.

Patients: Two hundred and thirty six patients with a history of one or more failed IVF cycles under-went office hysteroscopy between January 2009 and December 2014.

Intervention: Incidences of abnormal hysteroscopic findings and clinical pregnancy rates after treatment were assessed.

Measurements and Main Results: In all, 54,3 % of the patients included in the study had abnormal hysteroscopic findings. These pathologies were found as: 27,9 % endometrial polyps, 18,7 % chronic endometritis, 4,3 % intrauterine adhesions, 1,3 % myoma uteri, 1,3 % endometrial hyperplasia, and 0,8 % endometrial adenocarcinoma. After hysteroscopic treatment, the clinical pregnancy rate was 26,3 %.

Conclusion: Patients with IVF failures had remarkably high unsuspected hysteroscopic abnormal results. After correction of the intrauterine pathologies via office hysteroscopy, the clinical pregnancy rate was improved in the first subsequent IVF cycle. In conclusion, office hysteroscopy might be associated with improved IVF outcome when performed immediately before commencing an IVF cycle.

272 Open Communications 24 - Hysteroscopy, Endometrial Ablation and Sterilization (3:25 PM - 5:05 PM)

4:29 PM – GROUP C

Occurrence of Hyperthermic Vasculopathy in Desiccating versus Non-Desiccating Endometrial Ablation Failures: A Clinicopathologic Study



Coad JE,¹ Pharaon M,¹ Harris M,² Castillo-Saenz L,³ Garza-Leal J.³

¹Pathology Laboratory for Translational Medicine, West Virginia University, Morgantown, West Virginia; ²AEGEA Medical, Inc., Redwood City, California; ³Department of Gynecology, Universidad Autónoma de Nuevo León Facultad de Medicina, Monterrey, NL, Mexico

Study Objective: Previously, we and others have reported on post-ablation vascular changes associated with hyperthermic endometrial ablation (EA) for treating dysfunctional uterine bleeding (DUB), including rollerball (RB), water balloon (WB) and radiofrequency (RFA) devices. These vascular changes are often associated with thermal/heat-fixed tissue changes that prevent normal tissue healing. As tissue desiccation is a factor in the thermal/heat fixation of tissue, we evaluated a series of post-hyperthermic ablated uteri to determine if these vascular changes are present in desiccating versus non-desiccating treatment modalities.

Design: Retrospective pathological analysis of hysterectomy specimens.

Setting: University hospital.

Patients: Endometrial ablation patients who have had a subsequent hysterectomy for clinical symptoms or continued abnormal bleeding.

Intervention: Twenty-three post-endometrial ablation hysterectomies were identified (AEGEA n=3; RB n=4; WB n=7; RFA n=9). All of the patients were treated according to the manufactures' recommendations.

Measurements and Main Results: Each specimen was assessed for the presence of thermal fixation/necrosis of myometrial arterioles that preserved vascular architecture, resisted tissue breakdown, and precluded thrombus organization with subsequent re-bleeding.

Incidence of Thermal Vasculopathy

	Tx to Surgery	Thermal Vasculopathy
AEGEA	16±2	0%
RB	2±1 months	25%
WB	7±10 months	86%
RFA	4±1 months	78%

The primary treatment failure etiology histologically appeared to be bleeding from abnormal thermally-fixed vessels in 25% RB, 72% WB and 42% RFA cases. Similar vessels, combined with cycling endometrium, were identified in an additional 14% WB and 33% RFA cases. None of the non-desiccating vapor treated uteri (AEGEA) had similarly identifiable thermal vascular changes.

Conclusion: Hyperthermic vasculopathy was identified in those uteri treated with thermal doses (temperature-time combinations; RB << WB and RFA) that resulted in tissue desiccation with subsequent vascular thermal/heat fixation. In contrast, hyperthermic vasculopathy was not identified in the uteri treated with the non-desiccating AEGEA vapor-based system. These results suggest that non-desiccating therapies may have the potential to reduce endometrial ablation failures associated with hyperthermic vasculopathy.

273 Open Communications 24 - Hysteroscopy, Endometrial Ablation and Sterilization (3:25 PM - 5:05 PM)

4:36 PM – GROUP C

Outpatient Endometrial Ablation (Minitouch) – A Procedure with Minimal Resource Requirements

Thakur Y,¹ Thakur V,² Nicholls S.¹ ¹Basildon University Hospital, Basildon, Essex, United Kingdom; ²Broomfield Hospital, Chelmsford, Essex, United Kingdom



Study Objective: Characterise the resource advantage of Minitouch outpatient procedures.

Endometrial ablations are typically performed in the theatre. Even when performed in the outpatient setting, significant resources are still needed. We selected Minitouch because it does not require cervical dilatation, anaesthesia or sedation. It is ideal for outpatient use due to small size, flexibility and short procedure duration.

Design: Retrospective study of Minitouch procedures performed in the outpatient setting at Basildon University Hospital since 2014.

Setting: Our Minitouch procedure room comprises a procedure couch, ultrasound scanner, and diagnostic hysteroscopy setup (performed only in case of abnormalities such as fibroids).

The tray consists of a disposable plastic speculum, vulsellum (if required), Pipelle, and cleaning preparation.

A gynaecologist, a nurse and a health care assistant (vocal-local) conducted the procedure.

Patients: Patients who underwent Minitouch procedures.

Intervention: Minitouch procedures were performed in the outpatient setting. The procedure protocol includes no fasting and taking oral painkillers an hour pre-procedure. There was no need for menstrual cycle timing or hormonal pre-treatment.

Measurements and Main Results: Followup available for 40 patients showed that 90% (36/40) had lighter or no periods. No adverse events have been reported. All Minitouch patients tolerated the procedure. Pain or cramping during treatment was comparable to period pain (menstrual cramps) and subsided rapidly after the treatment. Dedicated recovery ward was not necessary. Patients were typically discharged after 10-15 minutes post-procedure. This procedure does not need a recovery set up which eliminates the need for a dedicated recovery bay, a recovery nurse, and monitoring equipment.

Conclusion: Minitouch procedures are ideally suited for the outpatient setting. Compared to theatre-based procedures and currently performed outpatient procedures, they need significantly less resources while

providing high efficacy. In these days of financial constraints, a procedure providing better outcomes despite requiring minimal resources is a welcome step forward.

274 Open Communications 24 - Hysteroscopy, Endometrial Ablation and Sterilization (3:25 PM - 5:05 PM)

4:43 PM – GROUP C

Cesarean Scar Defect (Istmocele): Hysterorrhaphic Technique as Etiologic Factor in Cesarean Section



León JA, Romer M, Milano A, Suarez O. Gynecology, Clínica Maternidad Santa Ana, Caracas, Distrito Capital, Venezuela

Study Objective: Evaluate the technique as an etiologic factor hysterorrhaphic cesarean scar defect in patients who underwent segmental cesarean section.

Design: Exploratory research, prospective, longitudinal type was performed.

Setting: Academic Hospital of post graduate.

Patients: The population consists of patients who underwent cesarean section without prior uterine surgery, in 2015 a total of 1,164 patients previous calculation of the sample of 106 patients was conducted to evaluate.

Intervention: The technique employed by hysterorrhaphy was evaluated by number of planes, type of suture material and thickness of the uterine segment. Cesarean scar defect the appearance of the patients was evaluated at 2,4,6 and 12 months after cesarean section by hysteroscopy and transvaginal ecosonography.

Measurements and Main Results: 104 cesarean scar defect (98.11%) were diagnosed by hysteroscopy, and was confirmed by transvaginal ultrasound. The distribution of patients according to area ultrasound, in 36 patients the area was 15 mm² or less (Grade 1), 36 was between 16 and 24 mm² (grade 2) and in 32 cases was 25mm² or more (grade 3). There was no difference in the type of hysterorrhaphy technique and suture material used with the appearance of cesarean scar defect.

The ratio of the thickness of the uterine segment and the sonographic features of cesarean scar defect the highest number of cases of 9- 10 mm thickness 35 cases (33.65%) and a lesser amount in the segments of 3- 4 mm² is observed 10 cases (9.6%).

Conclusion: The appearance of cesarean scar defect not dependent on the technique and hysterorrhaphy suture material used. Being greater thickness uterine segment cesarean scar defect area increases.

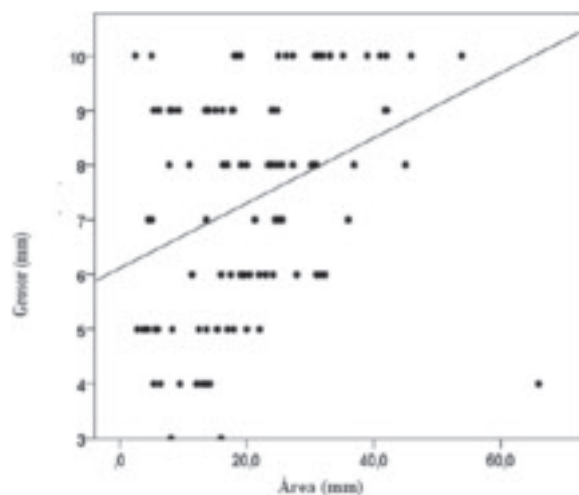


Figure 1: association between the thickness of the uterine segment and cesarean scar defect area, the correlation coefficient being 0.395. It was observed that control the area in mm² 1 year the cesarean scar defect decreases.

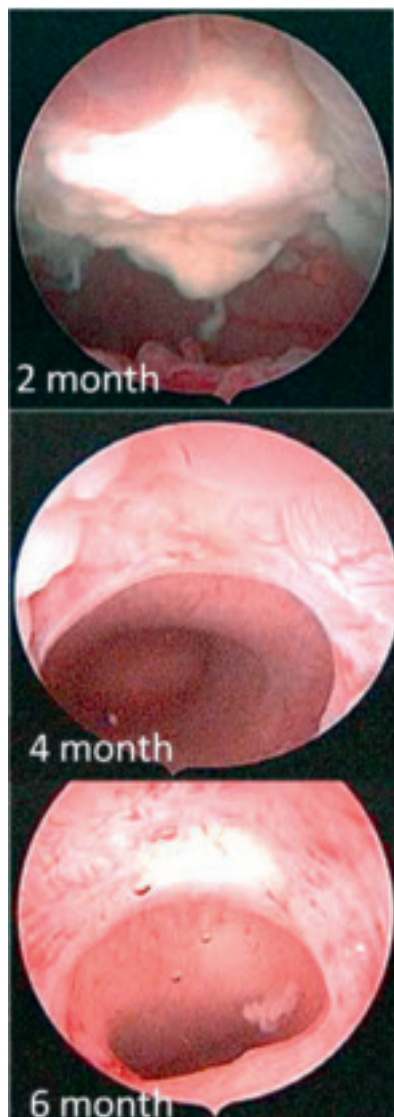


Figure 2: cesarean scar defect evolution in time.

275 Open Communications 24 - Hysteroscopy, Endometrial Ablation and Sterilization
(3:25 PM - 5:05 PM)

4:50 PM – GROUP C

Minitouch Endometrial Ablation Procedure as an Outpatient Service at a General Practitioner Clinic



Shah P. The Gynaecology Partnership Ltd., St. Albans, Hertfordshire, United Kingdom

Study Objective: To evaluate suitability of Minitouch procedures performed as an outpatient service at a general practitioner (GP) clinic.

Design: Retrospective outcome analysis.

Setting: A clinic room at the Gynaecology Partnership Limited, a GP clinic in London Colney. The room has a patient couch, Storz hysteroscopy stack, Alphascopes hysteroscope, Versascope hysteroscopy system, and a Minitouch system. The recovery room has two chairs and a couch where patients can recover before discharge.

The author's team had performed 10 initial procedures under general anaesthesia at BMI Hendon Hospital. The procedure was found to be easy

to use, quick, and did not need cervical dilatation. Based on that experience, it was decided to offer the procedure as an outpatient service at a GP medical clinic where the author's team performs other outpatient procedures. The first list had four ablations and eight to twelve diagnostic and minor operative hysteroscopies. In the next list, three ablations were performed in addition to other procedures.

Patients: Patients undergoing Minitouch ablation procedures.

Intervention: All procedures done under local anaesthesia by one gynecologist, a nurse, and a clinical social worker.

Measurements and Main Results: There were no adverse events. No procedures were abandoned due to patient discomfort. Patient satisfaction was the main measure of procedure success. Available data on the 17 patients treated shows a 1/17 failure rate (94.1% success rate) at three to four months. The single failure was attributed to patient selection; the patient had a 12-13 cm sounding length cavity with multiple fibroids. Even though it was known that that ablation was likely to fail, Minitouch was tried due to its simplicity in a last attempt to avoid hysterectomy.

Conclusion: Minitouch procedures were successfully incorporated in the GP clinic's work flow, were performed under local anaesthesia, and needed limited resources. Safety and efficacy outcomes were excellent.

276 Open Communications 24 - Hysteroscopy, Endometrial Ablation and Sterilization
(3:25 PM - 5:05 PM)

4:57 PM – GROUP C

Comparison of Resource Requirements of Minitouch and Thermachoice Ablation Procedures



Agarwal V. Lincoln County Hospital, Lincoln, Lincolnshire, United Kingdom

Study Objective: Shortage of recovery beds limited us to doing only three endometrial ablation procedures per list. We trialed Minitouch since it could be performed without anaesthesia and patients recover without needing recovery beds. Resource requirements of Minitouch and Thermachoice procedures, especially during post-procedure recovery, are compared.

Design: Observational.

Setting: A large district general hospital in England.

Patients: Patients undergoing Thermachoice or Minitouch procedures.

Intervention: Thermachoice and Minitouch procedures.

Measurements and Main Results: Thermachoice patients needed to come at least an hour pre-procedure when they were administered: Diclofenac, Ondansetron, Diazepam, Pethidine and a local anesthetic. All patients needed opioids post-procedure and typically two-three hours to recover. So, there was a significant workload for the nursing staff limiting us to three procedures per list. Novasure, trialed briefly, had similar requirements. In contrast, Minitouch patients are treated without any preparation other than pre-procedure analgesia. The procedure is simple, is done without dilatation, and in most cases, without anaesthesia. The recovery period is only about 15 minutes. Occasionally, one patient per clinic needs a recovery bed for not more than 30-40 minutes. We are able to perform six procedures per list.

Four consultants and one nurse hysteroscopist have completed 56 Minitouch procedures without any adverse events. Followup from 37 patients shows 32 (86%) patients have significant bleeding improvement defined as lighter periods or amenorrhoea. Procedure pain scores (mean 7.5, SD 1.8) were comparable to period pain scores (mean 7.1, SD 2.7). Pain rapidly subsided after the treatment. Immediate post-procedure pain scores (mean 2.3, SD 2.3) and pain scores at discharge (mean 1.1, SD 2.0) were significantly lower.

Conclusion: Minitouch is a simple procedure with a very short recovery and excellent outcomes. It needs significantly less resources compared to Thermachoice. A post-operative recovery area nurse is no longer needed. From a service point of view, these are obvious advantages.

WEDNESDAY, NOVEMBER 16, 2016

277 Video Session 1 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:00 AM – GROUP A

Laparoscopic Management of Cesarean Scar Ectopic Pregnancy*Ramirez CI, Stuparich MA, Lee TM. Department of Obstetrics and Gynecology, Magee-Womens Hospital of UPMC, Pittsburgh, Pennsylvania*

Cesarean scar ectopic pregnancies are rare and carry a high risk of uterine rupture and hemorrhage due to the weakened myometrial wall overlying the pregnancy. In this video we demonstrate a safe laparoscopic approach to excision of a cesarean scar ectopic pregnancy by using surgical techniques to minimize intraoperative blood loss, lyse dense bladder adhesions, and reconstruct the anterior uterine wall. Intraoperative hemostasis was achieved with dissection of the retroperitoneal space to temporarily ligate the uterine artery, temporary ligation of the infundibulopelvic ligament, and myometrial injection of Vasopressin. Back-filling the bladder allowed for identification of the vesicouterine reflection despite dense bladder adhesions. During reconstruction of the anterior lower uterine segment, inflation of a foley catheter within the uterus was used for orientation and to prevent incorporation of the posterior uterine wall. By using these surgical techniques, cesarean scar ectopic pregnancies can be safely treated laparoscopically with minimal blood loss.

278 Video Session 1 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:07 AM – GROUP A

Laparoscopic Approach to Resection of Cornual Pregnancy*Friedman J, Nimaroff M. North Shore University Hospital, Manhasset, New York*

Background: Cornual pregnancies represent 2-3% of ectopic pregnancies. A prior history of salpingectomy does not prevent the condition from occurring. Presented is the case of a 29 year old infertility patient who developed a second right cornual pregnancy four months after treatment of a right cornual pregnancy treated with a suction curettage under laparoscopic guidance.

Objective: To demonstrate the approach of laparoscopic cornual resection

Design: Narrated step-by-step video demonstration of the laparoscopic resection technique.

Intervention: Following injection of intramyometrial vasopressin for hemostasis, a laparoscopic cornual resection was performed without difficulty. The myometrial defect was closed in layers using a continuous barbed suture. There was minimal blood loss during this procedure and no complications.

Main results: The patient had a successful cornual resection for treatment of an ectopic pregnancy.

Conclusion: This case demonstrates the steps required for the safe performance of a laparoscopic cornual resection.

279 Video Session 1 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:14 AM – GROUP A

Laparoscopic Excision of the “Migrant” Mesh*Elkattah R, Mohling S, Furr R. Division of Minimally Invasive Gynecology, University of Tennessee Chattanooga - College of Medicine, Chattanooga, Tennessee*

A 40 year-old Caucasian female presented with right-sided pelvic pain that was exacerbated by sexual intercourse. She has a history of endometriosis and dysmenorrhea requiring laparoscopic hysterectomy, excision of endometriosis and ovarian preservation. At the time, she also had placement of anterior vaginal mesh for stage 2 cystocele. Pelvic exam revealed right-sided focal tenderness and nodularity abutting the right vaginal cuff. Vaginal mesh was not palpable and no erosion was noted. Pelvic ultrasound

imaging showed bilateral normal ovaries. Definitive surgical management with laparoscopic bilateral oophorectomy and excision of a suspected endometriotic nodule was planned. The encountered nodule was effectively her vaginal mesh that had migrated over the pelvic floor into the pelvic sidewall. This video describes the excision of this “migrant” mesh.

280 Video Session 1 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:21 AM – GROUP A

Laparoscopic Repair of Cesarean Scar Defect Utilizing Hysteroscopic Guidance: A Case Series and Review of Surgical Technique*Alvi FA, Matthews L, Milad MP. Department of Obstetrics and Gynecology, Northwestern University Feinberg School of Medicine, Chicago, Illinois*

In this video, the clinical and surgical outcomes of a series of five patients with a cesarean scar defect treated at our institution by a single minimally invasive surgeon over a four year time period are reviewed. Indications for surgery included infertility, abnormal uterine bleeding, and near complete dehiscence in an asymptomatic patient desiring future pregnancy. All procedures were completed successfully without complications. Of the four patients who underwent laparoscopic repair for fertility, two became pregnant less than one year from the procedure, one is currently attempting pregnancy, and one has changed her plans for pregnancy. Of the three patients who underwent the procedure for abnormal uterine bleeding, two had complete resolution of their symptoms. The one patient who continued to experience abnormal bleeding was also found to have adenomyosis. Our technique for laparoscopic repair of cesarean scar defect utilizing hysteroscopic guidance in each case is demonstrated.

281 Video Session 1 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:32 AM – GROUP B

Strategies for Laparoscopic Excision of Huge Adnexal Cysts*Moawad NS. Section of Minimally Invasive Gynecologic Surgery, Department of Obstetrics & Gynecology, University of Florida College of Medicine, Gainesville, Florida*

Huge ovarian cysts are a common cause of laparotomy; frequently through a large midline incision with known increased morbidity and mortality. Appropriate workup showing simple cysts on imaging studies such as CT or ultrasound, and negative tumor markers, are reassuring signs of the benign nature of the majority of these simple cysts.

This video presents specific techniques and strategies for the safe and efficient removal of huge adnexal cysts. The example used in the video is a 17 year-old nulliparous female with 8 months history of increasing abdominal girth, early satiety and 70 pound weight loss, who was found to have a 27x20x19 cm cystic mass filling up her abdomino-pelvic cavity.

Strategies for laparoscopic entry, trocar placement, hemostasis, cystectomy and fertility preservation are illustrated. These specific techniques are reproducible and will avoid the added morbidity of laparotomy and adnexectomy.

282 Video Session 1 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:39 AM – GROUP B

Neurovascular Pelvic Anatomy as Seen Laparoscopically*Sainani SA, Sharma V, Gauba Y, Singh R, Puntambekar SP. Galaxy Care Laparoscopic Institute, Pune, Maharashtra, India*

This video demonstrates the important neuro-vascular anatomical landmarks as seen by laparoscopy. The anatomical landmarks depicted in this video will help the surgeon to do better surgery. This video also gives the tips to achieve good surgical planes. The aim of this work was to describe the pelvic anatomy and its application in day to day laparoscopic

gynaecological surgeries. This will help to understand the preservation of nerves while doing endometriosis and radical hysterectomy. The superior hypogastric plexus is also demonstrated to understand the point at which suture should be taken on sacral promontory.

Laparoscopic view of anatomy with the current camera systems is an excellent tool to demonstrate and teach pelvic anatomy which can be applied to surgical principles in difficult benign and oncological cases.

283 Video Session 1 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:46 AM – GROUP B

Laparoscopic Excision of an Abdominal Wall Fibroid



Chao L, Rindos N, Mansuria S. *Minimally Invasive Gynecologic Surgery, Magee Womens Hospital, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania*

Uterine fibroids are the most common benign tumor in premenopausal women, occurring in approximately 20% of patients. Extra-uterine fibroids, specifically primary abdominal wall fibroids, are a rare finding; with very few reported cases in literature. The purpose of this video is to illustrate a laparoscopic excision of an abdominal wall fibroid found in a patient with no prior uterine surgery. Important care must be taken to ensure complete excision of the fibroid en-bloc to prevent recurrence or seeding of tumor cells. Even though abdominal wall fibroids are a rare entity, they should still be considered in the differential diagnosis of a premenopausal woman with pelvic pain and an anterior abdominal wall mass.

284 Video Session 1 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:53 AM – GROUP B

A Unique Perspective to Laparoscopic Vaginal Cuff Closure



Endicott SP, Jones-Cox CE. *Ob/Gyn, Walter Reed National Military Medical Center, Bethesda, Maryland*

Laparoscopic closure of the vaginal cuff is a relatively new and advanced surgical skill that many Gynecologists develop over time. Many aides exist to help teach surgeons the principles of laparoscopic surgery, but none of these address the difficulties of visualization and approximation under the magnification provided by standard laparoscopes. These skills are of the utmost importance as rates of vaginal cuff dehiscence are highest with vaginal cuffs close laparoscopically.

The following is an instructional aide for teaching novice laparoscopists. We provide a unique perspective of side-by-side laparoscopic and vaginal views to help aide the learner in visualization of the important steps of laparoscopic vaginal cuff closure. We also highlight important anatomic and safety considerations during the procedure.

285 Video Session 2 - Robotics
(11:00 AM - 12:00 PM)

11:00 AM – GROUP A

Robotic Single-Site Sacrocolpopexy Using V-loc Anchoring and Peritoneal Tunneling Technique



Guan X, Ma Y, Gisseman J, Kliethermes C. *Obstetrics & Gynecology, Baylor College of Medicine, Houston, Texas*

Sacrocolpopexy is increasing utilized since the FDA warning about complications of vaginal mesh surgery. It is the gold standard for repair of apical prolapse. However, there is great variation in the sacrocolpopexy procedure techniques and they have not been standardized. Single-site laparoscopic sacrocolpopexy is very challenging as the procedure time is long and suturing is difficult. We aim to demonstrate a simpler technique for single-site sacrocolpopexy using V-loc suture and retroperitoneal tunneling to make the procedure more efficient.

286 Video Session 2 - Robotics
(11:00 AM - 12:00 PM)

11:07 AM – GROUP A

Robot-Assisted Vaginal Hysterectomy: A Cadaveric Proof of Concept



Jernigan AM, Debernardo RL. *Women's Health Institute, Obstetrics & Gynecology, Cleveland Clinic, Cleveland, Ohio*

The objective of this video presentation was to demonstrate the feasibility of using the robotic platform to perform a vaginal hysterectomy on a cadaveric model. When compared to conventional vaginal surgery, 3-dimensional optics and magnification of the surgical field result in improved visualization, particularly of the cul-de-sac and adnexae. The bedside assistant can watch the procedure live on screen which compares favorably to the limited visual experience of the assistant in traditional vaginal surgery. This could result in an enhanced educational experience for trainees. Sitting at the robotic console, the surgeon is comfortably able to operate. The bed and robot can be set at a height that is ergonomic for the assistant. This robotic vaginal hysterectomy model could serve as a spring board for the development of more complex vaginal procedures, such as radical vaginal hysterectomy, trachelectomy, pelvic lymph node dissection, fistula repairs or pelvic floor reconstruction.

287 Video Session 2 - Robotics
(11:00 AM - 12:00 PM)

11:14 AM – GROUP A

Robotic Xi Infrarenal Aortic Node Dissection with Lower Pelvic Port Placement



Lim PC, Kang EY. *Robotics Surgical Institute/Gynecology Oncology, Center of Hope at Renown Regional Medical Center, Reno, Nevada*

We present a technique of robotic-assisted infrarenal aortic lymph node dissection as part of a surgical staging for endometrial or ovarian cancer.

288 Video Session 2 - Robotics
(11:00 AM - 12:00 PM)

11:21 AM – GROUP A

Laparoscopic Ultrasound During Robotic Myomectomy



Eisenstein DI. *Division of Minimally Invasive Gynecology Department of Women's Health, Henry Ford Health System, W Bloomfield, Michigan*

Robotic Myomectomy is primarily a visual surgical dissection without haptics. Ascertainment of multiple fibroids during myomectomy can therefore be challenging. Comparative studies of pre operative imaging versus intra operative ultrasound scanning with a laparoscopic probe demonstrate the superiority of laparoscopic ultrasound over MRI or standard ultrasound in defining number and location of fibroids. This video demonstrates the utility of laparoscopic ultrasound during robotic myomectomy in guiding dissection and removal of challenging multiple fibroids.

289 Video Session 2 - Robotics
(11:00 AM - 12:00 PM)

11:32 AM – GROUP B

Robotic Transvesical Approach for Vesical-Rectal-Vaginal Fistula, with an Interposition Omental Flap without Intestinal Diversion: A Case of Success



Ribeiro DM,¹ Ribeiro GM,¹ Santos TP,¹ Morrell AC,² Cretella CM.¹
¹General Surgery, Clínica Dr. Duarte Miguel Ribeiro, São Paulo, SP, Brazil; ²General Surgery, Hospital São Luiz Unidade Morumbi, São Paulo, SP, Brazil

This is a case of a the 35-years-old nulliparous woman with a history of output of: (i) feces and gases trough the bladder; (ii) urine, feces and gases through the vagina; and (iii) urine trough the anus.

Her surgical history included 10 surgeries with the purpose of relieving pain and treating infertility caused by endometriosis. In her last surgery, conducted 4 months before the symptoms appeared, the hysterectomy was complemented. Besides that, it was performed a cystectomy, a retosigmoidectomy, a ureterolysis and the vaporization and resection of residual lesions.

The post-surgery seemed normal but, 120 days after the procedure, a significant amount of pain was felt above the lower abdomen region in consequence of the difficulty to evacuate, later accompanied with output of feces and gases through the bladder, urine through the anus and urine, gases and feces through the vagina. The patient was submitted to the surgical treatment described.

290 Video Session 2 - Robotics (11:00 AM - 12:00 PM)

11:39 AM – GROUP B

Totally Robotic Intracorporeal Anastomosis and Firefly™ Fluorescence Imaging with Natural Orifice Specimen Extraction (RNOSE - F) for the Treatment of Bowel Endometriosis, the Technique

Ribeiro DM,¹ Ribeiro GM,¹ Santos TP,¹ Morrell AC,² Chamie L,⁴ Serafini P.³ ¹General Surgery, Clínica Dr. Duarte Miguel Ribeiro, São Paulo, SP, Brazil; ²General Surgery, Hosp. São Luiz Unidade Morumbi, São Paulo, SP, Brazil; ³Esterilidade, Clínica Huntington, São Paulo, SP, Brazil; ⁴Radiology, Chamie Clínica da Mulher, São Paulo, SP, Brazil

Deep endometriosis (DE) invading the bowel constitutes a major challenge for the gynecologist and has been estimated to occur in 8 - 12% of women with endometriosis, and colorectal disease represents almost 90% of this. Sometimes the best treatment for DE involving the bowel consist on its resection, leading to an increase morbidity and mortality rates.

RNOSE - F (with Fluorescence) consist of a surgical technique that may decrease the rate of complication and improve the quality of life of the patient.

291 Video Session 2 - Robotics (11:00 AM - 12:00 PM)

11:46 AM – GROUP B

A Successful Robotic Hysterectomy in a Patient with Multiple Previous Pelvic Surgeries and Failed Laparotomy

Pei-Yi W, Su I-L, Wu H-H, Liu W-M. *Obstetrics and Gynecology, Taipei Medical University Hospital, Taipei City, Taiwan*

Objective: To present a case of total robotic hysterectomy in a woman with a history of three previous pelvic surgeries.

To demonstrate capability of robotics instruments when encountering severe pelvic adhesion in case of unsuccessful previous surgery.

Case: A 44-year-old female patient, nulliparous with three prior pelvic surgeries, including abdominal myomectomy, laparoscopic left cystectomy and failed abdominal hysterectomy due to severe pelvic adhesion. She complained of persistent lower abdominal pain and urinary frequency. She was turned down by several surgeons before seeking help at our department. Under the impression of uterine myomas with compression symptoms and suspect adhesion accompanied with severe pelvic pain, she was admitted to our ward for further surgical intervention.

Summary: In this case, adhesions were suspected in a woman with unsuccessful previous surgery, conventional laparotomy is usually preferred, but robotic-assisted surgery shown to be more than competent. A potential answer to similar cases in the future.

292 Video Session 2 - Robotics (11:00 AM - 12:00 PM)

11:53 AM – GROUP B

Robot-Assisted Laparoscopic Adenomyomectomy: Successful Treatment of Adenomyosis Patients Wishing for Uterus-Sparing Treatment

Keum CY, Lee MK, Kim HK, Cheung YJ, Cho HH, Kim JH, Kim MR. *Department of Obstetrics and Gynecology, College of Medicine, The Catholic University of Korea, Seocho-gu, Seoul, Korea*

The standard treatment of adenomyosis is hysterectomy. However, the challenge comes in when treating symptomatic woman who want to maintain fertility. For fertility preservation and symptom relief, medical treatment will be the first choice. If dysmenorrhea or chronic pelvic pain does not respond to medical treatment or anemia occurs because of menorrhagia, excisional surgery will eventually be necessary.

In this regard, adenomyomectomy is a conservative surgical option for preserving fertility. However, laparotomic adenomyomectomy has disadvantages including bleeding and adhesion formation and conventional laparoscopic adenomyomectomy has difficulties in removal of adenomyoma and suturing of remained myometrium.

Robot-assisted laparoscopic surgery could overcome these limitations of conventional laparoscopic surgery, and could be an excellent treatment option of adenomyomectomy. So, we would introduce a case of successfully removed adenomyosis and demonstrate our technique of adenomyomectomy by Robot surgery for patient who want to preserve their fertility.

293 Video Session 3 - Endometriosis (12:10 PM - 1:10 PM)

12:10 PM – GROUP A

Laparoscopic Radical Trachelectomy for Posterior DIE (Deep Infiltrating Endometriosis) Involving Sacral Nerve Roots

Sun C-H. *Ob/Gyn, Lucina Women & Children Hospital, Kaohsiung City, Kaohsiung, Taiwan*

DIE (deep infiltrating endometriosis) lesions involving somatic nerves are rare. Here we presented a case with posterior DIE lesions infiltrating the whole Lt uterosacral ligament all the way deep to pre-sacral region, destructing the inferior hypogastric plexus (pelvic plexus), involving sacral nerve roots (S2, S3), causing severe periodic pelvic and anal pain. Bilateral retroperitoneal spaces were opened to expose the ureters, uterine vessels, and pelvic autonomic nerves. After careful neurolysis, part of hypogastric/splanchnic nerve fibers, and pelvic plexus fibers were sacrificed, and the entire DIE lesions over Lt USL were excised in en-bloc fashion. The main trunks of Lt sacral nerve roots (including S2, S3, S4) were well exposed and preserved. Radical trachelectomy was then proceeded smoothly. The post-operative course was smooth. She could void well on post-Op day 6. Constipation and perineal numbness sensation persist for 4+ months, gradually improved, and she was doing well thereafter.

294 Video Session 3 - Endometriosis (12:10 PM - 1:10 PM)

12:17 PM – GROUP A

Excision of Ureteral Endometriosis

Saadat S, Arden D. *Ob/Gyn, Kaiser Permanente Los Angeles Medical Center, Los Angeles, California*

The patient is a 39 year old G1P1 who presented with right hydronephrosis requiring ureteral stent placement. History and exam raised suspicion for deep infiltrative endometriosis as the cause of the ureteral compression leading to hydronephrosis. In this video we present our technique for laparoscopic excision of ureteral endometriosis, which ultimately relieved

the obstruction. This is an unusual case of severe endometriosis presenting with flank pain and hydronephrosis. Deep infiltrative endometriosis can cause severe external compression of the ureter leading to hydronephrosis. Laparoscopic excision can relieve this obstruction. Meticulous technique and good knowledge of retroperitoneal anatomy are crucial for success.

295 Video Session 3 - Endometriosis
(12:10 PM - 1:10 PM)

12:24 PM – GROUP A

Laparoscopic Excision of Vaginal Cuff Endometriosis



Noel NL,¹ Cohen SL,² ¹MIGS, Department of Obstetrics and Gynecology, Newton-Wellesley Hospital, Harvard Medical School, Newton, Massachusetts; ²MIGS, Department of Obstetrics and Gynecology, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts

Our patient is a 43-year-old G0 who presented with recurrent vaginal bleeding and dyspareunia 4 years after hysterectomy.

Her past medical history is notable for a total laparoscopic hysterectomy and bilateral salpingo-oophorectomy in 2010 for fibroids and adenomyosis, estrogen replacement therapy and breast cancer. 4 years post hysterectomy a 1 cm friable vaginal mass was diagnosed on exam and a biopsy of the lesion was consistent with endometriosis. Excision with subsequent silver nitrate cautery was attempted but the lesion recurred.

This video demonstrates the laparoscopic excision of vaginal cuff endometriosis. We aimed to display the process of dissecting away adjacent structures to expose the area of interest for a safe and complete excision.

296 Video Session 3 - Endometriosis
(12:10 PM - 1:10 PM)

12:31 PM – GROUP A

Management of a Recto-Vaginal Endometrioma in a 65-Year-Old Woman



Kondrup JD, Sylvester B, Branning ML. *Minimally Invasive Surgery, Lourdes Hospital, Binghamton, New York*

This 65 yo patient was referred because of deep dyspareunia and ultrasound findings of a vascular mass at the vagina cuff. She was s/p TAH-BSO for endometriosis and placed on HRT. MRI confirmed the mass and differential diagnosis included malignancy and endometriosis. Surgery was performed laparoscopically and patient received a bowel prep pre-operatively.

This technique describes how to approach the recto-vaginal space and to resect a lesion while protecting the adjacent organs. The “Flat tire test” to check for bowel injury is also highlighted here.

297 12:42 PM – GROUP B

Tips and Tricks for Laparoscopic Complete Resection of Deep Infiltrated Endometriosis of Bowel, Bladder and Upper Vagina



Guan X, Wang Y, Gisseman J. *Baylor College of Medicine, Houston, Texas*

Complex endometriosis refers to deep fibrotic endometriosis deposits that present as pelvic nodules, which can be palpated on exam. It usually involves the posterior cul-de-sac, bowel, bladder, vagina, and ureters. The surgical technique for complex endometriosis is similar to that of oncology exenteration cases. Laparoscopic resection of complex endometriosis decreases the major risks of open procedures, but it can be particularly difficult and time consuming. We present a complex case of laparoscopic resection of deep infiltrated endometriosis involving bowel, bladder and upper vagina using articulated energy device. Laparoscopic resection of complex endometriosis using the strategic steps described in the video is feasible and safe and leads to better outcomes.

298 12:49 PM – GROUP B

Robotic-Assisted Shaving of Deep Infiltrating Endometriosis of Vagina and Rectum—Three Steps Procedure



Zhang Y,¹ Chen YS,¹ Lu WQ,² Hua KQ.¹ ¹Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China; ²Zhong Shan Hospital of Fudan University, Shanghai, China

A 38-year-old woman diagnosed with deep infiltrating endometriosis of vagina and rectum. She suffered of severe dysmenorrhea for 5 years. MRI showed deep infiltrating endometriosis in the Douglas pouch and rectal wall thickening. Physical examination revealed a 3cm diameter nodule in the Douglas pouch. With the help of an experienced colorectal surgeon from Zhongshan hospital we performed robotic-assisted shaving of deep infiltrating endometriosis by the three steps procedures: separate the ureter on both sides, open the Douglas pouch and shaving lesion. Rectal shaving, disc excision and colorectal resection are usually performed in the treatment of deep infiltrating endometriosis of the rectum. From our experiences, invasion of more than 50% of the bowel circumference, multiple nodules, or nodules larger than 3 cm are indications for a bowel resection. She recovered well after operation without any complication. After that, her menstruation is normal and without any pain.

300 Video Session 3 - Endometriosis
(12:10 PM - 1:10 PM)

12:56 PM – GROUP B

Laparoscopic Management of Diaphragmatic Endometriosis: Triple Approach



Darwish B,¹ Roman H,¹ Baste J-M.² ¹Obstetrics and Gynecology, Rouen University Hospital, Rouen, Haute Normandy, France; ²Thoracic Surgery, Rouen University Hospital, Rouen, Haute Normandy, France

Introduction: The video demonstrates our surgical approach in the management of diaphragmatic endometriosis.

Method: We employ the laparoscopic approach in women who present with small black-pigmented diaphragmatic lesions, with or without infiltration of the diaphragm.

In larger deep infiltrating implants we deploy a robotic-assisted laparoscopic route, whereas in lesions involving the central tendon of the diaphragm a robotic-assisted thoracoscopy is preferred to avoid phrenic nerve injury.

Discussion: By combining resection and ablation techniques, we offer a surgical strategy which is as conservative as possible, with an aim to limit postoperative adhesions between the liver and the diaphragm, and avoid diaphragmatic paralysis.

Conclusion: Through this video we present an overview of the various possible surgical approaches we deploy in patients with diaphragmatic endometriosis. Keeping with our conservative surgical philosophy, our aim is to provide an optimal balance between postoperative benefits and intra-operative risks.

392 Video Session 3 - Endometriosis
(12:10 PM - 1:10 PM)

1:03 PM – GROUP B

The Surgical Management of Bilateral Hydroureteronephrosis: Laparoscopic Surgical Excision with Ureteral Anastomosis



Koh C,¹ Hopton E.² ¹Milwaukee Institute of Minimally Invasive Surgery, Milwaukee, Wisconsin; ²Vital Health Institute, Los Gatos, California, United Kingdom

This video presents a case of bilateral hydroureteronephrosis secondary to intrinsic and extrinsic ureteral endometriosis. The patient presents with deeply infiltrating rectovaginal and rectal endometriosis with bowel stricture, left ovarian endometrioma, bilateral ureteral endometriosis with ureteral kinking, and a non-communicating uterine horn. The diagnosis is confirmed via IVP and at surgery. Subsequently, adhesiolysis and complete excision of endometriosis are performed, including treatment of intrinsic endometriosis of the left ureter, requiring ureteral anastomosis, and extrinsic endometriosis of the right ureter. This case demonstrates the key steps and techniques involved in the optimal management of deeply infiltrating ureteral and rectovaginal endometriosis, restoring both bladder and bowel function, preserving fertility, and restoring the patient's quality of life.

301 Video Session 4 - Reproductive Issues
(12:10 PM - 1:10 PM)

12:10 PM – GROUP A

Surgical Management of Solitary Tubal Diverticula

Raju R,¹ Abuzeid O,¹ Hebert J,¹ Abuzeid MI,² ¹Obstetrics and Gynecology, Hurley Medical Center and Michigan State University, College of Human Medicine, Flint, Michigan; ²Division of Reproductive Endocrinology and Infertility, IVF Michigan Rochester Hills & Flint, Flint, Michigan



Introduction: Solitary tubal diverticula are thin walled outpouchings of the fallopian tube. The wall of the diverticulum is deficient of the muscular layer. They have been associated with ectopic pregnancy, tubal infertility and endometriosis. Surgical correctixon of tubal diverticula has been associated with improved fertility outcomes.

Objective: To demonstrate the surgical correction of three cases of solitary tubal diverticula.

Conclusion: Tubal diverticula can be easily and effectively managed surgically with distal linear salpingostomy for the diverticulum and fimbrioplasty using the flowering technique of Bruhat.

302 Video Session 4 - Reproductive Issues
(12:10 PM - 1:10 PM)

12:17 PM – GROUP A

Anatomy of the Internal Iliac Vein: Implications for Uterine Transplant

Beran B,¹ Shockley M,¹ Arnolds K,¹ Sprague ML,¹ Zimberg S,¹ Tzakis A,² Falcone T,³ ¹Department of Gynecology, Cleveland Clinic Florida, Weston, Florida; ²Transplantation Center, Cleveland Clinic Florida, Weston, Florida; ³Department of Obstetrics & Gynecology, Cleveland Clinic, Cleveland, Ohio



Uterine transplantation has proven feasible since the first live birth was reported from a Swedish trial in September 2014. While promising, the technique used for live-donor hysterectomy mandated prolonged laparotomy, mainly related to dissection of a long uterine vein and internal iliac vein (IIV) vascular pedicle for eventual reattachment in the recipient. While typically following the internal iliac artery (IIA), the IIV and its tributaries can have more anatomic variation. Prior studies show the IIV can be located lateral or medial to the IIA, and only 79.1% of the time meets criteria for normal anatomy involving: 1) bilateral common iliac vein (CIV) formed by ipsilateral external and IIV at a low position, and 2) bilateral CIV joining to form a right-sided inferior vena cava.

Future modifications of hysterectomy, in a living or deceased donor, are aided by a strong understanding of the anatomy of the IIV.

303 Video Session 4 - Reproductive Issues
(12:10 PM - 1:10 PM)

12:24 PM – GROUP A

The Wayward Intrauterine Device

DeStephano CC, Chen A. Mayo Clinic, Department of Surgical Gynecology, Jacksonville, Florida



We present an extrauterine IUD, embedded IUD, and IUD that remained following a supracervical hysterectomy. Techniques used include a right-angle, single-port laparoscope, office-based hysteroscopy, and a grasper slid beside a hysteroscope for IUD retrieval. In conclusion, be cognizant of foreign bodies and consider minimally invasive instrumentation to accomplish your goals.

304 Video Session 4 - Reproductive Issues
(12:10 PM - 1:10 PM)

12:31 PM – GROUP A

Laparoscopic Cervical Encerclage in Challenging Situations

Parikh KP,² Warty NR,¹ Sawant RM,¹ Warty NR,¹ Puntambekar SP,² ¹Sanjeevani Endoscopy Centre, Mumbai, Maharashtra, India; ²Galaxy Care Laparoscopy Institute, Pune, Maharashtra, India



Elective laparoscopic cervical encerclage is performed in non pregnant or early second trimester pregnancy for cervical insufficiency. Emergency cerclage as a salvage procedure in advanced second trimester is challenging especially with anatomical variations.

Two patients with 18 weeks gestation, one with an absent cervix and advanced endometriosis obliterating the pouch and pulling the ureters closer and another with a unicornuate uterus sitting on the lateral pelvic wall with the uterine pedicle, ureter and the lateral pelvic wall vessels in close proximity posed technical difficulties. An enlarged pregnant uterus occupying the entire pelvis, lack of traditional manipulation and a tortuous uterine pedicle made visualisation and access of the operative area challenging.

This simplified technique using a 5 mm Mersilene tape with a needle at each end helps navigate the treacherous anatomy. The cervico-isthmic loop so placed only tightens as the pregnancy advances and helps carry this pregnancy to term.

305 Video Session 4 - Reproductive Issues
(12:10 PM - 1:10 PM)

12:42 PM – GROUP B

Robotically-Assisted Laparoscopic Salpingostomy and Excision of Rudimentary Uterine Horn

Eisner I, Lian X, Griffin T. Department of Obstetrics, Gynecology, and Reproductive Medicine, Stony Brook University Hospital, Stony Brook, New York



This video shows an interesting case of a patient with an ectopic pregnancy who had failed methotrexate treatment, and concurrently desired correction of her Mullerian anomaly. We illustrate the presentation of the patient's unusual anatomy, and excision of her rudimentary horn. This procedure, along with salpingostomy for management of her tubal ectopic pregnancy, serve to demonstrate basic laparoscopic surgical techniques. Related congenital anatomical concerns are briefly reviewed.

306 Video Session 4 - Reproductive Issues
(12:10 PM - 1:10 PM)

12:49 PM – GROUP B

Strategic Myomectomy: A Novel Approach for the Masses

Rosenthal DM, Sterling LE. Obstetrics and Gynecology, North York General Hospital, Toronto, Ontario, Canada



Our experience with minimally invasive myomectomy supports our concept that optimal patient outcomes are achieved when this surgery is performed with a strategy. Strategic planning with liberal use of MRI imaging is essential. Characteristics of the myoma including its internal avascularity and ability of the uterus to heal and remodel allow the use of innovative techniques which lead to improved outcomes with the first surgery whether hysteroscopic, laparoscopic, or by laparotomy.

This video presentation will demonstrate our novel approach to myomectomy which has been found to be successful.

307 Video Session 4 - Reproductive Issues
(12:10 PM - 1:10 PM)

12:56 PM – GROUP B

Changing Anatomical Relationships in Lateral Cervical Fibroids



Warty NR,¹ Sawant RM,¹ Parikh KP,² Warty TR,¹ Puntambekar SP.²
¹Sanjeevani Endoscopy Centre, Mumbai, Maharashtra, India; ²Galaxy Care Laparoscopy Institute, Pune, Maharashtra, India

Cervical fibroids account for 5% of all uterine fibroids.

This video demonstrates the changing anatomical relationship between the ureter and the uterine artery in cases of large cervical fibroids growing laterally into the broad ligament. Excessive haemorrhage and ureteric injuries are the bane of laparoscopic cervical myomectomies.

Ligating the uterine artery prior to starting myomectomy gives a clear field which aids dissection and protects the vital structures in close proximity to the laterally growing fibroids.

The uterine artery is accessible anteriorly by retrograde tracing of the obliterated hypogastric artery.

With progressively growing size of fibroids the ureter first gets pushed deep into the lateral pelvic wall then travels the lateral wall of fibroid and finally as it grows further the fibroid lifts the ureter and uterine vessels on the anterior wall of the fibroid. Understanding this anatomical relation helps dissection and safeguards the ureters.

308 Video Session 4 - Reproductive Issues
(12:10 PM - 1:10 PM)

1:03 PM – GROUP B

Laparoscopic Ovarian Transposition



Bougie O, Rajakumar C, Singh S. *Obstetrics and Gynecology, The University of Ottawa and Ottawa Hospital Research Institute, Ottawa, Ontario, Canada*

This is a video created by the gynecology minimally invasive surgical team at the Ottawa Hospital to provide an overview of an approach to laparoscopic ovarian transposition.

The objectives of this video are to:

1. review indications for this procedure
2. examine key components of patient selection
3. provide a brief summary of expected outcomes
4. illustrate an approach to laparoscopic ovarian transposition through a case presentation

Ovarian transposition should be offered to young women planning to undergo pelvic radiation at risk of losing ovarian function. Patient selection, careful preoperative counseling and multidisciplinary team planning are essential components of successful outcomes. Laparoscopic ovarian transposition can be performed effectively utilizing the technique described in our video and offers patients the benefit of expedited recovery, allowing them to focus on their cancer treatment.

309 Video Session 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Robotic Excision of Suture Entrapment of the Lumbosacral Trunk



Dave A, Yi J, Javier M. *Mayo Clinic in Arizona, Phoenix, Arizona*

Nerve injury is a rare but serious complication of sacrospinous apical suspension procedures, occurring in up to 2% of cases. Injury can occur to the pudendal nerve, lumbosacral trunk and sciatic nerve. Symptoms commonly include severe refractory pain, paresthesias and motor deficit. We present the robotic excision of suture entrapment of the right lumbosacral trunk that occurred during remote sacrospinous ligament

fixation at an outside institution. The patient suffers gluteal claudication, searing leg pain, foot drop and requires use of a wheelchair. Imaging shows significant inflammation near the ischial spine. A method of robotically accessing the lumbosacral trunk is demonstrated. Careful dissection reveals a suture entrapping both the nerve and superior gluteal artery.

Surgeons must be knowledgeable of critical neurovascular anatomy in close proximity to the sacrospinous ligament. Prompt removal of suture should occur if nerve injury is suspected.

310 Video Session 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(2:15 PM - 3:15 PM)

2:22 PM – GROUP A

Robotically-Assisted Laparoscopic Single Site Colpopexy



Trye SA,¹ Tang NZ,² Wagner J.³ ¹Obstetrics and Gynecology, Northwell Health, Manhasset, New York; ²Obstetrics and Gynecology, Maimonides Medical Center, Brooklyn, New York; ³Obstetrics and Gynecology, Huntington Hospital, Huntington, New York

Pelvic Organ Prolapse (POP) is a common problem women face as the US population continues to age. Wu et al found that the number of American women with pelvic floor disorders will increase from 28.1 million in 2010 to 43.8 million in 2050. Management options range from expectant management to pelvic floor muscle rehabilitation, pessaries as well as surgery. As the importance of apical support in the correction of prolapse was discovered, the gold standard of surgical correction has been abdominal sacrocolpopexy with mesh. Our video illustrates Robotically-Assisted Single Site Sacrocolpopexy. Our patient is a 45yo multiparous female with a grade 2 cystocele and rectocele with a history of a robotic-assisted laparoscopic supracervical hysterectomy.

311 Video Session 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(2:15 PM - 3:15 PM)

2:29 PM – GROUP A

Spontaneous Transverse Vaginal Septum: Diagnosis and Management



Huynh T, Patel N. *Christiana Care Health Systems, Newark, Delaware*

Although the etiology of transverse vaginal septa is thought to be congenital, rare cases have been reported in the setting of trauma. We encountered a spontaneous transverse vaginal septum without an inciting event. We discuss methods for preoperative assessment to aid surgical planning.

This video features a patient who noted new onset vaginal obstruction that made tampon insertion and penetrative intercourse impossible. She denied any traumatic event and her last delivery was via cesarean two years prior. Initial exam was consistent with a perforate transverse septum. MRI revealed no vaginal abnormality. When routine investigations fail, our video demonstrates use of office hysteroscopy to assess a transverse septum, allowing for identification of thickness and location of the septum. We also highlight surgical techniques to perform a septoplasty, including use of a Foley catheter to differentiate between the vaginal wall and the septum.

312 Video Session 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(2:15 PM - 3:15 PM)

2:36 PM – GROUP A

Efficiency in Robotic Sacrocervicopexy



Palmer MM. *Oakdale Obstetrics and Gynecology - Premier Ob/Gyn of Minnesota, Crystal, Minnesota*

Robotic-assisted sacrocolpopexy and/or sacrocervicopexy is a widely adopted technique utilized as the gold-standard repair for significant

apical pelvic organ prolapse. This video shares some of our techniques for improving efficiency which leads to savings in time spent in the OR, reproducibility and reduced cost.

313 Video Session 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(2:15 PM - 3:15 PM)

2:47 PM – GROUP B

Robotic-Assisted Single Site High Utero-Sacral Ligament Suspension: A Novel Minimally Invasive Alternative for the Repair of Symptomatic Pelvic Organ Prolapse



Ricardo M,¹ Wagner JR.² ¹Obstetrics and Gynecology, Maimonides Medical Center, Brooklyn, New York; ²Obstetrics and Gynecology, Huntington Hospital/Northwell Health, Huntington, New York

The purpose of this video is to demonstrate an alternative technique for the treatment of symptomatic pelvic organ prolapse. Without having to use mesh, it is possible to perform a high utero-sacral ligament suspension, as long as the ligaments are intact, in a novel minimally invasive approach using robotic-assisted single site modality. A supracervical hysterectomy, although not necessary for this procedure, was performed to allow better mobilization of the cervix, to strengthen and improve the approximation between the utero-sacral ligaments and the cervix. Also, the patient had a strong desire for cervical retention. RASS-high utero-sacral ligament suspension is a safe and effective procedure for symptomatic pelvic organ prolapse.

314 Video Session 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(2:15 PM - 3:15 PM)

2:54 PM – GROUP B

Robotic-Assisted Excision of a Urachal Diverticulum



Frazzini Padilla PM, Kwon SY. *Obstetrics and Gynecology, Rush University Medical Center, Chicago, Illinois*

Purpose: To demonstrate a robotic-assisted laparoscopic excision of a urachal diverticulum with concurrent use of cystoscopy to ensure complete excision of the urachal remnant.

Patient: A 60 year old gravida 0 female presented with a long history of multiple recurrent culture proven urinary tract infections. A urachal diverticulum was suspected on diagnostic cystoscopy and confirmed with CT scan. Patient was counseled on management options and elected to undergo robotic-assisted excision of the diverticulum.

Method: Laparoscopic robotic-assisted excision of the diverticulum was performed with concurrent cystoscopy to ensure that performance of a partial cystectomy resulted in complete excision of the urachal remnant.

Conclusion: The patient recovered well with complete resolution of her symptoms. Robotic-assisted excision of a urachal diverticulum with concurrent cystoscopy is a safe, efficient and effective procedure for complete excision of the symptomatic remnant.

315 Video Session 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(2:15 PM - 3:15 PM)

3:01 PM – GROUP B

Evaluation for Anterior C-Section Adhesions Using Vaginal Ultrasound to Determine Hysterectomy Route



Kammire LD. *Obstetrics and Gynecology, Wake Forest School of Medicine, Winston-Salem, North Carolina*

Currently almost 1/3 of all women in the United States will be delivered by C-section, and many of these women may eventually need hysterectomy. A

prior C-section is not a contraindication to total vaginal hysterectomy (TVH), and there are well documented advantages to the vaginal route, including less risk of ureteral injury, cuff dehiscence and less cost. However anterior cul de sac adhesions of bladder and/or uterus to the anterior abdominal wall make the laparoscopic route safer. We describe a simple way to assess for uterine and anterior cul de sac adhesions using saline infused through the posterior colpotomy incision via a foley catheter and transvaginal ultrasound to assess for adhesions to determine if TVH is feasible or whether laparoscopic hysterectomy is safer.

316 Video Session 5 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(2:15 PM - 3:15 PM)

3:08 PM – GROUP B

Latzko Operation: A Simple and Effective Minimally Invasive Surgery for the Early Correction of Post-Hysterectomy Vesicovaginal Fistula



Moon H, Kim SG, Park GS, Koo J. *Center for Minimally Invasive Surgery, Department of Obstetrics and Gynecology, Good Moonhwa Hospital, Busan, Republic of Korea*

The reported incidence of vesicovaginal fistula following hysterectomy is about 0.2%. Standard management of vesicovaginal fistula requires a 3-6 month interval from injury to repair to ensure complete resolution of necrosis and inflammation. However, some have advocated early closure of fistulas with good results. In 1942, Latzko developed a technique whereby post-hysterectomy vesicovaginal fistulas were treated through a purely vaginal approach, of which result was excellent. It has the advantages of a short operation time, minimal blood loss, and low postoperative morbidity while being simple and minimally invasive. We would like to present a case of early intervention of vesicovaginal fistula at 1 month after hysterectomy through the simple and effective Latzko procedure.

317 Video Session 6 - Basic Science/Research/Education
(2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Avascular Planes of the Pelvis



Louie M,¹ Siedhoff MT.² ¹Ob/Gyn, University of North Carolina, Chapel Hill, North Carolina
²Cedars-Sinai Medical Center, Los Angeles, California

The avascular planes of the pelvis are potential spaces that are generally devoid of blood vessels and nerves. Knowledge of the avascular planes of the pelvis allows for safe and efficient gynecologic surgery. Access to the avascular pelvic spaces optimizes visualization by maximizing exposure and hemostasis while avoiding injury to nearby viscera, vessels, and nerves. The objectives of our video are to review the structural anatomy and landmarks in six key avascular planes of the pelvis: the pararectal space, the paravesical space, the retropubic space or space of Retizus, the vesicovaginal space, the rectovaginal space, and the presacral or retrorectal space. For each space, we discuss techniques for access and surgical dissection and review relevant safety concerns.

318 Video Session 6 - Basic Science/Research/Education
(2:15 PM - 3:15 PM)

2:22 PM – GROUP A

Fundamentals of Trocar Placement in Laparoscopic Gynecologic Surgery



Pacis MM, Li H, Harkins GJ. *Division of Minimally Invasive Gyn Surgery, Penn State Milton S. Hershey Medical Center, Hershey, Pennsylvania*

Trocar placement is a basic yet essential skill required for the effective performance of endoscopic surgery. Proper trocar

placement can have a large impact on the technical performance of laparoscopic procedures. Additionally, improper trocar insertion can result in serious, and even life-threatening complications. Our video entitled *Fundamentals of Trocar Placement in Laparoscopic Gynecologic Surgery* is an educational tool designed for medical students and residents. Surgeons in training will be oriented to and have a general understanding of the central concepts of trocar placement including anatomic landmarks, safety considerations, and placement of primary and secondary trocars in laparoscopic gynecologic surgery.

319 Video Session 6 - Basic Science/Research/Education
(2:15 PM - 3:15 PM)

2:29 PM – GROUP A

Teaching Laparoscopic Hysterectomy: Basic Anatomy and Surgical Steps 

Johnson CM,¹ Gujral H,² Wright KN.² ¹Obstetrics and Gynecology, Tufts Medical Center, Boston, Massachusetts; ²Minimally Invasive Gynecologic Surgery, Lahey Hospital and Medical Center, Burlington, Massachusetts

This video reviews basic pelvic anatomy, the steps of a laparoscopic hysterectomy, and some potential sites for injury. It was designed as part of a larger video curriculum for gynecologic surgery and can be used as teaching adjunct for medical students and junior residents. Our objective was to provide background for and reinforcement of intraoperative teaching. This allows learners to individualize needs for repetition, strengthen knowledge outside of the operating room, and focus on more advanced skills during live operative time.

320 Video Session 6 - Basic Science/Research/Education
(2:15 PM - 3:15 PM)

2:36 PM – GROUP A

Laparoscopic Management of Mullerian Remnants 

Tanchoco MLC, Aguilar AS. *Obstetrics and Gynecology Section of Reproductive Endocrinology and Infertility, University of the Philippines - Philippine General Hospital, Manila, Philippines*

This is a 12-year old child with ambiguous genitalia. Testosterone, DHEAS and estradiol levels. The 17-OHP and FSH levels were elevated. The AMH, LH, FT4, TSH and IGF-1 levels were normal. Pelvic ultrasound showed infantile uterus with thin endometrium and small ovaries. X-ray of left wrist exhibited a bone age between 12 to 14 years. Karyotyping showed a mosaic karyotype. One cell line showed monosomy X. A second cell line showed a normal karyotype. A multidisciplinary team met and the agreed procedure was pre-operative diagnostic cystourethroscopy and genitoscopia, total laparoscopic hysterectomy with bilateral gonadectomy and first stage repair of hypospadias.

An infantile uterus and bilateral tubular structures connecting the gonads were noted. Examination revealed a uterus with atrophic endometrium and prostatic tissue within muscle. Biopsy of the right gonad showed calcified testis, immature, with epididymis and vas deferens while the left gonad resembled oviduct tissue with immature testis.

321 Video Session 6 - Basic Science/Research/Education
(2:15 PM - 3:15 PM)

2:47 PM – GROUP B

Colpotomy: A Novel Visible Landmark for Laparoscopic Hysterectomy Education 

Huang F, Gisseman J, Guan X. *Baylor College of Medicine, Houston, Texas*

Study Objective: To show and describe a modified laparoscopic hysterectomy technique we use to improve junior surgeons' (residents, fellows) education.


Interventions: Total laparoscopic hysterectomy was modified by performing colpotomy prior to uterine artery cauterization and cardinal ligament transection.

Patient: A 30-year-old woman with a history of endometriosis and suspected adenomyosis presented with chronic pelvic pain for 5 years and requested laparoscopic hysterectomy.

Results: Performing colpotomy before uterine artery cauterization and cardinal ligament transection will help build up junior surgeons' confidence and reduce surgical complications.

322 Video Session 6 - Basic Science/Research/Education
(2:15 PM - 3:15 PM)

2:54 PM – GROUP B

Suture Technique Tips Demo Using K-Box: A Novel, Real Simulating, Ergonomic and Non-Expensive Training Box That Everyone Can Own 

Kuo H-H. *Obstetrics and Gynecology, Chang Gung Memorial Hospital, Linko, Taoyuan, Taiwan*

The learning curve of laparoscopic training is steep and includes skills such as hand-eye or hand-hand coordination, depth perception and ambidexterity. Current commercially available mechanical simulators shares some drawbacks including the high price (> 1000 USD), non-flexible image systems (expensive cam and repair fees), unreal ergonomics (operating in front of the operating platform), unreal surgical depth (too shallow to simplify the real operation) and expensive or non-repeatable platform. The K-Box not only overcome the drawbacks above but offers the advantages such as the build-in light system, multi-access port sites (assistant, supra-pubic, Lee-Huang point), practice of single-site surgery and convenience to record the training processes. The cost is about 200 USD and could be even low in the future. Everybody should own one and practice makes perfect.

323 Video Session 6 - Basic Science/Research/Education
(2:15 PM - 3:15 PM)

3:01 PM – GROUP B

The Curious Incident of the Parasitic Adnexa 

Nassie DI,¹ Meshulam M,¹ Gingold A,¹ Maman M,¹ Peled Y,¹ Krissi H,¹ Aviram A,² Goldchmit C.¹

¹Obstetrics and Gynecology, Helen Schneider Hospital for Women, Rabin Medical Center, Petach-Tikva, IL, Israel; ²Lis Maternity and Women's Hospital, Sourasky Medical Center, Tel-Aviv, IL, Israel

A 32 years old nulligravida presented to the ER three days after embryo transfer with lower abdominal pain. She had no history severe abdominal pain feets or abdominal surgery.

She underwent IVF treatments due to unexplained infertility, and oocytes were retrieved from both ovaries.

On admission, her abdomen was tender, with no peritoneal signs. Pelvic examination revealed minimal tenderness over the left adnexa.

On sonogram, normal sized and normal appearing ovaries were demonstrated in the cul-de-sac. Doppler study was also normal. On the left, a significant hydrosalpinx was noted.

Due to the combination of symptoms and sonographic findings in a young patient, laparoscopy was performed.

On laparoscopy, a previously auto-amputated right adnexa was noticed with blood supply arising from an omental pedicle slightly in torsion. The left ovary is attached to left fallopian tube with significant hydrosalpinx. On both sides, neither the utero-ovarian nor the infundibulopelvic ligaments were seen.

324 Video Session 6 - Basic Science/Research/Education (2:15 PM - 3:15 PM)

3:08 PM – GROUP B

Laparoscopic Management of Ureteral Endometriosis



Onibokun O, Ajao M, Einarsson J. The Brigham and Women's Hospital, Boston, Massachusetts

Video on the laparoscopic management of ureteral endometriosis and repair of ureteral transection.

39 year old G0 with pelvic pain and a long history of endometriosis with bowel involvement including prior history of bowel resection via laparotomy and 4 other surgeries for stage IV endometriosis.

During her surgery she was found to have extensive pelvic adhesive disease with a very large nodule involving the rectosigmoid and right ureter.

Patient underwent lysis of adhesions, bilateral ureterolysis, excision of ureteral endometriosis, repair of ureter laparoscopically, laparoscopic total hysterectomy, left salpingectomy and ovarian cystectomy, cystoscopy and low anterior resection. Partial transection of her right ureter in the setting of constriction from endometriosis was repaired laparoscopically with the use of 2 interrupted sutures with 2-0 monocryl after a ureteral stent was placed. Patient was doing well at her 4- week post operative visit. Her right ureteral stent was removed.

325 Video Session 7 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

3:25 PM – GROUP A

Laparoscopic Resection of Cornual Heterotopic Pregnancy After In Vitro Fertilization and Embryo Transfer



Lee JW, Choi JS, Bae J, Lee WM, Eom JM. Obstetrics and Gynecology, Hanyang University College of Medicine, Seoul, Republic of Korea

A 32-year-old Korean woman who has undergone IVF-ET to conceive and had two embryos transferred was referred to my department for lower abdominal pain.

Ultrasonogram showed a heterotopic pregnancy with live intrauterine gestation and left cornual gestation. Laparoscopic surgery was performed at 7 weeks' gestation on March 29th, 2016. There was hemoperitoneum of about five hundred milliliters with no active bleeding. A partially-ruptured left cornual ectopic pregnancy was found. We performed a wedge resection of the left cornual ectopic pregnancy and left salpingectomy with the Harmonic scalpel. We ensured that there was no remnant conceptual tissue left on the resected site. The uterine defect was repaired with a 2-0 vicryl suture using an intracorporeal interrupted suture technique. There were no intra- and postoperative complications. The patient has received antenatal care after the operation without any problems so far.

326 Video Session 7 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

3:32 PM – GROUP A

Laparoscopic Rectal Resection in Second Trimester Pregnancy



Bansal AA, Parikh HP, Ugran SM, Puntambekar SP, Chitale MC. Galaxy Care Laparoscopy Institute, Pune, Maharashtra, India

This video is a demonstration of laparoscopic anterior resection for rectal cancer in 26 weeks pregnant lady. This is the first case to be reported in literature. The main challenges in this case were approach to the area, handling and retraction of the gravid uterus, monitoring for fetal well being, normotensive anaesthesia, intra-abdominal CO₂ pressure, firing of the stapler with adequate distal resection margin. Under modified Lloyd Davis position, all ports were placed in upper abdomen in inverted U position. The tenia coli of sigmoid colon and left sided ovarian ligament were hitched to left iliac fossa thereby creating access to the pelvis. Intraoperative time 110 mins, blood loss 100 cc and lymph nodes retrieved 32. Laparoscopic Anterior resection in pregnancy can be considered as an option in the management of cases of rectal cancer in late 2nd trimester.

327 Video Session 7 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

3:39 PM – GROUP A

Ovarian Endometrioma Cystectomy with Low Pressure (7 mmHg) MicroLaparoscopy (3 mm)



Sroussi J, Fazel A, Mezzadri M, Benifla J-L. Gynecology and Obstetrics, Lariboisière, Paris, France

A 28-year-old nulligravida woman complained about pelvic pain and intense dysmenorrhea since two years. Ultrasound revealed an 8-centimeter right ovarian mass, which had the characteristics of an endometrioma. MicroLaparoscopy was performed with 3-millimeter instruments and low pressure pneumoperitoneum (7 mmHg). Pelvic exploration confirmed the right ovarian endometrioma. First, total adhesiolysis of the pelvic area was performed. Ovarian cystectomy was achieved, without the need to increase the pressure. Major advantage of low pressure is decrease of shoulder postoperative pain. The patient had no complication, and was discharged the same day following surgery. She was totally asymptomatic three months after surgery.

328 Video Session 7 - Laparoscopic Surgeries (3:25 PM - 5:05 PM)

3:46 PM – GROUP A

Surgical Management of a Cesarean Scar Ectopic Pregnancy (CSP)



Kondrup JD,¹ Sylvester B,¹ Branning ML,¹ Katz M.² ¹Minimally Invasive Surgery, Lourdes Hospital, Binghamton, New York; ²Upstate Medical Center, Syracuse, New York

Cesarean section scar ectopic pregnancy (CSP) is a rare event occurring in about 1/1800 - 1/2216 pregnancies. It is one of the rarest types of ectopic pregnancies but the incidence is increasing due to the increasing cesarean section rate. This can be a life threatening emergency and rapid accurate diagnosis and intervention are necessary.

Many treatment options exist including singular or combination therapy. These include ultrasound guided evacuation, surgical resection, uterine artery embolization, hysterectomy, MTX therapy either IM, Intra-gestational sac or a combination.


This video demonstrates just one surgical technique in managing a CSP in a woman wishing to preserve her fertility. I am so pleased with this video

because it demonstrates multiple surgical techniques and also shows how resilient the uterus is especially after occlusion of the uterine vessels.

329 Video Session 7 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

3:57 PM – GROUP B

Laparoscopic Approach to Cornual Ectopic Pregnancy


Detrick JM,¹ Jan A,² Campian EC.² ¹Ob/Gyn, WVU  CrossMark
Medicine, Martinsburg, West Virginia; ²Ob/Gyn, MedStar Franklin Square
Medical Center, Baltimore, Maryland

Laparoscopy is a reasonable and safe option to successfully manage a cornual ectopic pregnancy in a hemodynamically stable patient. Cornual ectopic pregnancy can be a challenging diagnosis that comes with a greater risk for hemorrhage and increased mortality. In most cases this can be managed medically if the diagnosis is made early and there are no contraindications to medical management. In this case however, the patient had been non-compliant and presented in severe pain. It is important for an experienced laparoscopic operator to be prepared to minimize bleeding, keeping the operative field clear and to safely deal with potential complications. It is also important to keep in mind preservation of future fertility by using minimally invasive surgical techniques.

330 Video Session 7 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:04 PM – GROUP B

How to Avoid Open Repair - Management of Urinary Tract Injuries During Laparoscopic Surgeries

Andou M, Kannno K, Shirane A, Yanai S, Nakajima S. *Gynecology*,
Kurashiki Medical Center; Kurashiki-shi, Okayama-ken, Japan  CrossMark

We describe laparoscopic minimally invasive methods of intraoperative and post-operative management of urinary tract injuries.

From January 2005 to December 2015 4644 patients underwent total laparoscopic hysterectomy (TLH) for benign pathology. In 14 patients, intraoperative ureteral injuries occurred. Two TLH cases of inadvertent urinary tract injury are presented.

All cases were operated laparoscopically. The first case required end-to-end anastomosis of the ureter. The second case needed ureteroneocystostomy with a psoas hitch.


Of the 14 ureteral injury cases, 4 underwent end-to-end anastomosis and 10 underwent ureteroneocystostomy. No blood transfusion or leakage or stenosis of the ureter occurred.

In complex surgery, injury is a common complication and urinary tract injury is one of the most common complications. Our approach allows for a minimally invasive injury repair.

331 Video Session 7 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:11 PM – GROUP B

Laparoscopic Transabdominal Cervico-Isthmic Cerclage (TCIC) at Gestational Age 12 Weeks

Choe YS, Choi JS, Hoh JK, Bae J, Lee WM, Eom JM. *Obstetrics and Gynecology*, Hanyang University College of Medicine, Seoul, Republic of Korea  CrossMark

A 32-year-old Korean woman who has undergone cervical conization 2 times due to the presence of CIS of the cervix was referred to my department. We performed laparoscopic TCIC at 11 weeks gestation on March, 2016. Branches of the uterine artery and vein were identified so that the cardinal ligament can be pierced from anterior to posterior in an avascular area on the median side of the uterine vessels. The bladder was pushed down from the cervix. The level of the internal cervical os was identified at the junction of the cervix and the isthmus of the uterine body. A 5mm Mersilene tape was passed into the posterior side of the cervix, medial to the uterosacral ligaments. Five

knots were made in the tape at the anterior side of the uterus, resulting in a loop around the cervix above the insertion of the uterosacral ligament.

332 Video Session 7 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:18 PM – GROUP B

Combined Medical and Surgical Approach to Symptomatic Fibroids with Fertility Preservation


Yam J, Mehra N. *Obstetrics and Gynecology*, University of British Columbia, Vancouver, British Columbia, Canada  CrossMark

This video demonstrates a combined medical and surgical approach to management of significant bulk symptoms from uterine fibroids, in the context of future fertility preservation. The technique optimizes the benefits of both treatments while minimizing the risks and disadvantages. Initial therapy with Ulipristal acetate provides pre-operative reduction in fibroid volume with the added benefit of controlling abnormal uterine bleeding. Subsequent myomectomy with removal of dominant subserosal (Type 6 or 7) fibroids allows for timely relief of bulk symptoms. Intramural (Type 3 – 5) fibroids are not resected given the higher surgical risk as well as potential risks to future fertility and pregnancy. Post-operatively, repeat courses of Ulipristal acetate access the long-term benefits of medical therapy for continued fibroid volume reduction and symptom control for fibroids left in situ. We present two cases where this approach was used and demonstrate the outcomes.

333 Video Session 7 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:29 PM – GROUP C

A Rare Case of Intravenous Leiomyomatosis

Vilasagar S, Carrillo JF. *Minimally Invasive Gynecologic Surgery & Chronic Pelvic Pain*, University of Rochester, Rochester, New York  CrossMark


Intravenous leiomyomatosis is a rare benign smooth muscle neoplasm occurring in reproductive age women. While primarily found in the uterus, it can spread to distant vessels. This video illustrates intravenous leiomyomatosis seen during total laparoscopic hysterectomy in a patient with uterine myomas and heavy menstrual bleeding. The surgery highlights careful technique to expose and develop the left uterine pedicle, which is in close proximity to the enlarged mass of multiple serpentine vessels associated with intravenous leiomyomatosis. It's relationship with the colpotomizer is fundamental to avoid ureteral injury.

This patient's diagnosis of intravenous leiomyomatosis was found on pathology. Abdomen/pelvis/chest CT revealed left internal and external iliac venous focal filling defects. Hysterectomy with resection of the intravascular mass is required in most cases, and surveillance with imaging is prudent to evaluate for recurrence. Medications that decrease estrogen levels can improve symptoms. This patient's condition remains stable with hormonal suppression.

334 Video Session 7 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:36 PM – GROUP C

Laparoscopy in Pregnancy: The Minimalist's Approach

Mourad J, Henderson S. *Minimally Invasive Gynecologic Surgery*, Banner University Medical Center - Phoenix, Phoenix, Arizona  CrossMark

The objective of this video is to demonstrate a simple and safe minimally invasive technique for resection of an adnexal mass in pregnancy. We present a case of a 28 year old G2P1001 at 32 weeks gestation who presented with severe abdominal pain and a large, right ovarian mass suspicious for a torsed teratoma. Her surgical planning and laparoscopic management are described.

A 3 port laparoscopic salpingo-oophorectomy is demonstrated in an efficient, safe and reproducible manner. Abdominal entry via Palmers point, the use of

a 30 degree laparoscope and the use of two accessory ports for identification of anatomic landmarks, mobilization of tissue, adhesiolysis, desiccation of vascular pedicles and contained extraction of the specimen is demonstrated. The procedure took 55 minutes, estimated blood loss was 20cc, there were no complications and the patient was discharged home the day after surgery.

335 Video Session 7 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:43 PM – GROUP C

A Guide to Single Site Laparoscopic Hysterectomy

Lian X,¹ Wagner J.² ¹Obstetrics, Gynecology, and Reproductive Medicine, Stony Brook Medicine, Stony Brook, New York; ²Obstetrics and Gynecology, Huntington Hospital, Huntington, New York



Single site surgery is another step forward in the field of minimally invasive surgery. This video demonstrates the techniques adapted from multi-port laparoscopy to perform a laparo-endoscopic single site (LESS) total hysterectomy via a small umbilical incision. The video also highlights the use and placement of non-articulating instruments as well as the direction of extra-abdominal hand movements to successfully perform the surgery safely and efficiently.

336 Video Session 7 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:50 PM – GROUP C

Port Location and Approaching Strategy for Expected Intra-Abdominal Adhesion Due to Previous Surgery

Shiki Y. Obstetrics and Gynecology, Osaka Rosai Hospital, Sakai, Osaka, Japan



Previous surgery is the major risk factor of conversion from laparoscopic surgery to laparotomy.

Two adhesion cases successfully completed under laparoscope are presented in this video. First case is ovarian tumor and has a history of colon cancer and Palmer's point entry was the choice. Additional two ports from left abdominal wall were needed to complete operation. Second case is cervical cancer and has 3 times of previous cesarean section. Uterus was attached to the anterior abdominal wall and omentum was adhered behind port site of umbilicus. Additional 4 ports and observation from various ports were needed to complete operation.

Palmer's point entry is recommended in case periumbilical scar is identified. Port arrangement is planned according to the location of intra-abdominal adhesion. Every port can be considered as a camera port by using 5mm scope. Cosmetic approach is feasible by using needle clamp in case additional port is needed.

414 Video Session 7 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:57 PM – GROUP C

Cerclage Sacrohysteropexy

Rosenblatt PL. Division of Urogynecology and Reconstructive Pelvic Surgery, Mount Auburn Hospital, Cambridge, Massachusetts



Uterine prolapse is a prevalent condition among women, and is often associated with anterior and posterior wall defects. Providing isolated support to the cervix may effectively treat many women with advanced prolapse. Cerclage sacrohysteropexy is a novel procedure that not only simplifies the procedure by eliminating most endoscopic suturing and knot tying, but may also reduce OR time without compromising efficacy. Cerclage sacrohysteropexy leverages the extensive clinical experience with cerclage used in the treatment of incompetent cervix. The procedure combines standard laparoscopic dissection for sacrocolpopexy with a vaginally placed strip of mesh, using a Shirodkar cerclage technique. The ends of the mesh strip and inserted through the cul-de-sac and laparoscopically sutured to the anterior ligament of the sacrum and the peritoneum is closed over the mesh. Cerclage sacrohysteropexy may be a viable option for providing apical support while reducing technical challenges associated with endoscopic suturing and knot tying.

337 Video Session 8 - Robotics
(3:25 PM - 5:05 PM)

3:25 PM – GROUP A

Techniques to Perform Robot-Assisted Total Laparoscopic Hysterectomy without a Uterine Manipulator in a Case of Severe Cervical Stenosis

Srinivasan S,¹ Singhal P,¹ Misra S,² Mclean VE,² Wadhwa R.³

¹Department of Minimally Invasive Gynecology, Millard Fillmore Suburban Hospital, Williamsville, New York; ²Department of Obstetrics and Gynecology, State University of New York at Buffalo, Buffalo, New York; ³Department of Obstetrics and Gynecology, Sisters of Charity Hospital, Buffalo, New York



Uterine manipulator of different types and sizes are routinely used in minimally invasive hysterectomies. In cases of severe cervical stenosis utilizing the manipulator is occasionally not possible due to the inability to pass it through the cervical os. Such cases prove to be a challenge even to expert surgeons due to loss of surgical planes, absence of uterine traction and proximity of the ureters to the uterine artery. We present a case of a Robotic hysterectomy performed on a 64 year old female with severe cervical stenosis and dense bladder adhesions. Our objective is to demonstrate the techniques in navigating such challenging cases and to emphasize the importance and utilization of the third robotic arm.

338 Video Session 8 - Robotics
(3:25 PM - 5:05 PM)

3:32 PM – GROUP A

Robotic Application and Special Surgical Techniques to Removal Multiple Fibroids in a Culturally Challenging Context

To V, Lam A, Hengrasmee P. Centre for Advanced Reproductive Endosurgery, Sydney, NSW, Australia



This video demonstrates the surgical principles of myomectomy and highlights special tips and tricks to perform an effective and safe robotic or laparoscopic myomectomy. We illustrate this through the case of a young 27-year-old woman who presented with torrential vaginal bleeding and a hemoglobin of 63. As she was a virgin, the robotic platform allowed us to perform multiple myomectomy without a uterine manipulator. Robotic-assisted laparoscopy may offer special advantages to the patient and surgeon, compared to traditional laparoscopy.

339 Video Session 8 - Robotics
(3:25 PM - 5:05 PM)

3:39 PM – GROUP A

How Not to Convert? Robotic Lysis of Adhesions After Laparotomy

Fornalik H, Fornalik N. Gynecologic Oncology, Goshen Center for Cancer Care, Goshen, Indiana



Lysis of adhesions can be difficult with usage of minimally invasive approach. We present our technique of robotic lysis of adhesions. In our experience of 1200 complex robotic surgeries, only 3 surgeries were converted to laparotomy due to adhesions. No patients were disqualified from robotic surgery based on history of laparotomy or peritonitis. In our approach, if patient is at a significantly higher risk of complications with laparotomy, surgery can be performed robotically in almost all cases, despite adhesions.

We demonstrate a technique of lateral docking of the robot as well as docking from pelvis, for lysis of adhesions after laparotomy. Tutorial is enhanced with diagrams and pictures. Recommended equipment is listed. Elements of surgical techniques are discussed.

340 Video Session 8 - Robotics
(3:25 PM - 5:05 PM)

3:46 PM – GROUP A

Robotic-Assisted Laparoscopic Cervico-Uterine Reanastomosis



Garza EC,¹ Haverland R,² Hibner M.¹ ¹Division of Gynecologic Surgery and Pelvic Pain, St. Joseph's Hospital and Medical Center, Phoenix, Arizona; ²Division of Obstetrics and Gynecology, Phoenix Integrated Residency in Obstetrics and Gynecology, Phoenix, Arizona

Patient is a 25 yo female with history of mullerian anomaly and didelphic uterus. She was initially seen by our office in 2008, when she presented with pelvic pain. She underwent a right hemi-hysterectomy for a noncommunicating uterine horn at that time with resolution of her pain postoperatively. In 2015, she was diagnosed with ovarian torsion and underwent an emergent laparoscopic right salpingo-oophorectomy. Within a year after this surgery, she became amenorrheic and had return of her pelvic pain. As part of her evaluation, she underwent a diagnostic laparoscopy and was found to have a sheer disconnect between the cervix and the uterus, and was referred back to our office for further management and possible surgical reanastomosis.

Using hysteroscopy, intra-operative/intra-abdominal ultrasound and innovative surgical technique, we were able to successfully create a cervico-uterine reanastomosis. Postoperatively, the patient had return of regular menstrual cycle and resolution of her pain.

341 Video Session 8 - Robotics
(3:25 PM - 5:05 PM)

3:57 PM – GROUP B

Radical Trachelectomy by Robot



Yisong C, Keqin H. *Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China*

The aim of this video is to present the radical trachelectomy. The whole operation time were 4 hours, the volume of bleeding was 50ml. There were no complications peri and postoperation. It is very flexible to do what we want. Thus the technology of robot is desire to a wild application.

342 Video Session 8 - Robotics
(3:25 PM - 5:05 PM)

4:04 PM – GROUP B

Robotic Total Laparoscopic Hysterectomy and Salpingectomy



Pursell N, ElSahwi K. *Obstetrics and Gynecology, Jersey Shore University Medical Center, Neptune, New Jersey*

Introduction: Robotic surgery is being incorporated into many residency programs, and there is a need for formal training. Our program has developed a curriculum that includes online modules, simulated bedside assisting, robotic simulation exercises, and a reference video. The goal is to ensure competency on the da Vinci system prior to patient exposure.

Objectives: To demonstrate the steps of a robotic total laparoscopic hysterectomy for gynecologic residents and students, to outline relative anatomy as it relates to performing a hysterectomy, and to provide an educational resource for residents training in robotic surgery.

Discussion: While the general gynecologist may not perform an extensive retroperitoneal dissection during a benign hysterectomy, it is important for residents and students to understand the relationship of structures within the retroperitoneal space. An understanding of these anatomic relationships will allow the surgeon to avoid injury.

343 Video Session 8 - Robotics
(3:25 PM - 5:05 PM)

4:11 PM – GROUP B

Single-Incision Robotic Hysterectomy with Anterior Cervical Fibroid



Kliethermes C, Guan X. *Baylor College of Medicine, Houston, Texas*

This is a video presentation of a robotic-assisted single-site hysterectomy for a patient with an 8cm anterior cervical fibroid. The patient is a 43 year old gravida 0 with abnormal uterine bleeding, desiring definitive treatment through a minimally invasive route. We show the techniques and tricks used to perform the challenging surgery through a single incision. Emphasis is placed on the steps undertaken to avoid injury, maintain visualization, utilize the assistant port, and ultimately successfully complete the surgery.

344 Video Session 8 - Robotics
(3:25 PM - 5:05 PM)

4:18 PM – GROUP B

Exploring the Benefits of Robotic Surgery in the Management of Severe Endometriosis



To V, Lam A, Hengrasmee P. *Centre for Advanced Reproductive Endosurgery, Sydney, New South Wales, Australia*

Robotic surgery has not been shown to be superior to laparoscopy in benign gynaecology conditions, including in endometriosis, which is often an underdiagnosed or a misdiagnosed condition. Our patient is a 41 yo G3P2 woman with persistent pelvic pain despite vaginal hysterectomy, who presented with an endometrioma and severe endometriosis. This video demonstrates the application of robotic surgery in severe and deep infiltrating endometriosis, in terms of its specific characteristics and benefits. There may be many additional advantages to using robotic-assisted laparoscopy in the surgical management of severe endometriosis, compared to traditional laparoscopy.

345 Video Session 8 - Robotics
(3:25 PM - 5:05 PM)

4:29 PM – GROUP C

Robotic-Assisted Reconstruction of Cervix and Vagina by SIS Graft and Fusion of Hemi-Uterus



Zhang Y, Chen YS, Hua KQ. *Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China*

This is a 12-year-old girl from China complained of severe periodic pain of abdomen for 2 months.

Physical examination showed Tanner IV breasts and Tanner V pubic hair. With neither vagina nor cervix, a hypertension mass of 7cm diameter in the pelvic. Serum concentrations of E2, T, PRL, FSH, LH, TSH are within normal ranges. MRI showed unilateral uterus in the right side, with the lower segment expanded to 7cm, no sign of vagina nor cervix and absent of the right kidney. She was diagnosed with congenital vaginal and cervical atresia (U4C4V4). The diagnosis was made according to clinical characteristics, physical examination, MRI and classified by ESHRE/ESGE system. We performed robotic-assisted reconstruction of cervix and vagina by SIS (small intestinal submucosa, SIS) graft (Cook Medical, USA) and fusion of hemi-uterus. She recovered well after operation without any complication. After that, her menstruation is normal and without any pain.

346 Video Session 8 - Robotics
(3:25 PM - 5:05 PM)

4:36 PM – GROUP C


Robotically Assisted Laparoscopic Removal of Imbedded IUD Fragment from Lower Uterine Segment 

Veselis CA, Wishall K, Richard S, Green M. Obstetrics and Gynecology, Drexel University College of Medicine, Hahnemann University Hospital, Philadelphia, Pennsylvania

In this video we present our surgical experience managing a lost IUD fragment in the lower uterine segment. Prior to presenting to our practice for evaluation the patient underwent multiple attempts to remove the fragment at an outside facility. These included hysteroscopic, laparoscopic, and image guided modalities. Following the failure of these modalities the patient was told she would have to have a hysterectomy to retrieve the IUD fragment in order to her pelvic pain. In presenting our experience we hope to highlight the success we found using robotically assisted laparoscopy where other minimally invasive modalities failed. Second, was to demonstrate the development of a bladder flap, which greatly assisted in exposure of the lower uterine segment for dissection.

347 Video Session 8 - Robotics
(3:25 PM - 5:05 PM)

4:43 PM – GROUP C

A Challenging Robotic Hysterectomy. Do You Ever Feel Like You Need Another Hand? Maximizing Use of the Third Arm for Optimal Surgical Technique and Exposure 

Foley CE, Huang K. Ob/Gyn, New York University, New York, New York

Patient is a 45 yo G0 with pelvic pressure and symptomatic fibroid uterus, referred for robotic hysterectomy. Preoperative MRI shows enlarged uterus (13.2 x 7.0 x 9.0 cm) with approximately 10 uterine fibroids and a large 11 x 7.7 x 7.0 cm broad ligament fibroid compressing right ovary. During surgery the surgeon maximizes exposure by manipulating the irregular uterus with the locked third arm. This technique minimizes the need for assistants and allows the surgeon to tackle even the toughest anatomy. Throughout the case she dissects the fibroids individually using the third arm to retract and displace tissue to achieve traction and countertraction. Despite irregular anatomy the surgeon is able to complete the hysterectomy safely and efficiently.

348 Video Session 8 - Robotics
(3:25 PM - 5:05 PM)

4:50 PM – GROUP C

A Minimalist's Approach to Minimally Invasive Surgery: 3 Port R-TLH 

Mourad J, Henderson S, Aguirre A. Minimally Invasive Gyn Surgery, Banner University Medical Center - Phoenix, Phoenix, Arizona

We present a simplified, minimalist approach to robotic hysterectomy. Reducing the number of unnecessary tools, ports, and cords on the field this allows us to simplify preparation and performance of the procedure. A reduced port hysterectomy can be performed with most gyn pathology.

This allows for fewer ports, less disposable instruments and as consequence, less pain, less hospital stay, and not surprisingly less cost. We utilize three 8mm ports to accommodate for the 8mm da Vinci camera, 1 bipolar grasper and 1 pair of scissors. We often do not open a suction/irrigator as most of the time, there is simply no need for it. The vaginal cuff is closed with 0 Vicryl CT-2 cut to 12 inches using interrupted or figure of eight stitches. Alternatively, a barbed suture can also be used. This technique allows for greater surgeon control of the procedure, in a safe, reproducible and cost efficient manner.

THURSDAY, NOVEMBER 17, 2016

349 Video Session 9 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:00 AM – GROUP A

Novel Technique for Hemostasis at Laparoscopic Myomectomy: Penrose Tourniquet Application 

Phillips KR, Dunne C, Mehra N. Obstetrics and Gynecology, University of British Columbia, Vancouver, British Columbia, Canada

At abdominal myomectomy, use of a tourniquet has been shown to reduce blood loss and need for blood transfusion. However, there are only a few described techniques of using a tourniquet at laparoscopic myomectomy.


In this video, we demonstrate the development process of placing a Penrose drain around a large, 28-week size pedunculated fibroid, at laparoscopic myomectomy.

Optimal tension was achieved by overlapping the ends of the Penrose drain and holding them in place with a 10 mm right angle dissecting forceps, introduced through a suprapubic port. The technique is quick and easy to perform, while providing excellent hemostasis.

Future application of the technique to remove intramural myomas is possible, by placement of a laparoscopic Penrose drain tourniquet at the uterine isthmus to occlude the uterine vessels.

350 Video Session 9 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:07 AM – GROUP A

Herlyn-Werner-Wunderlich Syndrome (HWWS) – Management with Combined Laparoscopic and Vaginal Approach and Second Look Laparoscopy 

Bohlin T, Putz A, Skrøppa S, Rakovan M. Kvinnekliviken, Sykehuset i Vestfold, Tønsberg (Vestfold Hospital Trust), Tønsberg, Norway

Herlyn-Werner-Wunderlich Syndrome (HWWS) is a rare congenital malformation, and often misdiagnosed. This video presents a case of HWWS in a 19 year old female presenting with abdominal pain and a large palpable mass. Investigations including MRI diagnosed uterus didelphys, obstructed hemivagina and unilateral renal agenesis, suggestive of HWWS. Diagnostic laparoscopy was performed combined with excision of the occluded hemivagina and evacuation of hematocolpos. Laparoscopy confirmed HWWS complicated by endometriosis. Second look laparoscopy was performed after 3 months to evaluate and treat remaining endometriosis.

Genital malformations are an important differential diagnosis in young females presenting with abdominal masses and pain, and genitourinary MRI is the golden standard of investigation. HWWS is a rare syndrome, and therefore prone to misdiagnosis and mistreatment. Delay of treatment can cause pain, endometriosis and infertility. This video illustrates the anatomical overview and treatment for patients suffering from Herlyn Werner Wunderlich syndrome.

351 Video Session 9 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:14 AM – GROUP A

Laparoscopic Excision of Cesarean Scar Ectopic

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Infertility, Department of Ob/Gyn, IVF Michigan, Flint, Michigan

Introduction: Although rare an unrecognized cesarean scar ectopic can lead to uterine rupture, profuse bleeding and hemoperitoneum requiring emergent management. Our objective is to demonstrate a laparoscopic approach to managing an ectopic pregnancy in a cesarean section scar.

Case Description: A 34 year old G2P1 with a prior PLTCS had a pelvic ultrasound at 6 weeks, which showed a gestational sac in the cervical canal - cervical ectopic pregnancy versus an incomplete abortion. She underwent TVUS-guided intra-gestational local injection of methotrexate. Her Beta hCG later plateaued. Repeat TVUS showed gestational sac with a yolk sac located in the CS scar. She underwent Laparoscopic excision of ectopic pregnancy. Her Beta hCG levels were normal after 1 month. The pathology confirmed ectopic gestational tissue

Conclusion: Operative laparoscopy is an effective alternative to laparotomy for the management of an ectopic pregnancy in a cesarean section scar, following failed medical management.

352 Video Session 9 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:21 AM – GROUP A

**The New Operation Technique for Uterine Prolapse:
Vaginally Assisted Laparoscopic Sacrohysteropexy
(VALSH)**



Samverdi I, Ceyhan M. Ob/Gyn, Zeynep Kamil Maternity and Children's Health Training and Research Hospital, Istanbul, Turkey

The aim of this video is to describe the new surgical technique and report the safety and feasibility of vaginally-assisted laparoscopic sacrohysteropexy (VALSH).

The operation had three sections; laparoscopic- vaginal-laparoscopic parts. Firstly, three laparoscopic ports were placed; 10 mm umbilical, two/three 5 mm ports. The peritoneum over the sacral promontory was incised. Then, mesh was placed on that incision without fixing. Secondly, vaginal part of the surgery was performed. A semicircular vaginal incision was done at the posterior cervicovaginal junction. An ovarian grasper was placed to tunnel with blunt dissection from vaginal part toward the promontory. At the same time, the direction of the instrument was visualized by laparoscopy. After holding the mesh, it was pulled downward within the tunnel with the aid of an instrument.

Finally, The uterus was pushed up to obtain required uterine suspension and mesh was tacked to the anterior longitudinal ligament at the sacral promontory.

353 Video Session 9 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:32 AM – GROUP B

Laparoscopic Gonadectomy in Swyer's Syndrome

Malhotra N. Obstetrics and Gynecology, All India Institute of Medical Sciences, New Delhi, Delhi, India



Swyer's syndrome is an uncommon cause of XY female, with an incidence of 1:8000. They present typically at puberty with poor breast development, normal stature and primary amenorrhoea. The dysgenetic testis fails to produce Anti-Mullerian hormone and androgens. Failure of regression of

Mullerian structures results in female internal and external genitalia. In contrast to Androgen insensitivity syndrome they are hypergonadotropic and are at a higher risk of gonadal malignancy (15=35%). Of the 8 cases of Sweyer's reported by our case series, 6 underwent laparoscopic gonadectomy. Dysgerinoma was the commonest germ cell tumor in our series. It is therefore important to remove these testes as soon as the diagnosis is confirmed. Laparoscopy remains the route of choice and is safe procedure.

354 Video Session 9 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:39 AM – GROUP B

**Laparoscopic Management of Heterotopic Cornual
Pregnancy with Preservation of the Intrauterine
Gestation**



Sendag F, Peker N, Aydeniz EG, Gundogan S. Obstetrics and Gynecology, Acibadem University, Istanbul, Turkey

Objectives: To present a modified technique for laparoscopic cornual resection for the surgical treatment of heterotopic cornual pregnancy

Methods: We performed a modified technique for laparoscopic cornual resection in which the uterine corn was tightened with the noose and sutured respectively to reduce the bleeding at the patient with heterotopic pregnancy. A permanent 0- monofilament suture was passed deep into the myometrium and tightened to achieve better hemostasis. Then the base of the cornual pregnancy was cut with harmonic scissors and the uterine wound was repaired with continuous suture to reduce the risk of the uterine rupture during the ongoing pregnancy.

Conclusion: This new modified technique seems to be safe with better hemostasis.

Keywords: Laparoscopy, heterotopic, pregnancy.

355 Video Session 9 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:46 AM – GROUP B

Surgical Management of Accessory Tubal Ostium

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Introduction: Accessory ostium of the fallopian tube is a rare condition. This occurs when an ectopic portion of the fimbria is observed at a distance from the normal fimbriated end. It has been reported to cause infertility and can be linked with endometriosis.

Objective: To demonstrate the surgical management of accessory tubal ostium.

Conclusion: Accessory tubal ostium can be easily and effectively managed surgically with a distal linear salpingostomy and fimbrioplasty using the flowering technique of Bruhat.

356 Video Session 9 - Laparoscopic Surgeries
(11:00 AM - 12:00 PM)

11:53 AM – GROUP B

**Laparoscopic Removal of True Broad Ligament
Fibroid – Revisiting Bonney's Technique**



Malhotra N. Obstetrics and Gynecology, All India Institute of Medical Sciences, New Delhi, Delhi, India

Broad ligaments can assume large size and pose a risk of injury to the ureters and hemorrhage from uterine artery. However an understanding of the

surgical anatomy of both structures is useful to avoid complications. The uterine artery runs beneath and on inner side of the tumor in true fibroids. The ureters course in the posterior leaf of the ligament and in wards in true fibroids. With only peritoneal coverings in true fibroids an understanding of surgical anatomy makes surgery simple.

357 Video Session 10 - Oncology
(11:00 AM - 12:00 PM)

11:00 AM – GROUP A

Cervical Injection of Methylene Blue for Identification of Sentinel Lymph Nodes in Cervical Cancer



Menderes G, Kim S, Schwab CL, Black JD, Azodi M. Obstetrics, Gynecology, and Reproductive Sciences, Yale University School of Medicine, New Haven, Connecticut

This is a step-by-step illustration of methylene blue injection into cervix for sentinel lymph node identification. The patient was a 34-year-old Hispanic woman who was diagnosed with stage IB1 squamous cell carcinoma of the cervix. She was taken to the OR for robotic-assisted radical hysterectomy and sentinel lymph node dissection. By utilizing the ultra-short injection protocol, 4 ml of methylene blue was injected at 3 and 9 o'clock positions of cervix. Sentinel lymph node dissection was started approximately 20 minutes after the injection. Bilateral pelvic dissection was performed and sentinel lymph nodes were identified at the most common topographic location: Between external and internal iliac vessels. Sentinel lymph node in the para-aortic area was also identified and removed.

The patient had an uneventful postoperative course and was discharged home on postoperative day 1.

358 Video Session 10 - Oncology
(11:00 AM - 12:00 PM)

11:07 AM – GROUP A

Robotic Radical Hysterectomy – Preserving Vaginal Function by Creating a New Vaginal Vault



Andou M, Kannno K, Shirane A, Yanai S, Nakajima S. Gynecology, Kurashiki Medical Center, Kurashiki-shi, Okayama-ken, Japan

We describe robotic surgery which preserves vaginal function in patients who underwent radical hysterectomy for early invasive cervical cancer. The case of a 35 year old with stage 1b1 squamous cell carcinoma of the cervix is presented.

We performed a robotically assisted type III radical hysterectomy and preserved the vaginal depth by creating a new vaginal vault using the bladder and the rectal peritoneum.

The operative time was 3hrs 50mins. To preserve vaginal length created by the surgery, prosthesis was placed for 3 months, until the squamous epithelium covered the new vaginal vault.

This is our first report of a robotic case, but this surgery has been performed laparoscopically in 23 cases with positive feedback from patients, although it is difficult to ascertain the exact amount of vaginal length preserved with this surgery. Robotic surgery can compensate for the drawbacks and difficulty of intracorporeal suturing laparoscopically.

359 Video Session 10 - Oncology
(11:00 AM - 12:00 PM)

11:14 AM – GROUP A

Right Side of Inguinal Lymph Node Excision by Robot



Yisong C, Keqin H. Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China

The aim of this method is to explore the robotic value in vulva carcinoma. This video presented the lymph node excision of inguinal for vulva

carcinoma by robot. The whole time of lymph node excision is 3 h including Installed and preoperative preparation time, the amount of bleeding was 5ml, without operation related complications. The patient accept this operation heal well operation. These technologies have the advantage of less bleeding, wide field of vision, fast recovery postoperative. But, also have the disadvantage such as very expensive and need special technology for operation, and waste a lot of time to install robot and preoperative preparation.

360 Video Session 10 - Oncology
(11:00 AM - 12:00 PM)

11:21 AM – GROUP A

Unexpected Uterine Leiomyosarcoma During Laparoscopic Hysterectomy, Treated 6 Months with Ulipristal Acetate, and Contained Power Morcellation



Istre O,¹ Laursen JB,² ¹Gynecology, Aleris-Hamlet Private Hospital, Copenhagen, Sjælland, Denmark; ²Gynecology, Roskilde University Hosp, Roskilde, Sjælland, Denmark

45-year-old woman with a symptomatic uterine fibroid, 6 months with Ulipristal Acetate, UPA (Esmya) and her symptoms were reduced , 3 month after admitted increased pain. High level of C Reactive Protein) was found,

In December laparoscopic hysterectomy due to the increasing pain and lack of conviction that the medical therapy would be sufficient. Ultrasound showed a 106x 73 mm fibroid with no abnormal blood flow or lacuna of fluid inside, no suspicion of malignancies preoperatively

The weight of the morcellated uterus was 575 gram. Post operative Pet scan showed 4 metastatic process in the lungs

The UPA treatment led to a delay in the diagnosis potentially with a larger or even metastatic tumour as a consequence. This is the first case in the literature where leiomyosarcoma were treated with Ulipristal Acetate and contained morcellation .

361 Video Session 10 - Oncology
(11:00 AM - 12:00 PM)

11:32 AM – GROUP B

Extraperitoneal Lymphadenectomy



O'Hanlan KA. Laparoscopic Institute for Gynecology and Oncology, Portola Valley, California

Indications for laparoscopic comprehensive aortic lymphadenectomy to the renal vessels for gynecologic cancers are validated by experimental, embryological and clinical evidence. The extraperitoneal approach is readily feasible with universally available instruments and safe for women with BMI's up to 40. The extraperitoneal approach yields more nodes in high-BMI women and does not have a learning curve. While it takes 90 minutes to perform, and causes an additional blood loss of 75cc, such comprehensive staging can reveal occult metastases in as many as one third of patients, indicating more aggressive therapy and potentially improving survival probability.

362 Video Session 10 - Oncology
(11:00 AM - 12:00 PM)

11:39 AM – GROUP B

Novel Method to Control Vascular Injury by Surgical Fibrillar at Inferior Vena Cava or Aorta in the Case of Laparoscopic or Robotic Surgery



Lee YS, Lee YH. Kyungpook National University Medical Center, Daegu, Korea

The objective of this video is to demonstrate the techniques about control of massive bleeding at inferior vena cava or aorta without suturing or

laparotomy. To prevent bleeding complication, It needs the exact knowledge of regional anatomy. But vascular injury is occurred, it need the method to control bleeding without early or late complication or laparotomy. At first, to compression at bleeding point by tiny gauze then identify the bleeding point, to try bleeding control by Bipolar cautery. Then it doesn't work, to apply Surgicel Fibrillar and compression. A few minutes later, there are no active bleeding, to apply additional Surgicel Fibrillar again. Application and compression of Surgicel Fibrillar at bleeding site is simple, effective to control vascular injury. If this method is not working it needs suturing of vascular injury. If vascular defect is multiple or large one also needs vascular suturing.

363 Video Session 10 - Oncology (11:00 AM - 12:00 PM)

11:46 AM – GROUP B

Laparoscopic Primary Optimal Debulking Surgery in Advanced Epithelial Ovarian Cancer

Choi JS, Bae J, Jung US, Lee WM, Eom JM, Koh AR. *Obstetrics and Gynaecology, Hanyang University College of Medicine, Seoul, Republic of Korea*

A 50-year-old Korean woman had been experiencing abdominal distension and indigestion for three months. Blood test results showed high level of CA125, and CT scans showed bilateral ovarian tumors, multiple metastatic nodules, and massive ascites. We performed laparoscopic primary debulking surgery on September 22, 2015. Upon laparoscopic exploration, we identified bilateral ovarian mass, omental metastasis, and multiple metastatic lesions on the right diaphragm. Firstly, I performed LAVH with BSO, and CDS mass excision. I performed laparoscopic para-aortic lymphadenectomy up to the left renal vein level after both laparoscopic pelvic lymphadenectomy. We removed the resected omentum and appendix through the opened vaginal vault. After resecting the falciform ligament, I performed laparoscopic diaphragmatic stripping using a harmonic shears. The FIGO stage IIIC was confirmed based on the final histopathological result. She received 6 cycles of taxol-carboplatin chemotherapy and has been healthy since then.

364 Video Session 10 - Oncology (11:00 AM - 12:00 PM)

11:53 AM – GROUP B

Total Laparoscopic Radical Trachelectomy

Misirlioglu S,¹ Turkgeldi E,¹ Arvas M,² Taskiran C.¹
¹Department of Obstetrics and Gynecology, VKF Koc University School of Medicine, Topkapi, Istanbul, Turkey; ²Department of Obstetrics and Gynecology, Istanbul University Cerrahpasa School of Medicine, Istanbul, Turkey

A 30-year-old woman without children was admitted after cold conization having 1.5 cm squamous type cervical cancer, LVSI (-), less than 50% deep stromal invasion. Laparoscopic radical trachelectomy was offered to patient due to age and nulliparity status. First 10-mm trocar in supraumbilical puncture site, two 5-mm trocars in the right and left lower quadrants, and two 5-mm trocars in the right and left upper quadrants at the level of the umbilicus were placed. Systematic bilateral pelvic lymphadenectomy was performed. To achieve an adequate endocervical margin and to avoid thermal injury, the cervical section was performed transvaginally with a cold knife. The specimen was then retrieved, and a segment of the remaining cervix was removed for frozen section analysis. The cervico-vaginal anastomosis was performed transvaginally with a continuous running suture using 2–0 polyglactin (Vicryl®). The aim of this article to describe the steps of trachelectomy.

365 Video Session 11 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:10 PM – GROUP A

Total Laparoscopic Hysterectomy with Bilateral Salpingoophorectomy with Sutures Using Posterior Approach for Uterine Artery Ligation

Marwah V, Dasgupta S, Mittal P. *Division of Minimally Invasive Gynaecology, Max Superspecialty Hospital, New Delhi, Delhi, India*

Total Laparoscopic Hysterectomy with bilateral Salpingoophorectomy was carried out in a case of Adenomyosis uteri with myoma uteri with a history of previous two LSCS. Because of the advanced urinary bladder adhesions over the anterior surface of uterus, anterior access to the uterine vessels was not possible, hence a posterior approach was utilised for dissection and skeletonization of uterine vessels along with dissection of the urinary bladder. This became possible with the dissection being carried out on the cervical cup of Marwah's Uterine manipulator. The whole procedure was completed with sutures only along with blunt and sharp dissection and without the use of any energy source. Thus making the procedure more safe, ecofriendly and economical for the patient.

366 Video Session 11 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:17 PM – GROUP A

Vaginal Tissue Extraction Made Easy

Kliethermes C, Guan X. *Baylor College of Medicine, Houston, Texas*

The goal of this video is to demonstrate a new technique to improve vaginal tissue extraction. This video demonstrates the step by step process in obtaining and removing a specimen vaginally using an endocatch bag, Alexis ring, and hand stapler. This unique process avoids the need to extend any abdominal incision, which eliminates the need for fascial closure, thus risk of future hernia formation. We use the colpotomy (or one could create a colpotomy), which provides an extended incision ideal for extraction.

This video demonstrates the ease in obtaining the large specimen using the laparoscopic endocatch bag. Followed by a simple method in setting up the Alexis ring/bag combination. The combination provides vaginal wall protection and retraction in the contained system. As the bag is rolled further on the ring, the specimen is pulled into the vagina, simplifying the morcellation process.

367 Video Session 11 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:24 PM – GROUP A

Laparoscopic Ovarian Transposition to the Kidney Poles for Ovarian Preservation

Liu BJ,¹ Kruger P,² Covens A,¹ Kroft J.¹ *Obstetrics and Gynecology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada; ²Urogynaecology, University of Cape Town, Observatory, Cape Town, South Africa*

Laparoscopic ovarian transposition is a technique used to preserve fertility and prevent early menopause in patients who will receive pelvic radiation therapy. Although many locations for oophoropexy have been described in the literature, the most common location is the paracolic gutter. We demonstrate a technique that maximizes the distance of the ovary to the radiation field by dissecting the ovarian pedicle to the level of the lower kidney pole, where the ovarian artery originates from the aorta. The key principles of this technique include ensuring that the uterers have been identified, mobilizing the ascending and descending colon, ensuring that there is no ovarian torsion, and placing surgical clips on redundant

peritoneum surrounding the ovary, so that they can be identified radiologically to aid the radiation oncologists.

368 Video Session 11 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:31 PM – GROUP A

Stepwise Approach for Laparoscopic Lateral Ovarian Transposition

Moawad NS,¹ Santamaria E.² ¹Section of Minimally Invasive Gynecologic Surgery, Department of Obstetrics & Gynecology, University of Florida College of Medicine, Gainesville, Florida; ²University of Florida College of Medicine, Gainesville, Florida

Pelvic radiation can be deleterious to ovarian function in reproductive-age women with pelvic malignancies. Several options need to be considered prior to pelvic radiation to minimize the risk of premature ovarian failure and potentially preserve fertility. These include oocyte retrieval, ovarian tissue cryopreservation and ovarian transposition.

Ovarian transposition is under-utilized and infrequently offered to these young women as an option prior to pelvic radiation. This is likely due to lack of awareness of the procedure and the limited availability of advanced laparoscopic surgeons who are familiar with and willing to offer the procedure. In this educational video, we illustrate a methodical stepwise approach to laparoscopic lateral ovarian transposition, with practical tips to ensure an easily-reproducible, safe and effective procedure.

Ovarian transposition should be offered to all reproductive-age women prior to undergoing pelvic irradiation.

A different version of this video was presented at the ASRM in 10/2015.

369 Video Session 11 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:42 PM – GROUP B

Rokitansky-Küster-Hauser Syndrome: Surgical Treatment – Hospital Italiano de Buenos Aires

Uzal M, Saadi J, Arias M, Solchaga T, Viglierchio V, Gogorza S. Hospital Italiano de Buenos Aires, Buenos Aires, Capital Federal, Argentina

21 year old patient, presenting with primary amenorrhea and a short vagina. Clinical features: intermittent abdominal pain

Physical examination: normal secondary sexual characteres and a short vagina (0,7 inches)

Complementary studies:

- karyotype 46 XX
- normal endocrine profile
- MRI: hypoplasia of the cervical isthmus and agenesis of the proximal 2/3 of vagina

- diagnostic laparoscopy: normal size uterus and adnexae, presence of menstrual blood in cavity

Over a period of 8 months she was treated with vaginal tutors achieving a total vaginal length of 2,75 inches.

Reconstructive surgery with laparoscopic and vaginal approach was then suggested.

370 Video Session 11 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:49 PM – GROUP B

Modified Dual Colored Bag: An Ideal Technique for Contained Morcellation of Any Uterus and Fibroids

Trivedi SP, Trivedi PH, Gandhi AC, Patil S. Total Health Care Pvt. Ltd., Mumbai, Maharashtra, India

In light of the recent **controversy pertaining morcellation** of fibroids and uterus in case of accidental undiagnosed leiomyosarcoma(ULMS), we propose a safe and effective technique for contained in bag morcellation. We have done series of **75 cases** with this technique, with no complications pertaining the technique without adding much to operative time. The video shows 3 different cases done with this technique including multiple fibroids, average sized uterus and a large uterus after Laparoscopic Myomectomy and Hysterectomy. Video highlights the methodology of introduction of this multiport dual coloured bag, opening it inside, loading the specimen and morcellation. **The modified dual colour with 3 size options**, helps negate minor mishaps like twisting of the bag by better orientation of the bag. The technique is highly effective, safe with no evidence of leak and spillage, making this the most viable option in the current controversy driven issue of morcellation.

371 Video Session 11 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

12:56 PM – GROUP B

Treating the Parametrium Endometriosis Safely

Crispi C Jr, Crispi C. Crispi Institute of Minimally Invasive Surgery, Rio de Janeiro, Brazil

We present one of our surgeries to treat deep endometriosis, we always perform it using our surgical systematization.

This is a 30 years old woman with classical symptoms: dysmenorrhea, dyspareunia, chronic pelvic pain and infertility. Due to her age we proposed the cytorreductive surgery, and after spontaneous conception.

Our systematization is to achieve the endometriotic nodule after freeing all noble structures, such as ureter and hypogastric plexus (ureterolysis and nerve-sparing).

In this case we can see a huge parametrium nodule adhered in the pelvic floor muscles.

And the video show us that our systematization can reduce the risk of major complications.

372 Video Session 11 - Laparoscopic Surgeries (12:10 PM - 1:10 PM)

1:03 PM – GROUP B

Selective Temporary Uterine Artery Ligation (STUAL)

Warty NR,¹ Parikh KP,² Sawant RM,¹ Warty NR,¹ Puntambekar SP.² ¹Sanjeevani Endoscopy Centre, Mumbai, Maharashtra, India; ²Galaxy Care Laparoscopy Institute, Pune, Maharashtra, India

Laparoscopic Myomectomy is a coming of age procedure for Gynaecological Laparoscopic Surgeons. Excessive haemorrhage from myoma bed limits its application in large, multiple or anatomically challenging myomas. Profuse bleeding from the bed resulting in haematoma formation, injudicious use of diathermy and hurried inappropriate closure are the reasons for future dehiscence. In this video depending on the position of the myomas we demonstrate temporary clipping of the artery at different sites - origin, anterior and posterior cervicoisthmic junction and lateral pelvic wall. The sutures or clips so placed were removed after approximation of the myoma bed. Haemostasis was confirmed allowing sufficient time to restart uterine artery flow to perfuse the operative site. With this technique the uterine artery circulation is established, the blood loss is minimised and the loss of blood contained in the large specimen is avoided as the open venous channel drain the fibroid.

373 Video Session 12 - Hysteroscopy, Endometrial Ablation and Sterilization
(12:10 PM - 1:10 PM)

12:10 PM – GROUP A

Video Cookbook: Office Lysis of Adhesions for Patients with Asherman's 

Salazar CA, Isaacson K. *Minimally Invasive Gynecologic Surgery*, Newton Wellesley Hospital, Newton, Massachusetts

Hysteroscopic adhesiolysis is very effective in restoring normal menstruation and is the current accepted management of Asherman's syndrome. It is important to obtain a transvaginal ultrasound in order to evaluate the endocervical canal and endometrial lining of the uterine cavity. Treatment consists of sharp hysteroscopic adhesiolysis using the 5mm rigid hysteroscope with 12 degree viewing angle and blunt tipped scissors, with the primary objective to restore the normal volume of the cavity. There is no consensus on postoperative management of patients with Asherman's Syndrome. Following the procedure, we recommend a 25 day course of 4 mg of oral estradiol along with 5 days of medroxyprogesterone acetate for withdrawal. We return patients back to the office within 2 weeks of their initial procedure in order to bluntly break the newly forming synechiae before they become dense. They return for another hysteroscopy 4 weeks later to assess the cavity.

374 Video Session 12 - Hysteroscopy, Endometrial Ablation and Sterilization
(12:10 PM - 1:10 PM)

12:17 PM – GROUP A


Gaining Entry Through the Severely Stenotic Cervical Canal 

Wagner CA, Gimpelson RJ. *Minimally Invasive Gynecology*, Mercy Hospital St. Louis, St. Louis, Missouri

Severe cervical stenosis is an uncommon, but challenging condition which must be overcome in order to gain entry into the uterine cavity. By following an organized approach, it can be accomplished with minimal risk of uterine perforation.

375 Video Session 12 - Hysteroscopy, Endometrial Ablation and Sterilization
(12:10 PM - 1:10 PM)

12:24 PM – GROUP A

Hysteroscopic Excision of Uterine Adenomyosis 

Zhang J, Zhang D. *Department of Obstetrics and Gynecology, International Peace Maternity and Child Health Hospital, School of Medicine, Shanghai Jiaotong University, Shanghai, China*

We introduce a novel hysteroscopic surgery which is successfully used to treat adenomyosis. From January 2013 to February 2016, we have treated 51 cases and got satisfying outcomes. The amount of intraoperative bleeding was 22.2 ± 16.5 ml and the operation time was 33.1 ± 25.1 minutes. No intraoperative and postoperative complications occurred. All patients were evaluated by visual analogue scale score of menorrhagia and dysmenorrhea preoperation and during 24 months postoperative follow-up. The results shown that they all obtained remission of menorrhagia ($P < 0.001$) and dysmenorrhea ($P = 0.001$). Therefore, hysteroscopic surgery is an effective, safe and conservative treatment for women diagnosed with adenomyosis who do not have desire of fertility.

376 Video Session 12 - Hysteroscopy, Endometrial Ablation and Sterilization
(12:10 PM - 1:10 PM)

12:31 PM – GROUP A


Hysteroscopic View of Endometrial Hyperplasia and Carcinoma and Its Validation by Histopathology 

Kar S. *Obstetrics & Gynaecology, KAR Clinic & Hospital Pvt. Ltd., Bhubaneswar, Odisha, India*

Endometrial cancer is the fifth most common cancer in women. Its incidence is rising globally. Rising BMI is possibly the main driver. Most women present with abnormal uterine bleeding or post-menopausal bleeding. The aim of this video is to acquaint the viewer with the various hysteroscopic views and characteristics of endometrial hyperplasia and carcinoma. Hysteroscopic clips of simple hyperplasia, complex hyperplasia, hyperplasia with atypia, carcinoma in situ and adenocarcinoma of endometrium have been presented. Cerebroid appearance of endometrial mass, with abnormal vascularisation is the most accurate hysteroscopic feature for the diagnosis of endometrial cancer.

377 Video Session 12 - Hysteroscopy, Endometrial Ablation and Sterilization
(12:10 PM - 1:10 PM)

12:42 PM – GROUP B

Office Hysteroscopic Morcellation of a Type 2 Submucous Fibroid Using the Bigatti Shaver 

Jones AS, Penketh R. *Department of Women's Health, University Hospital of Wales, Cardiff, Wales, United Kingdom*

A 44 year old para 4 woman presenting with a 6 month history of menorrhagia and dysmenorrhoea was found to have a 2cm submucous fibroid. Using the STEPW classification, this fibroid scored 5, suggesting the possible need for a 2 step procedure or use of GnRH analogues prior to myomectomy. Using the Bigatti shaver, the fibroid was successfully resected by morcellation as a one stage procedure without use of GnRH analogues and under cervical local anaesthetic infiltration in the gynaecology outpatient clinic. The Bigatti shaver was advantageous due to minimal cervical dilatation, use of saline irrigation reducing the risk of fluid overload and no high frequency current used thus reducing the risk of perforation. Clear views of the surgical field due to continuous outflow channel removal of tissue facilitated a quick procedure and the reusable equipment reduced the financial costs.

378 Video Session 12 - Hysteroscopy, Endometrial Ablation and Sterilization
(12:10 PM - 1:10 PM)

12:49 PM – GROUP B

Effect of Proper Uterine Distention on the Detection Rate of Subtle Uterine Anomalies During Hysteroscopy 

Abuzeid O,¹ Raju R,¹ Hebert J III,¹ Abuzeid M.² ¹Department of Ob/Gyn, Hurley Medical Center/ Michigan State University College of Human Medicine, Flint, Michigan; ²Division of Reproductive Endocrinology and Infertility, Ob/Gyn, Hurley Medical Center/ Michigan State University College of Human Medicine, IVF Michigan, Flint, Michigan

Introduction: The prevalence of subtle uterine anomalies, such as, arcuate uterine anomalies and subtle uterine septum in infertile patients, varies in

the literature (0.5% - 26%). During office hysteroscopy gynecologist usually avoid marked distention of the endometrial cavity to decrease patient discomfort. The combination of this and the small size of the hysteroscope used in office hysteroscopy may lead to less detection rate of such anomalies.

Objective: To illustrate the effect of adequate uterine distention on the detection rate of arcuate uterine anomaly and incomplete uterine septum.

Conclusion: This video illustrates that without proper uterine distention subtle uterine anomalies, such as, arcuate uterus and incomplete uterine septum, can be easily missed.

Failure to detect such anomalies on hysteroscopy may have contributed to the over diagnosis of unexplained infertility, unexplained recurrent pregnancy loss, and unexplained bad obstetric history.

379 Video Session 12 - Hysteroscopy, Endometrial Ablation and Sterilization
(12:10 PM - 1:10 PM)

12:56 PM – GROUP B


Suture Technique for Lysis of Lower Uterine Segment Synechia After Complete Septoplasty 

Henderson SD, Roy KH. Obstetrics & Gynecology, Division of Minimally Invasive Gynecology, Banner - University Medical Center Phoenix, Phoenix, Arizona

The complete septate uterus is a congenital malformation resulting from incomplete resorption of the paramesonephric ducts during embryogenesis. It is associated with infertility, recurrent pregnancy loss and obstetrical complications. Hysteroscopic resection of the septum results in improved fertility outcomes. The purpose of this video is to illustrate our surgical technique for advanced hysteroscopic resection of intrauterine septum using a continuous flow operative hysteroscope with a 5 French operating channel and to demonstrate a low cost, energy free, suture technique for lysis of lower uterine segment synechia after complete septoplasty.

380 Video Session 12 - Hysteroscopy, Endometrial Ablation and Sterilization
(12:10 PM - 1:10 PM)

1:03 PM – GROUP B

Breakdown of Loop Electrode of Bipolar TCR Due to Unexpected Contact with Return-Electrode in Fibroid Resection 

Shiki Y, Okuno K. Obstetrics and Gynecology, Osaka Rosai Hospital, Sakai, Osaka, Japan


Bipolar TCR is preferred to monopolar TCR in relatively low risk of water intoxication and in free of risk of obturator nerve stimulation that may lead to uterine perforation.

During the course of fibroid resection by using bipolar TCR, a spark with explosion was observed, and loop electrode was broken two times. Afterward, operation was accomplished by using monopolar TCR. Post operational course was uneventful and patient discharged on 2nd day after the operation. Our hypothesis is that direct contact of loop electrode and return-electrode results in electric discharge by making a short circuit. Experiment reproduced this phenomenon, and showed an inherent risk of the approximated structure of bipolar TCR.

Bipolar TCR for fibroid resection is not recommended in this setting, and minute care should be taken so as not to contact loop electrode with return-electrode in operating bipolar TCR.

381 Video Session 13 - New Instrumentation or Technology
(2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Inbox Contained Morcellation: The New Era in MIGS 
Gorak Savard E, Laberge PY. Gynecology, Centre Hospitalier Universitaire de Québec, Québec City, Québec, Canada


Recent developments surrounding laparoscopic morcellation resulted in a strong call for a change in morcellation practices. The concept of morcellation inside of a containment bag was introduced three years ago to minimize the serious consequence of dissemination of occult malignancy: leiomyosarcoma.

This technique enables us, surgeons, to offer our patients a minimally invasive treatment option for uterine fibroids and also reduces the risk of spillage or spread of occult malignancy.

The objectives of the video are to demonstrate a technique of power morcellation in a bag during total laparoscopic hysterectomy and also to show some tips and tricks that will facilitate the procedure and be time saving. Hospital protocol for video recording with patient permission has been followed.

382 Video Session 13 - New Instrumentation or Technology
(2:15 PM - 3:15 PM)

2:22 PM – GROUP A

The Fenix® System for Fecal Incontinence: An Overview and Surgical Demonstration 
DeStephano C, Schmelkin L, Chen A, Pettit P. Department of Gynecologic Surgery, Mayo Clinic, Jacksonville, Florida


Introduction: This video presents the surgical management of fecal incontinence using the Fenix® System.

Clinical Issue and Solution: Use of the Fenix® Continence Restoration System recently received United States Food and Drug Administration approval under a humanitarian device exemption and can be used with institutional review board approval for patients who have failed previous medical and surgical management of fecal incontinence. This video shows the steps to placement of the device.

Conclusion: The Fenix® Continence Restoration Systems were placed successfully in two patients. We are currently monitoring the patients for post-operative effectiveness.

383 Video Session 13 - New Instrumentation or Technology
(2:15 PM - 3:15 PM)

2:29 PM – GROUP A

Laparoscopic Baseball Suture 
Rodriguez-Triana VM, Parker WH. Obstetrics & Gynecology, UCLA, Los Angeles, California

The baseball-style suture is commonly used to re- approximate the serosal layer of the uterus during an abdominal myomectomy. However, it is less commonly used during laparoscopic myomectomy.

In this video we demonstrate an efficient and safe way of running a continuous baseball- style suture during a laparoscopic myomectomy. Our technique employs the simple manipulation of the suture to rotate the needle for forward and backward throws.

To achieve this type of running, baseball- style suture, we routinely use the StrataFix Knotless Tissue Control Device. This suture closes the hysterotomy securely, and the baseball-style buries the suture barbs so that they do not attach to the bowel or omentum.

We believe that our technique can be easily learned and utilized by surgeons, and that by doing so they can continue to offer safe, and efficient methods of closing the hysterotomy during laparoscopic myomectomy.

384 Video Session 13 - New Instrumentation or Technology (2:15 PM - 3:15 PM)

2:36 PM – GROUP A

Subcutaneous Emphysema in Laparoscopic Surgery

Uhm S,¹ Gujral H,² Wright KN,² Wright V.² ¹Gynecology, Boston Medical Center, Boston, Massachusetts; ²Gynecology, Burlington, Massachusetts



Subcutaneous emphysema is a relatively common sequela of laparoscopic surgery that is often underreported in the literature. With advances in MIGS surgery, it is important to identify changes in surgical techniques that may increase the incidence of subcutaneous emphysema to minimize postoperative morbidity. This video reviews a case report of subcutaneous emphysema recognized on post-operative day seven after robotic-assisted modified radical hysterectomy for recurrent Stage IIIC Fallopian tube carcinoma. The objective of this video is to indicate the incidence of subcutaneous emphysema, pathophysiology of CO₂ insufflation, and the risk factors and clinical findings associated with subcutaneous emphysema. It is important to recognize these risk factors and possible causes in association with laparoscopic or robotic surgery and prompt compensatory mechanisms are necessary to avoid clinical sequelae.

385 Video Session 13 - New Instrumentation or Technology (2:15 PM - 3:15 PM)

2:47 PM – GROUP B

Extreme Gynaecology 3 – Tips & Tricks: 3 Steps Total Laparoscopic Hysterectomy Technique for Extremely Large Uterus (34 Weeks Size) with Titiz Utero-Vaginal Manipulator

Titiz H. *Even Women's Health, Brisbane, QLD, Australia*



There is no clear guideline about surgical technique of total laparoscopic hysterectomy for extremely large uterus. An extremely large uterus can obstruct the pelvis and it can be difficult to access the pelvic space around the utero-vaginal junction. Therefore, using a uterine manipulator that can manipulate extremely large uterus and expose utero-vaginal junction is important.

Case: A 44 years old, G0P0, patient with the history of extremely large uterus (34 weeks' size) decided to have definitive surgical treatment after 5 years' follow-up. All pre-operative investigations did not suggest any malignancy. Patient had a total laparoscopic hysterectomy and knife morcellation through mini laparotomy after discussing the treatment options and possibility of sarcoma. Uterus weight was 2320 grams. Histopathology showed benign fibroids. Patient did not have any postoperative complications. This video demonstrates the surgical technique, tips and tricks on how to do total laparoscopic hysterectomy for an extremely large uterus.

386 Video Session 13 - New Instrumentation or Technology (2:15 PM - 3:15 PM)

2:54 PM – GROUP B

Introduction of a Novel Retrieval Containment System for Minimally Invasive Surgery



DeBrakeleer DJ,¹ Huang RY.² ¹Obstetrics and Gynecology, Einstein Medical Center Montgomery, East Norriton, Pennsylvania; ²New Product Development, Boehringer Laboratories, LLC, Phoenixville, Pennsylvania

This video demonstrates a novel specimen retrieval and containment system and the step by step instructions for its use. The containment bag provides a larger opening with a self opening flexible nitinol wire for easier placement of the specimen into the bag. The nitinol wire has a blue marker for orientation. The smaller nitinol wire allows for the placement of the bag through a trocar or smaller incision. The bag is made of a clear sturdy 600 pli polyurethane that withstands 11,000 psi and resists tearing. The two versions of the bag have a volume capacity of 2100 ml and 5500 ml. Once externalized, a separate flexible ring can be placed in channels in the opening of the bag to create a self retaining retractor that provides exposure, as well as helps hold the specimen up to the incision for easier and safer removal.

387 Video Session 13 - New Instrumentation or Technology (2:15 PM - 3:15 PM)

3:01 PM – GROUP B

A Novel Technique of Laparoscopic Surgery Knot in Extremely Narrow Space: A Case of Adnexectomy in a 31 Gestational Week Pregnancy



Wang S, Feng Z, Yin L. *Obstetrics and Gynecology, Peking University First Hospital, Beijing, China*

The purpose of the video is to demonstrate an innovative technique of laparoscopic knot in narrow operative space. Our case was a 28-year-old female at 31 gestational week who was presented with progressing right lower abdominal pain and was suspected of right adnexal torsion and infarction. We performed laparoscopic adnexectomy successfully and the patient got discharged without any complication. No related adverse maternal or fetal outcome occurred in her later delivery. The challenge of this case was an enlarged uterus of 31 gestational week which left us little operative space to ensure ligature. Therefore, we made a little improvement build on the traditional knot guide, and named it as "self-trap" technique.

388 Video Session 13 - New Instrumentation or Technology (2:15 PM - 3:15 PM)

3:08 PM – GROUP B

Total Laparoscopic Hysterectomy Using Marwah's Uterine Manipulator with Bipolar Colpotomizer



Marwah V, Dasgupta S, Mittal P. *Division of Minimally Invasive Gynaecology, Max Superspeciality Hospital, New Delhi, Delhi, India*

To make colpotomy during total laparoscopic hysterectomy safer, easier and more patient as well as surgeon friendly, a bipolar colpotomizer was used along with Marwah's uterine manipulator.

This consists of three units: Marwah's uterine manipulator, copper cup insulated from outside with metalon, a spatula. The insulated copper cup and the spatula are connected with wires which fit into the bipolar electro-surgical unit. When colpotomy is carried out the spatula glides over the insulated copper cup with the tissue in between thus forming a bipolar unit which then cauterizes and cut. This being a bipolar unit the lateral thermal spread is minimal. It is safer than using monopolar cautery, easier and better than harmonic to use as it does not slip, neither damages the cervical cup and the smoke generated is also less.

389 Video Session 14 - Endometriosis
(2:15 PM - 3:15 PM)

2:15 PM – GROUP A

Deeply Infiltrating Endometriosis: As Seen on MRI

Lum D,¹ Co S,² Chang S,² Ghanouni P.² ¹Obstetrics and Gynecology, Stanford University, Stanford, California
²Radiology, Stanford University, Stanford, California



Magnetic resonance imaging can be a complementary adjunct in the evaluation of complex cases of endometriosis. Deeply infiltrating endometriosis, defined as endometrial implants that infiltrate adjacent structures at a depth of more than 5mm from the peritoneal surface, can usually be detected on MRI. Examples of deeply infiltrating endometriosis include the obliterated posterior cul-de-sac, urinary tract and bowel endometriosis. Preoperative detection of deeply infiltrating endometriosis with MRI can be helpful in preoperative counseling and surgical planning when an extensive dissection is necessary. Limitations of MRI include the varied sensitivity, access to an MR system, cost, and need for high resolution images. However, in select cases, as shown in this video, MRI can aid the gynecologic surgeon in preoperative counseling and planning.

390 Video Session 14 - Endometriosis
(2:15 PM - 3:15 PM)

2:22 PM – GROUP A

Endometriotic Nodule of the Cardinal Ligament

Elkattah R, Mohling S, Furr R. Division of Minimally Invasive Gynecology, University of Tennessee Chattanooga - College of Medicine, Chattanooga, Tennessee



Our patient is a 35 year-old Caucasian woman presenting with transfusion-dependent anemia secondary to abnormal and heavy uterine bleeding. On evaluation, she was found to have a 17cm enlarged and fibroid uterus. A robotic-assisted hysterectomy with bilateral salpingectomy was planned. During surgery the patient was found to have deeply infiltrative endometriosis within the left cardinal ligament leading to left-sided hydronephrosis. We describe the associated challenges of this dissection and provide a list of tips that aid in complete excision of such deeply infiltrative endometriotic nodules.

391 Video Session 14 - Endometriosis
(2:15 PM - 3:15 PM)

2:29 PM – GROUP A

MRI Correlation to Intra-Operative Findings of Deeply Infiltrative Endometriosis

Ito TE,¹ Taffel M,² Moawad GN.¹ ¹Obstetrics and Gynecology, George Washington University, Washington, District of Columbia; ²Radiology, George Washington University, Washington, District of Columbia



Our institution is a major referral center for endometriosis related pelvic pain. Clinical history and physical exam are telling of the presence of disease but may not be comprehensive in detecting the full extent of the endometriosis. Deeply infiltrative endometriosis is a severely debilitating disease in reproductive age women where endometriotic tissue may extend into the retroperitoneal space or the wall of pelvic organs greater than a depth of at least 5 mm. Using MRI can be extremely useful in cases where deeply infiltrative endometriosis is suspected. This allows for pre-operative Mapping of lesions and helps the surgeon plan complete surgical excision and to guide them to the best approach. The goals of this video include a review of our institutions MRI endometriosis protocol, review characteristics on MRI suggestive of deeply infiltrative endometriosis, and to show intra-operative correlation to findings depicted on MRI.

393 Video Session 14 - Endometriosis
(2:15 PM - 3:15 PM)

2:36 PM – GROUP A

Techniques for Exploration and Ablation of Endometriosis in Upper Abdomen and Thorax

Kim S,¹ Lutz M,¹ Raymond D,² Falcone T.¹ ¹Obstetrics and Gynecology, Cleveland Clinic, Cleveland, Ohio; ²Thoracic and Cardiovascular Surgery, Cleveland Clinic, Cleveland, Ohio



Extrapelvic endometriosis, while mostly medically managed, when selected well, can be treated surgically. Here we describe the techniques of laparoscopic exploration of the abdomen and thorax for diaphragmatic endometriosis and destruction with ablation. The upper abdomen is explored employing four 5-mm ports in the umbilicus and subcostally. The falciform ligament is dissected down to mobilize the liver. The right hemi-diaphragm is ablated using J-Plasma device. The thorax is explored through video-assisted thoracoscopic surgery with three ports in a triangulated fashion. Inferior pulmonary ligament and the pleural hemi-diaphragm are explored and endometriosis lesions are identified and ablated while carefully avoiding the nearby critical anatomical structures. Good selection of cases with detailed discussion with the patients regarding treatment options is essential in the success of surgical approach to diaphragmatic endometriosis management. One should consider employing VATS for thorough evaluation and removal of extensive diaphragmatic endometriosis.

394 Video Session 14 - Endometriosis
(2:15 PM - 3:15 PM)

2:47 PM – GROUP B

Excision of a Large Adnexal Endometriotic Nodule Masquerading as Salpingitis Isthmica Nodosa

Cook A, Hopton E. Vital Health Institute, Los Gatos, California




This video presents a case of deeply invasive paratubal endometriosis proximal to the uterine fundus, masquerading as salpingitis isthmica nodosa (SIN). The differential diagnosis of endometriosis is demonstrated and surgery is performed to fully resect the invasive disease while preserving tubal function. This case demonstrates the importance of complete resection of paraisthmic endometriosis for the resolution of pelvic pain and the feasibility of preserving tubal function, thereby conserving the patient's fertility.

395 Video Session 14 - Endometriosis
(2:15 PM - 3:15 PM)

2:54 PM – GROUP B

Bladder Dome Endometriosis Excision

Eliason R, Elkattah R, Furr R. *Obstetrics and Gynecology, Division of Minimally Invasive Gynecology, University of Tennessee College of Medicine, Chattanooga, Chattanooga, Tennessee* 

Our patient is a 30 year old presenting with a history of cyclic monthly hematuria. Cystoscopy was performed and revealed a large nodule emanating from the bladder dome. A biopsy of this nodule showed endometriosis.


The patient has a history of endometriosis and hysterectomy for refractory dysmenorrhea with ovarian preservation. She desired definitive therapy for the endometriosis. She therefore underwent bilateral salpingo-oophorectomy and excision of the full-thickness bladder endometriosis followed by bladder repair.

In this video, we describe the excision of the bladder endometriotic nodule and the subsequent bladder repair. Safe surgical techniques are discussed.

396 Video Session 14 - Endometriosis
(2:15 PM - 3:15 PM)

3:01 PM – GROUP B

Robotically Assisted Resection of Pericardial Endometriosis


Wasson MN, Magrina J, Magtibay P. *Gynecologic Surgery, Mayo Clinic Arizona, Phoenix, Arizona* 

Endometriosis involving the pericardium is a rare phenomenon that occurs in 2.1% of patients with diaphragmatic endometriosis. It is recommended that when diaphragmatic endometriosis is encountered, full thickness resection be completed. Prior reports have described techniques for treatment of endometriosis involving the diaphragm and pericardium via laparotomy. This video describes techniques to treat endometriosis involving the pericardium via a minimally invasive approach in two patients. It is demonstrated that robotically assisted resection of endometriosis involving the pericardium is a safe and feasible option.

397 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

3:25 PM – GROUP A

Laparoscopic Gonadal Resection of Swyer Syndrome

Keum JH, Choi JS, Eom JM, Bae J, Jung US, Lee WM, Koh AR. *Obstetrics and Gynecology, Hanyang University College of Medicine, Seoul, Republic of Korea* 


A 20-year-old Korean woman was referred from another hospital for having primary amenorrhea. She had scant pubic and axillary hair, and minimal breast development. She had been informed that her karyotype is 46, XY. She underwent laparoscopic gonadectomy. A small uterus was found in its usual position. Instead of normal gonads, there were two streak gonads lying alongside both pelvic walls. Bilateral gonadal vessels were identified lateral to the external iliac arteries. Distal ends of the vessels entered the internal inguinal rings. A peritoneal incision was made along the gonadal vessel, and further dissection in the direction of the inguinal area revealed the internal inguinal ring. The tubular cystic mass was found and removed. The contralateral streak gonad was excised using the same method. The final histopathological evaluation confirmed that the bilateral gonad was composed of mixed gonadal

dysgenesis. After the surgery, the patient was started on estrogen replacement therapy.

398 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

3:32 PM – GROUP A

Management of Perforated IUDs

Rindos NB,¹ Lance A,¹ Hamad G,² Davis A.¹ *¹Obstetrics and Gynecology, Magee-Womens Hospital, Pittsburgh, Pennsylvania; ²Surgery, Magee-Womens Hospital, Pittsburgh, Pennsylvania* 


Insertion of IUDs is a common office procedure that can be complicated by uterine perforation. While perforation is rare, the diagnosis and surgical management of these complications is an essential skill for practicing gynecologists. In this video we review the frequency of this occurrence, diagnostic options and present two patients with perforations that we managed at our hospital.

The first patient underwent surgery using a novel single port technique in which a 5mm grasper and 5mm laparoscope are passed through the Hasson trocar side by side for the retrieval. In the second surgery, the IUD is embedded within the falciform ligament, requiring careful dissection to allow an intact retrieval without causing injury.

399 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

3:39 PM – GROUP A

An Approach to Uterosacral Ligament Suspension


Jan AG, Pasic R. *Ob/Gyn, University of Louisville, Louisville, Kentucky* 

In this surgical video we demonstrate an approach to Uterosacral ligament suspension performed at our institution. The pelvic anatomy related to pelvic organ prolapse is highlighted and the different levels of support are discussed. Though a midline defect is fully corrected by an anterior repair, we demonstrate how a cystocele can be minimized when apical support is normalized. This is to demonstrate the relationship between level I and level II support systems. We also highlight the use of a relaxing incision in the peritoneum to further lateralize the ureter and hopefully decrease ureteral injury.

400 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

3:46 PM – GROUP A

The Critical View of Safety in Total Laparoscopic Hysterectomy

Winner B, Biest S. *Obstetrics and Gynecology, Washington University in St. Louis, St. Louis, Missouri* 

While the benefits of laparoscopic hysterectomy have been well established, there may be an increased risk of urinary tract injury. In laparoscopic cholecystectomy, the critical view of safety has been described to reduce the risk of bile duct injury. In this video, we describe a new “critical view of safety in total laparoscopic hysterectomy,” as a method to reduce the risk of ureteral injury during ligation of the uterine artery. To obtain the critical view of safety, a uterine manipulator with a colpotomy cup should be placed. The critical view of safety is defined as visualization of the cup at 12 o'clock and 6 o'clock, with the ascending uterine artery at either the 3 or 9 o'clock position. After obtaining the critical view of safety, the uterine artery can be coagulated and cut while avoiding injury to the ureter.

401 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

3:57 PM – GROUP B

The Two Port Myomectomy: A New Approach to Laparoscopic Myomectomy



Cooper JA, Hudgens J. *Obstetrics and Gynecology, University of Mississippi Medical Center, Jackson, Mississippi*

The purpose of this video is to present a two port approach to laparoscopic myomectomy. The two port method is a hybrid of the traditional laparoscopic approach and the single site myomectomy. This video will present how our two port myomectomy technique allows the opportunity for port reduction with improved traction for enucleation, improved triangulation for suturing, and improved specimen removal. We will discuss the equipment needed and describe how we perform each step of the myomectomy including: Injection, enucleation, suturing, and specimen removal.

402 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:04 PM – GROUP B

The Anatomical Description of the “Bermuda Triangle” – An Easy Way to Find and Clip the Uterine Arteries



Leal C, Garnica A. *Ob/Gyn, Division of Gynecology Oncology, StarMedica Hospital Universidad de Monterrey, Chihuahua, Mexico*

Hysterectomy is the most common procedure around the world; In the USA around 600,000 procedures are done yearly. Laparoscopic hysterectomy (LH), defined as the laparoscopic ligation of the major vessels supplying the uterus by electro surgery desiccation, suture ligation, or staples was first performed in 1988.

Considerable technical advances in this procedure have occurred during the last few years.

The intention of this video is to show the retroperitoneal anatomy and demonstrate an easy way to find and clip the uterine artery.

The description of the Bermuda’s Triangle is by definition an inverted triangle formed by utero-ovarian ligament, ureter and IP ligament.

Clipping the uterine artery will stop immediately the blood supply to the uterus having the advantages of less bleeding during the procedure with a best recovery, early return to the activities.

403 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:11 PM – GROUP B

Laparoscopic Extraperitoneal Approach for Retroperitoneal Lymph Node Dissection



Puntambekar SP, Puntambekar SS, Panse MP, Telang MA, Parikh HP. *Galaxy Care Laparoscopy Institute, Pune, Maharashtra, India*

This video is a demonstration of stepwise extraperitoneal laparoscopic approach for retroperitoneal lymph node dissection in cases of ovarian, cervical and endometrial cancers done at Galaxy Care Laparoscopic Institute, Pune. The main role of lymph node dissection is staging of the disease and decreasing the risk of recurrence. The video illustrates patient positioning, our technique of creating extraperitoneal space and trocar placements in retroperitoneal space and the meticulous dissection that is required in retroperitoneal space in proximity to the vascular and neurologic structures. The added advantage of this method over transperitoneal approach is retrieval of more number of lymph nodes, decreased intraoperative blood loss, reduced operative time and avoid intra-abdominal complications.

404 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:18 PM – GROUP B

Laparoscopic Resection of Para-Aortic Tumor Recurrence Using Kocher Maneuver Duodenal Mobilization



Falk K, Andikyan V, Kolev V. *Obstetrics, Gynecology and Reproductive Science, Icahn School of Medicine at Mount Sinai, New York, New York*

Background: An 81-year-old woman with uterine papillary serous carcinoma underwent staging procedure followed by chemotherapy and radiotherapy. One year later, surveillance CT showed a mass anterior to the aorta at the level of the renal arteries and immediately adjacent to the duodenum. A follow-up PET-CT confirmed intense hyper-metabolism of the same area. The decision was made to remove the recurrence via a laparoscopic approach.

Surgical Approach: Due to the caudal location of the para-aortic tumor recurrence and the dense adhesions encountered, the tumor was approached using the Kocher Maneuver, entering the retroperitoneal space via the lateral duodenal peritoneum. The Harmonic Scalpel, blunt dissection and careful traction and counter-traction were utilized for tissue manipulation. The mass was dissected from the duodenum and aorta with minimal blood loss.

Discussion: This video demonstrates a strategic entry and dissection technique for laparoscopic resection of para-aortic tumor recurrence, allowing for minimally-invasive debulking in select patients.

405 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:29 PM – GROUP C

Laparoscopic En-Block Removal of Advanced Interstitial Pregnancy



Weins L, Duda J. *Department of Obstetrics, Gynecology and Reproductive Sciences, University of Saskatchewan, Saskatoon, Saskatchewan, Canada*

Interstitial (or “cornual”) ectopic pregnancies comprise only 2 percent of all ectopic pregnancies, however, the mobility and mortality are disproportionately high. Up to 50% present with uterine rupture, and the mortality rate is upwards of two percent. With increasing use of first trimester ultrasound, these are often detected early.

This video reviews the rare case of a 13 week gestation unruptured interstitial ectopic pregnancy. Careful surgical management was planned to facilitate a minimally invasive approach. The pregnancy was laparoscopically removed with a technique similar to laparoscopic myomectomy. Intraoperative blood loss was minimal, and her post-operative course was uncomplicated.

The first objective is to review surgical techniques for hemostasis and tissue plane dissection in the advanced interstitial pregnancy. The second objective is to demonstrate a novel technique of excising the interstitial pregnancy en-block, using surgical techniques such as the “myometrial handle”.

406 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:36 PM – GROUP C

Uterine-Sparing Laparoscopic Resection of Accessory Cavitated Uterine Masses (ACUM)



Peters A, Rindos NB, Guido RS, Donnellan NM. *Obstetrics, Gynecology and Reproductive Sciences, Magee-Womens Hospital, Pittsburgh, Pennsylvania*

Accessory cavitated uterine masses (ACUM) represent a rare uterine entity observed in premenopausal women suffering from dysmenorrhea and recurrent pelvic pain. The diagnosis is made when an isolated extra-cavitated uterine mass is resected from an otherwise normal appearing uterus with unremarkable endometrial lumen and adnexal structures. Pathological examination of the surgical specimen must confirm the absence of adenomyosis and that the accessory cavity is filled with chocolate-brown fluid and lined by endometrial epithelium with glands

and stroma. Although the origin of ACUM is currently unknown, the most common location is a 2-4 cm lateral uterine wall mass at the level of the insertion of the round ligament. Hence it has been hypothesized that gubernaculum dysfunction may be responsible for duplication or persistence of paramesonephric tissue leading to ACUM formation as a new Müllerian anomaly. Here, we present two cases that illustrate the laparoscopic ACUM resection in women desiring uterine-sparing surgery.

407 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:43 PM – GROUP C

Resident Guide to Successful Interrupted Vaginal Cuff Closure



Pollard RR, Petrikovets A. Department of Obstetrics and Gynecology, MetroHealth Medical Center, Cleveland, Ohio

This video entitled A Resident Guide to Successful Interrupted Vaginal Cuff Closure was made to help as a teaching tool for residents and others learning advanced laparoscopy.

The video will detail a methodical, reproducible technique for laparoscopic suturing of the vaginal cuff. However, this technique is also applicable to all tissue types.

The video will show both a surgeon view demonstrating the hand movements and position as well as the traditional laparoscopic view.

408 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:50 PM – GROUP C

Application of Simple TLH Surgical Technique to the Large Uterus



Bortoletto P, Hariton E, Brown DN. Obstetrics and Gynecology, Massachusetts General Hospital, Boston, Massachusetts

While the laparoscopic hysterectomy for the normal sized uterus is well described and routine, the large fibroid uterus poses a unique set of challenges for minimally invasive surgeons. We demonstrate first a simple TLH and then discuss the case of 54 yo post-menopausal women with a symptomatic 16 - 18 week sizes fibroid uterus. We systematically review how application of simplified TLH techniques can be applied to the large uterus. We will highlight optimization of port placement, camera selection, review important anatomical landmarks, and discuss surgical safety zones. This video will serve as a useful teaching tool for both novice and advanced surgeons alike, reviewing basic skills and enhancing their application.

299 Video Session 15 - Laparoscopic Surgeries
(3:25 PM - 5:05 PM)

4:57 PM – GROUP C

Multidisciplinary Laparoscopic Management of Severe Ureteral Endometriosis with Atrophic Kidney



Po LK,¹ Kung R,¹ Satkunasivam R,² Nam R,² Ashamalla S,³ Kroft J.¹
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Ureteral endometriosis is extremely rare and delayed or failure of diagnosis can lead to renal atrophy and silent loss of the kidney. We present a case of severe left ureteral endometriosis with atrophic kidney and rectosigmoid colon involvement due to delay in recognizing early ureteral endometriosis. She presented with flank and pelvic pain. CT and MRI imaging showed a left ureteric obstruction due to an endometriotic nodule with severe hydronephrosis, chronic atrophic kidney and luminal narrowing of the rectosigmoid colon. She underwent a laparoscopic resection of endometriosis, ureterolysis, low anterior rectosigmoid resection with primary anastomosis and

nephroureterectomy. Postoperatively, symptoms have improved. Patients with ureteral endometriosis usually present with non-specific symptoms. Early recognition and management is recommended to prevent silent kidney loss. Multidisciplinary collaboration is required for surgical resection of endometriosis for symptomatic relief and to potentially prevent further loss of renal function.

409 Video Session 16 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(3:25 PM - 5:05 PM)

3:25 PM – GROUP A

Subtotal Hysterectomy and Cervicosacropepy



Rodriguez VO, Garcia LF, Silva JE, Garza E. Ginecologia y Obstetricia, Tec de Monterrey, Monterrey, Nuevo León, Mexico

Uterovaginal prolapse is a common problem with population prevalence of 30-50%. Hysterectomy alone will often fail to prevent pelvic floor disorder that leads to uterovaginal prolapse. Laparoscopic approach has the benefits of improved visualization of pelvic anatomy, shorter hospitalization, less postoperative pain and quicker return to normal activities.

The sacrocervicopexy is a procedure similar to sacrocolpopexy but with better outcomes. These results are to be determined by several factors such as the following: post hysterectomy, vaginal cuff may have a reduced vascular supply secondary to scar tissue, which compromise the healing process and lead to erosion. Sacrocervicopexy does not require an anterior extension; less mesh is used compared with sacrocolpopexy. Unfortunately, the probability of erosion increases with the kind of mesh that is employed, although the erosion is seen less when a polypropylene mesh is used rather than another.

410 Video Session 16 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(3:25 PM - 5:05 PM)

3:32 PM – GROUP A

Laparoscopic Vesicovaginal Fistula Repair: An Extravesical Approach



Miklos JR, Moore RD. Department of Urogynecology, Miklos & Moore Urogynecology, Alpharetta, Georgia

Introduction: The O'Connor bladder bivalving technique remains the traditional abdominal approach to vesicovaginal fistula repair whether performed via a laparotomy or using a laparoscope.

Methods: This video depicts a laparoscopic transperitoneal extravesical approach without invasive bladder bivalving or an omental flap. We first described this laparoscopic extravesical fistula repair technique in 1999. We discuss the step by step procedure adhering to the four basic principles of a VVF repair including: hemostasis, mobilization, a tension free and multi layer closure.

Results: We have used this technique on more than 60 non irradiated primary and recurrent vesicovaginal fistula patients with a 98% cure rate.

Conclusion: This alternative technique can be performed efficiently and successfully on patients with primary and recurrent fistula s via laparoscopic approach and in this case the actual repair takes less than 60 minutes.

411 Video Session 16 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(3:25 PM - 5:05 PM)

3:39 PM – GROUP A

Spondylodiscitis Complication: Laparoscopic Removal of Sacral Colpopexy Mesh



Parthasarathy KN, Pugh CJ, Villeneuve JB. Obstetrics and Gynecology, Reading Health System, West Reading, Pennsylvania

Spondylodiscitis is a rare complication of sacral colpopexy mesh placement for apical pelvic organ prolapse repair. After failing conservative

management, surgical intervention is warranted. This video describes an unusual clinical scenario involving spondylodiscitis, along with its evaluation and management. Surgical intervention has historically been performed with laparotomy, however in select presentations, a minimally invasive laparoscopic approach is warranted. The techniques for laparoscopic removal of sacral colpopexy mesh are demonstrated in the setting of spondylodiscitis.

412 Video Session 16 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(3:25 PM - 5:05 PM)

3:46 PM – GROUP A

The Laparoscopic Pectopexy (NPP): A New Approach for Apical Prolapse Repair 

Noé GK. *Ob/Gyn, Comunal Clinic of Dormagen, Dormagen, NRW, Germany*


For prolapse repair we prefer the combination of different techniques according to the pelvic floor defects and the patients complains. In more than 90% we combine the pectopexy with additional vaginal or laparoscopic approaches. Laparoscopic colposuspension, vaginal colporrhaphy, laparoscopic midline or posterior facial repair.

The long-term follow-up (21.8 months) showed a clear difference regarding de novo defecation disorders (0% in the pectopexy versus 19.5% in the sacropexy group). De novo SUI occurred in 4.8% vs 4.9%. Rectoceles incidence (9.5% vs 9.8%) was similar in both groups. No de novo lateral defect cystoceles were found after pectopexy but 12.5% after sacropexy. The apical relapse rates, 2.3% versus 9.8%, were not statistically significant.

Laparoscopic pectopexy is a novel method of vaginal prolapse therapy that offers practical advantages compared to laparoscopic sacropexy. As laparoscopic pectopexy does not reduce the pelvic space and it results in a zero percentage of defecation disorders.

413 Video Session 16 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(3:25 PM - 5:05 PM)

3:57 PM – GROUP B

Laparoscopic Repair of Rectovesical Fistula 

Puntambekar SS, Jadhav SM, Gauba YR, Manchekar MM, Puntambekar SP. *Galaxy Care Laparoscopy Institute, Pune, Maharashtra, India*


The objective is to demonstrate laparoscopic repair of Recto-vesical fistula in a hysterectomised patient. Detailed explanation and demonstration of each step of the surgery is shown using the video attached below.

Our patient was operated case of Ca Ovary for which open hysterectomy was done 2 months back. she came to our institute with complaints of passing feces from the urine. Colonoscopy revealed 20mm recto-vesical fistula 10cms from the anal verge. Here we went through transcystic route by splitting the bladder in two halves, ureters were cannulated and excision and repair of Rectovesical fistula was done.

Laparoscopic repair is a feasible and efficacious approach for the management of such an entity because of its increased magnification, better understanding of anatomy and ability to work in deep pelvis.

415 Video Session 16 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(3:25 PM - 5:05 PM)

4:04 PM – GROUP B

Technique for Apical Support at the Time of Laparoscopic Vaginal Cuff Closure 

Adajar AA,¹ Juarez L,² Takshk E,² Jachtowyc MJ,³ Nitti JS,⁴ ¹Illinois Institute of Gynecology & Advanced Pelvic Surgery, Chicago, Illinois;

²Ob/Gyn, Presence St. Joseph's Hospital, Chicago, Illinois; ³Ob/Gyn, Presence St. Francis Hospital, Evanston, Illinois; ⁴Ob/Gyn, Rush University Medical Center, Chicago, Illinois

Apical suspension performed at the time of benign hysterectomy is recommended to decrease the risk of pelvic organ prolapse.

Incorporating native, level 1 uterosacral ligaments into vaginal cuff closure, when performed from a laparoscopic approach, has less risks of complications when compared to a vaginal approach.

Benefits with the laparoscopic approach include direct visualization of the ureters, improved access to the para-vaginal space, as well as decreased estimated blood loss and decreased hospital duration.

The laparoscopic approach also has been found to have superior apical support and total vaginal length.

The following video demonstrates a laparoscopic technique to incorporate the uterosacral ligaments for apical support, when closing the vaginal cuff, when performing a benign hysterectomy.

416 Video Session 16 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(3:25 PM - 5:05 PM)

4:11 PM – GROUP B

Surgical Pearls in Vaginal Hysterectomy 

Leon MG, Chang-Jackson S-CR, Miller HJ. *Obstetrics, Gynecology, and Reproductive Sciences, University of Texas Health Science Center at Houston/McGovern School of Medicine, Houston, Texas*

Vaginal hysterectomy remains the safest and most cost-effective route to remove the uterus with benign disease (1-4). The vaginal approach has also been proven to be a valid alternative for enlarged uteri (5). Despite this evidence, fewer than 20% of hysterectomies are performed using this method (6).

This video demonstrates techniques on how to successfully perform this minimally invasive procedure. Innovative approaches to prevent and identify bladder injuries are provided, including intravesical instillation of methylene blue, a method that has not been well-described in the available literature on vaginal hysterectomy. By showing how to prepare the surgical field, place tissue clamps, perform morcellation of a large specimen, and remove the adnexa, this video illustrates how to perform a vaginal hysterectomy safely and efficiently.

417 Video Session 16 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(3:25 PM - 5:05 PM)

4:18 PM – GROUP B

Complex Cloaca Repair 

Eigg MH. *Ob/Gyn, Rochester General Hospital, Rochester, New York*


This is a case presentation surgical video of a 59 year old female who formed a Cloaca after an ano-vaginal fistula repair and anal sphincteroplasty.

The patient has Crohn's disease and CREST syndrome that complicated her prior surgery and this presented reconstruction.

The repair in this video uses bilateral Martius flaps. During this surgery only the bulbocavernosus fat pads are developed and utilized bilaterally.

418 Video Session 16 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(3:25 PM - 5:05 PM)

4:29 PM – GROUP C

Laparoscopic Excision of the "Waddled" Apical Vaginal Mesh 

Elkattah R, Mohling S, Furr R. *Women's Surgery Center, Chattanooga, Tennessee*

Our patient is a 44 year-old Caucasian woman presenting with recurrent stage 2 anterior vaginal wall prolapse, stage 2 apical uterovaginal prolapse, and dyspareunia. Her surgical history was significant for placement of a Proxima (Ethicon Inc., NJ) anterior vaginal wall kit mesh for stage 2 anterior vaginal wall prolapse. Pelvic exam revealed stage 2 anterior vaginal wall and apical prolapse and no mesh erosion or discharge. Focal tenderness and nodularity along the anterior vaginal fornix was noted. This palpation reproduced the patient's dyspareunia. This was highly suggestive of mesh that had migrated from its original plane and "wadded-up" within the apical vaginal area. After proper counseling, the patient underwent a laparoscopic apical vaginal mesh excision, total laparoscopic hysterectomy with bilateral salpingectomy and ovarian preservation followed by a bilateral uterosacral ligament suspension. We present the mesh excision portion of her surgery in this video.

419 Video Session 16 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(3:25 PM - 5:05 PM)

4:36 PM – GROUP C

Cystoscopic Guided Extravesical Direct Laparoscopic Ureteric Reimplantation 

Parikh HP, Bansal AA, Chitale MC, Puntambekar SP, Ugran SM. *Galaxy Care Laparoscopy Institute, Pune, Maharashtra, India*


Injury to the ureter is one of the most serious complications of gynecological surgeries and is associated with high morbidity. The incidence of ureteral injury during gynecological laparoscopy ranges from < 1% to 2%. Ureteric injuries can occur in simple surgeries like hysterectomies, other benign gynecological procedures and risk increases in presence of comorbidities like pelvic inflammatory disease, endometriosis, previous pelvic surgery, distorted pelvic anatomy due to large fibroids, pelvic adhesions, neoplasms and congenital anomalies.

This video demonstrates laparoscopic repair of ureteric injuries caused during pelvic surgeries. Both these repairs were done using cystoscopic guided stent insertions. These patients had good recovery and normal urinary functions postoperatively.

Laparoscopic repair with cystoscopic guidance has helped in overcoming technical difficulties and poor outcome of traditional open repair.

420 Video Session 16 - Urogyn/Pelvic Floor Disorders/Vaginal Surgery
(3:25 PM - 5:05 PM)

4:43 PM – GROUP C


Laparoscopic Sacrocolpopexy with Surgeon-Tailored Teflon Mesh: Step-by-Step Technique Along with 3-Year Experience 

Yi X,¹ Wang J,² Hua K.³ ¹*Obstetrics and Gynecology Hospital, Fudan University, Shanghai, China;* ²*Department of Obstetrics and Gynecology of Shanghai Medical School, Fudan University, Shanghai, China;* ³*Shanghai Key Laboratory of Female Reproductive Endocrine Related Diseases, Shanghai, China*

This video is to describe our step-by-step technique of laparoscopic sacrocolpopexy (LSC) with the use of surgeon-tailored Teflon mesh in the treatment of severe pelvic organ prolapse. Tips and tricks are provided to help ensure a safe and effective implementation of the procedure. The main steps are described: port placement, mesh tailoring; vaginal "manipulator"; identification of ureter; posterior and anterior dissection; exposure of promontory; "tunnel" created in retro-peritoneum; the placement of mesh; suture technique and tension measurement. Since 2013 we have performed this procedure for 42 women. The 3-year outcome showed that both objective and subjective cure rates are comparable with conventional LSC. No difficulties, recurrent prolapse or complications were experienced. The narrowed mesh may help surgeon easier to lower the mesh position and decrease the pain without sacrifice the strength. This surgeon tailored Teflon mesh provided a simple, safe and reproducible way to perform LSC.

Video Posters – Basic Science/Research/Education

421

Laparoscopic Suturing in the Horizontal Zone: A Suprapubic Approach 

Stuparich MA, Lee TT. *Obstetrics, Gynecology & Reproductive Sciences, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania*

Laparoscopic suturing is an essential skill for the minimally invasive gynecologic surgeon and provides a solid foundation on which the surgeon can develop more complex skills. At our institution, we use a suprapubic port for laparoscopic suturing. Despite beliefs that the suprapubic port is not ergonomic or efficient for suturing, we find that it is excellent for accessing bilateral pelvic pathology and for teaching novice surgeons. Occasionally, patient obesity and short surgeon stature may limit the range of motion necessary for laparoscopic suturing. Use of step stools and lowering the operating table may overcome these deficits. We also demonstrate a modified grip on the needle driver that can further improve ergonomics during laparoscopic suturing. Furthermore, we present a stepwise approach to laparoscopic suturing through the suprapubic port.

422

Basic Pelvic Anatomy 

Johnson CM,¹ Gujral H,² Wright KN,² Munro EG.² ¹*Obstetrics and Gynecology, Tufts Medical Center, Boston, Massachusetts;* ²*Minimally Invasive Gynecologic Surgery, Lahey Hospital and Medical Center, Burlington, Massachusetts*

This video reviews basic pelvic anatomy of key structures encountered during common gynecologic surgeries. It was designed as part of a larger curriculum as a teaching adjunct for medical students and junior residents. Often the time spent on pelvic anatomy in medical school is brief. Our objective was to provide a review of pelvic anatomy as a foundation for intraoperative teaching. This gives learners a tool to reinforce and expand their knowledge and subsequently focus on more advanced skills during live operative time.


423

Fundamentals of Patient Positioning for Laparoscopic Gynecologic Surgery 

Pacis MM, Li H, Harkins GJ. *Division of Minimally Invasive Gyn Surgery, Penn State Milton S. Hershey Medical Center, Hershey, Pennsylvania*

Patient positioning is often an underestimated yet critical part of performing minimally invasive gynecologic surgery. Proper patient positioning can greatly affect the technical performance of these procedures. Conversely, improper positioning of patients for laparoscopic gynecologic surgery may impede access to the vagina for tissue extraction, for instance, and even result in serious complications such as nerve injury. Our video entitled Fundamentals of Patient Positioning in Laparoscopic Gynecologic Surgery is an educational tool designed for medical students and residents. Surgeons in training will be oriented to and gain a general understanding of the essential concepts of patient positioning including anatomic considerations, safety precautions, and the avoidance of nerve injury in laparoscopic gynecologic surgery.

424

Retroperitoneal Dissection of the Proximal Uterine Artery and the Ureter as a Standard Procedure in Difficult TLH Cases 

Putz A, Bohlin T, Rakovan M, Skrøppa S. *Ob/Gyn, Vestfold Hospital Trust Tønsberg, Tønsberg, Vestfold, Norway*

In this video we demonstrate retroperitoneal dissection of the ureter and the uterine artery as well as sealing of the proximal uterine artery as a standard procedure in difficult TLH cases.

In TLH cases with large uterus, extensive adhesions or deep infiltrating endometriosis the usual approach to the distal uterine vessels is often difficult or not visible. In addition, the anatomical position of the ureter is often displaced. The retroperitoneal dissection and sealing of the proximal uterine artery will be more secure with regard to hemorrhage as the conventional method of sealing and cutting the distal uterine vessels closed to the uterus. Retroperitoneal dissection of the ureter reduces the risk for ureter damage considerably.

The result is reduced operation time, less blood loss and fewer ureter complications.

425

Fundamentals of Pelvic Anatomy in Laparoscopic Surgery



Pacis MM, Leung L, Harkins GJ. Division of Minimally Invasive Gyn Surgery, Penn State Milton S. Hershey Medical Center, Hershey, Pennsylvania

Basic understanding of pelvic anatomy is essential to performing minimally invasive gynecologic surgery. A comprehension of important anatomic landmarks enables learners to appreciate the relationship between these structures and thus avoid visceral injury. Our video entitled Fundamentals of Pelvic Anatomy in Laparoscopic Surgery is an educational tool designed for medical students and residents. Surgeons in training will develop a general understanding of pelvic anatomy commonly encountered during laparoscopic surgery performed for gynecologic indications.

426

Awareness of Difficulty on Laparoscopic Umbilical Entry. Use of Palmer's Point



Rodriguez Valero C, Garcia Rodriguez LF, Leal Melendez C, Santiago J. Tecnológico de Monterrey, Monterrey, Nuevo Leon, Mexico

28 years old patient, history of 2 cesarean sections and laparoscopic cholecystectomy five years ago. She refers abnormal uterine bleeding since six months. Was programmed for total laparoscopic hysterectomy.

When suspicion of difficulty on umbilical entry, the LUQ or Palmer's point is indicated to help avoid bowel injury. Raol Plamer describe it in 1974, Palmer's point is an abdominal, secure, entry point 3 cm below the left costal margin in the midclavicular line, to be used in women with history of abdominal surgery or suspicion of adhesion. It's describe that failure on umbilical trocar entry increased risk of bowel injury progressively up to 84% in third chance.

In this video we highlight the step-by-step technique of laparoscopic entry utilizing Palmer's point.

427

The Basics of Basic Suturing



Tokiwa M, Huang K. Obstetrics and Gynecology, New York University Medical Center, New York, New York

Suturing skill is a necessary technique to pursue robot surgery. However it is difficult to learn the basic techniques by watching the suturing by expert robot surgeons. By breaking down to small steps, this video shows how to suture safely and efficiently for beginning robot surgeons.

428

Tips and Tricks: How to Pass the Needle Through the Loop of Unidirectional Barbed Suture in Laparoscopy Easier and Faster



*Boza A,² Misirlioglu S,¹ Aksu S,² Arslan T,² Taskiran C,¹ Urman B.¹
¹Department of Obstetrics and Gynecology, VKF Koc University School of Medicine, Topkapi, Istanbul, Turkey; ²Women's Health Center, VKF American Hospital, Nisantasi, Istanbul, Turkey*

Traditional technique; the loop end is grasped by any other instrument (grasper or portegu) and brought close to the needle. This technique needs grasping the loop, moving it to a desired position and working with both

hands simultaneously. In some cases, especially in deep pelvic area such as posterior colpotomy incision, it is not easy to access the defect and suture it by using both hands. One-handed drive technique; after the first suturing, the barbed suture material is pulled until its loop end lean toward the tissue edge. One-handed technique not require simultaneous movement of both hands, it removes the possibility of a hand trembling and a failed grasping of the loop end. The use of one-handed drive technique substantially facilitates insertion the needle through the loop during the closure of any defects, especially in deep pelvic region and may offer additional advantages such as minimizing the suturing time.

Video Posters – Endometriosis

429

Tips and Tricks for Laparoscopic Removal of Endometriosis Nodules Adherent to External Iliac Vessels and Ureter



Guan X, Wang Y, Gisseman J, Ma Y. Obstetrics & Gynecology, Baylor College of Medicine, Houston, Texas

Background: Endometriosis usually occurs in the pelvis and often involves the ovaries, the uterosacral and broad ligaments, and the pelvic peritoneum. Involvement of more distant organs is not uncommon. However, external iliac endometriosis is rare, and no cases were found during a pubmed search. It usually occurs with severe pelvic endometriosis.

Clinical Information: 42 yo G5P2 with a 22 year history of endometriosis who has had multiple laparoscopic endometriosis resections, a TAH, and an ex-lap with BSO who presents with left pelvic pain when standing, dyspareunia, and a 3.7cm cyst on U/S

Intervention: This video demonstrates the delicate techniques necessary to resect endometriosis nodules from external iliac vessels.

Result: Final pathology report confirmed endometriosis in all locations. She is still pain free 9 months later.

Conclusion: Complete resection of endometriosis is the key, and with enough experience, knowledge and proper technique, it can be resected from large vessels.

430

Single-Incision Robotic Appendectomy



Kliethermes C, Blazek K, Guan X. Ob/Gyn, Baylor College of Medicine, Houston, Texas

This is a video presentation of a 27 year old G0 who presented for surgical management for chronic pelvic pain. She underwent single-site robotic excision of endometriosis. During the surgery, she was noted to have stage IV endometriosis with appendiceal involvement. In this video, we demonstrate the techniques and tricks used in completing the appendectomy. We show the importance of burping to access the appendix, gentle tissue handling and manipulation, along with proper dissection of the tissue, and the use of the Endoloops by the assistant to complete the procedure. We also show proper dissection techniques. We choose Endoloops to avoid placing a larger trocar for a stapler or other device. The surgery is then completed safely and efficiently. We finish by thoroughly inspecting the remaining stump, ensuring no thermal injury.

431

Surgical Approaches to the Management of Bladder and Ureteral Endometriosis



Benton AS,¹ Sobowale O,¹ Lin YK,² Raman JD,² Harkins GJ.¹ ¹Minimally Invasive Gynecologic Surgery, Penn State Milton S. Hershey Medical Center, Hershey, Pennsylvania; ²Urology, Penn State Milton S. Hershey Medical Center, Hershey, Pennsylvania

The objectives of this video include reviewing endometriosis in the genitourinary system, correlating radiologic imaging to surgical findings, and demonstrating two surgical approaches to the management of urinary tract endometriosis. It will also note the indications of these two approaches and show how the distance from the ureteral orifice will help

to determine the necessary surgical intervention. The procedures shown will include partial cystectomy and modified psoas hitch with ureteral re-implantation. Finally, this video will demonstrate how the use of a multidisciplinary approach can be beneficial.

432

Endometriosis After Morcellation

Mullen CR, Beyer C, Snow S. *Obstetrics and Gynecology, Northwestern McGaw Medical Center, Chicago, Illinois*



A 40 year-old gravida 0 underwent a robotic-assisted hysterectomy with power morcellation for fibroids. She presented 1.5 years later with abdominal pain and was found to have multiple intraabdominal implants throughout the pelvis and abdomen. She underwent a diagnostic laparoscopy and resection of the numerous implants, which pathology identified as endometriosis. This is the first case report of disseminated endometriosis after hysterectomy without evidence of adenomyosis or endometriosis on initial surgery.

433

Surgical Management of a Ureteric Obstruction from Recurrent Endometriosis in Patient with Prior TAH BSO on HRT

Po LK,¹ Liu G,¹ Herschorn S,² Ordon M,³ Kroft J.¹ ¹Department of Obstetrics and Gynecology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada; ²Division of Urology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada; ³Department of Urology, St. Michael's Hospital, Toronto, Ontario, Canada



There are limited studies of the effect of hormone replacement therapy on endometriosis. We present a case of ureteric obstruction from recurrent endometriosis in a patient on hormone replacement therapy after a total abdominal hysterectomy and bilateral salpingo-oophorectomy. She presented with flank and pelvic pain. Ultrasound and MRI imaging showed a left ureteric obstruction due to an endometriotic nodule. Cessation of hormone replacement therapy temporarily improved her pain symptoms. Repeat imaging did not show any reduction in the size of the nodule nor improvement of the ureteric obstruction. Using a carbon dioxide laser and microsurgical laparoscopic techniques, the firm endometriotic nodule was resected from the pelvic brim to the ureterovesical junction. The constricted ureter was released. Postoperative course was uncomplicated. Her symptoms have improved and her ureter has remained unobstructed and patent. Without surgical resection of endometriosis, these patients may have irreversible renal injury.

434

Surgical Techniques for Different Types and Sizes of Endometriomas

Kar S. *Obstetrics & Gynaecology, KAR Clinic & Hospital Pvt. Ltd., Bhubaneswar, Odisha, India*



Endometriomas are one of the commonest adnexal masses in women of reproductive age group. They may present during evaluation of infertility, dysmenorrhoea, or as pelvic pain. Very occasionally may also present as acute abdomen due to ruptured cyst.

Laparoscopy has the advantage of simultaneous diagnosis, staging and treatment of endometriomas. However appropriate technique and skill is mandatory for good outcome.

This video demonstrates the surgical techniques of cystectomy, fulguration, debulking, individualised for different sizes and locations of endometriomas.

435

Laparoscopic Extramucosal Partial Bladder Resection in a Patient with Symptomatic DIE of Bladder

Jinwei L. *Zhejiang Provincial People's Hospital, Hangzhou, Zhejiang, China*



A healthy 41-year-old woman who had two caesarean sections, gravida 2, para 2, was referred to our hospital with primary dysmenorrhea and urinary tract symptoms, in the form of dysuria and stress incontinence during menstruation. Vaginal sonography revealed a deep-infiltrating bladder endometriosis of 2.5 cm. The kidneys were normal without urinary stasis. Magnetic resonance imaging (MRI) showed a lesion on the bladder dome. CA-125 levels were slightly elevated (63 U/mL, normal: 35 U/mL).

436

Thoracic Endometriosis Syndrome: A Review and Multidisciplinary Approach

Shenoy SB, Lewis M. *New York Methodist Hospital, Brooklyn, New York*



Endometrial glands and stroma outside the uterine cavity is known as endometriosis. In some very rare conditions, functional endometrial tissue is found to be present in the pleura, lung parenchyma, airways, and also the diaphragm known as thoracic endometriosis syndrome. People affected with thoracic endometriosis syndrome or TES usually are affected by four main clinical entities: catamenial pneumothorax, hemothorax, hemoptysis, and lung nodules.

Although the incidence of TES is extremely rare, there have more than 250 published cases reported in the 10% of women affected by endometriosis. The exact reason for endometrial tissue migration still remains unclear however several different theories have been hypothesized to explain the presence of endometrial tissue in the lung parenchyma and more commonly in the right hemithorax. These theories include retrograde menstruation, coelomic metaplasia (transformation of peritoneal or pleural epithelium into endometrial tissue, and endometrial transplantation occurring through lymphatic or vascular microembolization.

437

Deep Infiltrating Endometriosis Surgery: Adopting the Negar Method

Lopez-Zepeda MA,² Canton-Romero JC,² Lopez-de la Torre MA,¹ Morgan-Ortiz F,¹ Garcia-Gallegos V,² Cañedo-Rendon MA.² ¹Obstetrics and Gynecology, Hospital Civil de Culiacan, Culiacan, Sinaloa, Mexico; ²Gynecology, St. Javier Hospital, Guadalajara, Jalisco, Mexico



Introduction: 42 year old female. Referred intermittent cyclical severe dysmenorrhea, pelvic pain, dyschezia, rectal bleeding of over more than 6 years of, with multiple medical and surgical treatment.

The ultrasound reported the following:

- A lesion compatible with an endometriotic nodule over the anterior rectal wall, adhered to the posterior uterine serosa.
- Findings compatible with bilateral endometriomas
- Left ureteral retraction Conditioning a slight dilatation of urinary tract.

Methods: We perform a resection of bilateral endometriomas, and rectal lesion following the negar method.

Conclusions: • The negar method offers a safe approach to treat deep infiltrating endometriosis. The use of avascular spaces, as well as the nervous identification and preservation, offers the patients an enormous difference in short and long term results.

- It must be reminded, a multidisciplinary team is required for an optimum treatment.

438

Combined Laparoscopic and Cystoscopic Approach in Large Deep Infiltrating Endometriosis of the Bladder

Darwish B,¹ Defortescu G,² Roman H.¹ ¹Obstetrics and Gynecology, Rouen University Hospital, Rouen, Haute Normandy, France; ²Urology, Rouen University Hospital, Rouen, Haute Normandy, France



Background: Resection of endometriotic nodules infiltrating the bladder is routinely performed laparoscopically. However, laparoscopic resection of large nodules may lead to inadvertent loss of healthy bladder muscle surrounding the nodule. A combined approach could allow for safe and controlled excision of bladder wall, with probable favorable outcomes.

Methods: The video presents the procedure performed in a woman who presented with a 40 mm large bladder endometriosis nodule. A combined laparoscopic-cystoscopic approach is used simultaneously.

Results: To date, the procedure was successfully carried out in 3 patients with large infiltrations of the bladder, representing 13% of bladder endometriosis managed in our department from June 2014 to March 2016. Immediate and midterm postoperative outcomes were uneventful.

Conclusion: Combining laparoscopic and cystoscopic approaches allow complete resection of large bladder endometriotic nodules, with favorable outcomes.

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Anterior Discoid Resection for Deeply Infiltrating Endometriosis



Mohling SI, Elkattah R, Furr RS. *Obstetrics and Gynecology, University of Tennessee College of Medicine, Chattanooga, Tennessee*

This video demonstrates the technique for disk excision of an endometriotic lesion invading the anterior wall of the rectosigmoid colon.

Endometriosis surgery may at times be complicated by the need to excise invasive lesions from the bowel. Rectovaginal endometriosis is one of the most advanced and complex forms of the disease. Authors have explored the best approach to treating deeply infiltrating lesions of the bowel and there is general consensus that rectal shaving of lesions when possible is the preferred approach. However, multiple studies suggest that complete excision, including bowel resection when necessary, may result in significant pain improvement.

In this video, rectal shaving of an endometriotic lesion was attempted, however it became clear that a disk excision was warranted. The technique for anterior disk excision and repair of the lesion is illustrated.

Video Posters – Hysteroscopy, Endometrial Ablation and Sterilization

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Abstract Withdrawn

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Three-Dimensional Ultrasonography with or without Saline Infusion Sonogram in Detecting Subtle Uterine Anomalies: Correlation with Hysteroscopy



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Introduction: Septate uterus has been shown to be associated with a high rate of infertility, preterm birth, recurrent pregnancy loss (RPL), and IVF-ET failure. The overall belief of experts in the area of ultrasonography of uterine cavity disorders is that transvaginal 3D ultrasonography with or without saline infusion hysterosonogram (SIH) is highly sensitive in the diagnosis of major uterine malformations. However it is not sufficiently sensitive in the diagnosis of subtle uterine abnormalities.

Objective: To compare the detection rate of subtle uterine anomalies using trans-vaginal 3D US with or without SIH, with the gold standard, diagnostic hysteroscopy. This video presents a comparison of 3 patients to illustrate this point.

Conclusion: Patients with a very subtle incomplete uterine septum or arcuate uterine anomaly on TV 3D US with or without SIH a diagnostic hysteroscopy by an experienced reproductive surgeon must be done to rule out significant anomalies of the uterine cavity.

442

Conservative Management of Focal Endometrial Cancer in Young Infertile Patient



Telang MA, Puntambekar SS, Ambekar A, Aggarwal N, Puntambekar SP. *Galaxy Care Laparoscopy Institute, Pune, Maharashtra, India*

27 yr old patient with 5 years of Primary Infertility with irregular cycles, normal hormonal levels and TVS revealed, localized thickening of endometrium 12mm. She was posted for diagnostic hysteroscopy and biopsy revealed localized Adenocarcinoma Endometrium, probable reason being chronic anovulation with unabated action of estrogen.

Post counseling she was posted for localized resection wherein with minimum current only the growth and the underlying myometrium was resected so as to prevent thermal injury to the rest of the endometrium. Histopathology report revealed Localized Adenocarcinoma not infiltrating into myometrium. Patient was started on high dose Medroxyprogesterone acetate for 4 months.

Repeat hysteroscopy was normal and Biopsy taken from previous site was negative for malignancy.

Young infertile patients with focal endometrial carcinoma which is due to prolonged estrogen action can be treated conservatively with localized resection and high dose progesterone therapy with success.

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Challenging Cases in Hysteroscopic Myomectomy



Sikka S. *Holy Cross Hospital, Silver Spring, Maryland*

This video demonstrates three cases of hysteroscopic myomectomy. The first case demonstrates the technique of fibroid resection with removal of intramymetrial component in deep intramural myomas. The second case demonstrates direct injection of dilute vasopressin solution into a large submucous myoma. This can significantly help with reducing blood loss and fluid absorption during myoma resection. The third case demonstrates identification of a hidden submucosal myoma beneath a thick endometrial lining with its subsequent resection.

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Various Images of Endometrial Carcinoma as Seen Through Hysteroscope



Telang M, Puntambekar S, Sainani SA, Ugran S, Puntambekar SP. *Galaxy Care Laparoscopy Institute, Pune, Maharashtra, India*

Carcinoma Endometrium is the most common gynecological malignancy. The prognosis is good as 70% of cases are detected in early stages reason being the first symptom to manifest is abnormal bleeding.

Diagnostic Hysteroscopy and targeted biopsy is now the gold standard in the diagnosis. There are distinct features macroscopically as seen through the hysteroscope which may help the clinician in coming to a presumptive diagnosis of cancer endometrium and taking targeted biopsies.

This video demonstrates a collage of various forms in which endometrial Cancer can be seen, different types of Endometrial pattern being papillary, polypoidal, nodular and ulcerative and abnormal vascular pattern. We performed Office Hysteroscopy in all these patients presenting with abnormal uterine bleeding and having endometrial thickness > 10 mm. We felt hysteroscopy was definitely a superior alternative than performing blind D&C or Pipelle biopsies.

445

Hysteroscopic Resection of Retained Products of Conception After Failed Medical Termination



Shields JK,¹ Wright KN.² ¹Obstetrics and Gynecology, Winchester Hospital - Lahey Health, Winchester, Massachusetts; ²Gynecology, Lahey Health & Medical Center, Burlington, Massachusetts

Standard of care for retained products of conception (RPOC) has long been medication or dilation and curettage (D&C). The exact frequency of RPOC

is unknown, however with 20% of clinically recognized pregnancies ending in miscarriage and 42% of unintended pregnancies ending in elective termination; the potential for RPOC is significant. At present there are no trials evaluating outcomes and long term effects of treatment for RPOC. Review of the literature suggests D&C may not be the optimal strategy as significantly more intrauterine adhesions (IUA) have been observed in patients treated with D&C as opposed to hysteroscopic resection (HR). When present, IUA can lead to fertility challenges and pregnancy complications. We present a video on the technique of HR for RPOC in a breast cancer patient who previously underwent medical termination of pregnancy. Hysteroscopic resection permitted targeted removal of RPOC while minimizing damage to surrounding endometrium.

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Vaginocopy: Using a Hysteroscopic Tissue Removal System



Tam T, Juarez L. *Obstetrics and Gynecology, Presence St. Joseph's Hospital, Chicago, Illinois*

This video is a demonstration of a hysteroscopic tissue removal system used to perform vaginocopy in two different patients where traditional hysteroscopy was unsuccessful due to very stenotic cervixes. Vaginocopy is known as a “no touch” technique. It is normally performed without the use of traction on the vagina or cervix. Vaginocopy is a safe, feasible, and non-traumatic method for evaluating the reproductive organs. It has been associated with decreased pain during the procedure and is well tolerated overall. Vaginocopy has shown identical failure rates as compared to traditional hysteroscopy. However, there are notable trends showing how vaginocopy has allowed increased ease of cervical passage. The video submission demonstrates the technique of vaginocopy utilizing a hysteroscopic tissue removal system that allowed for successful evaluation of the uterine cavity and resection of endometrial tissue.

447

True Management of Herlyn-Werner-Wunderlich Syndrome (OHVIRA Syndrome)



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One of the least common Mullerian abnormalities is Herlyn-Werner-Wunderlich (HWW) Syndrome characterized by obstructed hemi-vagina and ipsilateral renal anomaly (OHVIRA). Here in, operations of two patients with HWW Syndrome are presented. On the first patient's previous application to another hospital with abdominal swelling and cyclical pain, a supra-pubic catheter was placed to the obstructed hemi-vagina by the Department of Interventional Radiology. However, her complaints were not resolved. After referral to our clinic the transverse vaginal septum was simply cut by monopolar cautery and the left hemi-vaginal and uterine cavities are visualized by hysteroscopy. The previously placed catheter is gently removed. The second patient was treated directly by vaginocopy dissecting the transverse vaginal septum without hymenectomy. In conclusion, there's no need for invasive procedures such as supra-pubic catheter placement in the management of hematometocolpos due to HWW Syndrome. The transverse vaginal septum can easily be dissected by vaginocopy.

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Intraoperative Vasopressin Injection During Hysteroscopic Myomectomy



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Hysteroscopic myomectomy is the ideal procedure for patients with symptomatic submucosal fibroids. It is safe, cost effective, and has high patient satisfaction. However, it is an operative challenge to maintain adequate visualization and achieve complete resection while avoiding complications including bleeding.

This video reviews techniques to troubleshoot difficult hysteroscopic myoma resections. It demonstrates the flow-by technique to clear the operative field and intraoperative hysteroscopic vasopressin injection to secure hemostasis at the time of myomectomy. The case is a 40 year-old woman with heavy, irregular menstrual bleeding and a 3-4cm submucosal fibroid on transvaginal ultrasound. Hysteroscopy finds a large pedunculated fibroid taking up close to the entirety of the uterine cavity and a smaller posterior wall fibroid. Complete resection is achieved and a normal uterine cavity restored using a hysteroscopic tissue removal device, the flow-by technique to clear the operative field and intraoperative injection of vasopressin to secure hemostasis.

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Hysterosalpingogram in Detecting Subtle Uterine Anomalies: Correlation with Hysteroscopy



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Introduction: Septate uterus has been shown to be associated with a high rate of infertility, preterm birth, recurrent pregnancy loss (RPL), and IVF-ET failure. The gold standard diagnosis of subtle uterine septum and arcuate uterus is saline infusion hysterosonogram with 3-D US and diagnostic hysteroscopy (DHS). However, hysterosalpingogram (HSG) is still being used for evaluation of such patients. The accuracy and sensitivity of HSG in detecting subtle uterine anomalies were found to be poor.

Objective: To compare the diagnostic ability of HSG vs DHS in detecting subtle congenital anomalies of the uterine cavity in patients presenting with infertility and/or RPL.

Conclusion: In patients with negative HSG and history of unexplained infertility, unexplained RPL, unexplained bad obstetric history a diagnostic hysteroscopy by an experience reproductive surgeon must be done to rule out subtle anomalies of the uterine cavity.

Video Posters – Laparoscopic Surgeries

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Laparoscopic Essure Removal



Ajao MO, Cohen SL, Einarsson JI. *Division of Minimally Invasive Gynecologic Surgery, Department of Obstetrics, Gynecology and Reproductive Biology, Brigham and Women's Hospital, Boston, Massachusetts*

Essure contraceptive device is an FDA approved tubal occlusive sterilization method that has been available for over a decade. There has been a steady increase in the number of patients requesting Essure removal due to perceived relationship to pelvic pain and other symptoms. Patients presenting for consultation request complete removal of the device. They are counseled that their symptoms may persist despite Essure removal. This video presents three techniques of laparoscopic Essure removal. In the first technique, the fallopian tubes and the uterine cornua are removed. In the second technique, the distal fallopian tube is incised and the Essure device is extracted, followed by a salpingectomy while preserving the cornua. Some patients elect to undergo a total laparoscopic hysterectomy with bilateral salpingectomy. In 11 patients surveyed, 73% reported improvement in pelvic pain and quality of life.

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Laparoscopic Lateral Transposition of the Ovaries



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This video demonstrates the technique for laparoscopic lateral transposition of the ovaries. For patients diagnosed with malignancy, pelvic radiation therapy is associated with loss of ovarian function in more than 50% of cases with subsequent menopausal symptoms, loss of fertility, osteoporosis and cardiovascular disease. To decrease this likelihood, ovarian transposition may be offered to women of reproductive age with malignancy and planned pelvic radiotherapy. Here, we describe a laparoscopic ovarian transposition in a 31-year old female with locally advanced rectal carcinoma prior to starting radiotherapy.

Key steps involve: performing a salpingectomy, dividing the utero-ovarian ligament, incising the peritoneum lateral to the infundibulopelvic ligament, dissecting the paracolic gutter, pediculization of the infundibulopelvic ligament, mobilizing the ovary above the pelvic brim, suturing it to the sidewall, marking the ovarian final position using metallic clips.

When performed laparoscopically, lateral transposition of the ovaries is simple and safe and allows immediate postoperative pelvic irradiation.

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Transvesical Bladder Fibroid Resection



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Bladder leiomyoma is a rare benign tumor and depends on its location the diagnosis could be difficult. Different approaches to resect it have been reported like abdominal, laparoscopic, and transurethral. We present a case report of a 46 years old woman who presents for the last past years with urinary symptoms. A 4cm bladder mass that was misdiagnosed several times with cystoscopy because its location (bladder neck, in hour 6). The diagnosis was made with bladder ultrasound, dynamic MRI. Minimal invasive approach was proposed, transvesical laparoscopy without the need of cystostomy, removing the specimen transurethral. The pathologic diagnosis was leiomyoma of the bladder.

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Laparoscopic Removal of the Essure Sterilization Device: Tips and Tricks



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Laparoscopic removal of the Essure[®] device is a safe and effective procedure. While there are several approaches to its removal, attention to specifics related to preoperative imaging, expected radiographic findings, and intraoperative device selection will allow for improved efficiency and operative outcomes. By taking advantage of specific energy sources and transection technique, the procedure can routinely be completed in 15 minutes from initial trocar entry to final trocar removal, with complete removal of all coils.

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Hysterectomy Techniques for Huge Fibroids- Starting with Paracervical Ligaments



Andou M, Kanno K, Shirane A, Yanai S, Nakajima S. Gynecology, Kurashiki Medical Center, Kurashiki-shi, Okayama-ken, Japan

We describe our reversed ligament division strategy technique for management of the division of the adnexal ligament in cases where accessibility to this ligament is made extremely difficult by anatomical distortion, obstruction and limitations of camera placement due to huge fibroids.

From January 2005 to December 2015, 4644 patients underwent total laparoscopic hysterectomy (TLH) at our institute for benign pathology. Six of these patients underwent a reversed order TLH.

We start with the initial isolation of the uterine artery and ureter to avoid urinary tract injury during the transection of the supporting tissue of the uterus. The duration of the procedure is not prolonged when compared with the standard order of the TLH procedure. The uterine weight ranged from 996gs – 4545gs.

Our reversed ligament division strategy means that all supporting structures can be dissected in view without the placement of additional camera ports, making the surgery safer and more complete.

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Laparoscopic Resection of Interstitial Ectopic Pregnancy with Placenta Percreta



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Interstitial ectopic pregnancies occur in a more distensible portion of the fallopian tube. This location allows them to reach greater gestational ages and makes them high risk for hemorrhage. We present a case of a large interstitial ectopic pregnancy that was complicated by a placenta percreta. The patient was successfully treated via laparoscopic wedge resection. The purposes of this video are to 1) describe a laparoscopic wedge resection and 2) demonstrate management of a more complex ectopic pregnancy.

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Laparoscopic Management of Cesarean Scar Ectopic Pregnancy



Yu X, Tovar R. University of Kentucky, Lexington, Kentucky

Study Objective: Laparoscopic management of cesarean scar ectopic pregnancy.

Design: Video presentation.

Setting: University academic medical center.

Patient: 31 yo G2P1011 with a Mirena IUD in place who was diagnosed of cesarean scar ectopic pregnancy.

Intervention: Laparoscopic removal of cesarean scar ectopic pregnancy.

Measurements and Main Results: A transvaginal ultrasound was used to diagnose the cesarean scar ectopic pregnancy. Laparoscopy with the assistance of cystoscopy was used to remove the ectopic pregnancy with careful dissection. IUD was removed. Pathology confirmed that the specimen was gestational tissue. Total serum b-hcg was followed post operatively until it is normalized.

Conclusion: Laparoscopy can be used safely to remove the ectopic pregnancy. Cystoscopy can be utilized to assist the dissection to prevent bladder injury.

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Abstract Withdrawn

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Laparoscopic Placement of Pre-Conception Cervical Cerclage



Pineda Rivas M, Rattray D, Thiel J. Division of Obstetrics and Gynecology and Reproductive Sciences, University of Saskatchewan, Regina, Saskatchewan, Canada

In this video we present the case of a 34 year old woman that required a trans-abdominal cerclage based on her obstetrical history. The risks and benefits of a laparoscopic cerclage over a trans-vaginal cerclage are presented. In addition, we demonstrate the laparoscopic placement of a cerclage at the cervico-isthmus junction using the Leyland technique. Given the benefits of a laparoscopic cerclage over a trans-vaginal cerclage, more randomized studies are needed to determine if we should expand the indications for laparoscopic cerclages.

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Laparoscopic Uterosacral Ligament Colposuspension

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Prior to every hysterectomy, both vaginal support and urinary continence should be assessed and addressed by the surgery. In this patient with uterine carcinoma and symptomatic uterovaginal prolapse, surgery to address both the cancer and the anterior wall defect and traction cystocele are undertaken laparoscopically. All the steps of the procedure are demonstrated, as are the steps taken to assure the safety of the colposuspension.

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Extreme Gynecology 1 – Hasan Entry: A Laparoscopic Hybrid Entry Technique for Extremely Obese Patients

Titiz H. *Even Women's Health, Brisbane, QLD, Australia*



Laparoscopic entry can fail in morbidly obese patients. Failure rate varies from 4% to 29%, depending on which entry technique is used. Umbilical stalk is a fibrous remnant of umbilical vessels and runs from the linea alba to the dermis of the umbilical cicatrix. Peritoneum is fused to the junction between umbilical stalk and linea alba (single layer of fascia). This junction is the thinnest entry point into the abdominal cavity even in extremely obese patients. Hasan entry is the combination of an incision to the junction of umbilical stalk and linea alba with umbilical stalk elevation technique and direct optic entry through fascia incision and peritoneum. The video shows the followings: 1. Demonstration of umbilical anatomy and open entry surgical technique with elevation of umbilical stalk in a patient with normal BMI. 2. Demonstration of Hasan entry technique in a patient with BMI of 49.

461

Laparoscopic Management of Ovarian Torsion in a 1st Trimester Pregnant Patient

Warda HA, Hoia L. *Obstetrics and Gynecology, Mount Auburn Hospital, Harvard Medical School, Cambridge, Massachusetts*



Adnexal torsion is a gynecologic emergency. This video demonstrates a minimally invasive operative approach for treatment of ovarian torsion during a 1st trimester pregnancy. A 37-year old G2 P1 female patient at 6 weeks gestation with history of polycystic ovarian syndrome and previous in vitro fertilization twin pregnancy presented to the emergency department with sudden onset left lower quadrant pain. A transvaginal ultrasound showed a 6-week intrauterine gestation and asymmetric enlargement of her left ovary. Despite normal vascular waveform, these findings in the setting of acute left sided pain suggested the possibility of ovarian torsion. Upon performing laparoscopy an enlarged torsed left ovary was confirmed. Detorsion of the left ovary and shortening of the uteroovarian ligament was performed to minimize future ovarian mobility. She had a follow up ultrasound 1 week after the procedure, which showed a live pregnancy with a slightly enlarged left ovary and normal internal Doppler flow.

462

Cosmetic Hysterectomy: Strategies to Overcome the Loss of Port Placement Triangulation

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Clinical circumstances arise which prevents a surgeon from offering a hysterectomy from the vaginal approach. Any effort made to limit incisions to the umbilicus and minimize scarring has cosmetic benefits. A mid-line umbilical approach however, creates many challenges due to the loss of instrument triangulation.

The case presented is of a 38 y/o female with an enlarged uterus and a 10 cm fibroid noted on imaging studies.

The patient underwent a total laparoscopic hysterectomy, bilateral salpingectomy, and apical suspension from a mid-line umbilical approach. Intra-operative weight of the uterine specimen was 566 grams.

The following presentation demonstrates several useful techniques to overcome the loss of port placement triangulation, when performing a laparoscopic hysterectomy from a mid-line umbilical approach. When the vaginal approach is less feasible, these techniques allow the surgeon to offer patients similar cosmetic benefits, while operating in the vertical plane.

463

Tips and Tricks: Bagging the Big Ones

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In this video we present a stepwise approach to placing a 20 week uterus (975g) inside a bag for morcellation via mini-laparotomy. Tips and tricks are reviewed to ensure 1) efficient transfer of the specimen inside the bag and 2) maximal exposure during morcellation via mini-laparotomy.

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Laparoscopic Entry in the Left Upper Quadrant

Porter AE, Walsh TM, Kho KA. *Obstetrics and Gynecology, UT Southwestern Medical Center, Dallas, Texas*



Prior abdominal surgery is associated with a high rate of intra-abdominal adhesions, ranging anywhere from 25 to greater than 50%. Adhesions can obscure visualization and increase risk of visceral injury when present at the site of primary trocar placement. In fact, up to half of injuries during laparoscopic surgery occur during entry, in large part due to adhesive disease. The left upper quadrant is generally spared from significant adhesive disease. This video aims to describe proper patient selection for primary port placement in the left upper quadrant. We will also review techniques for entry in this space including relevant anatomy of the anterior abdominal wall. Finally, we will demonstrate both anatomy and technique via surgical video of optical entry at Palmer's point. This video will be of benefit to learners who seek to expand their toolkit to increase the safety of minimally invasive surgery in more complex surgical cases.

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Extreme Gynaecology 2 – Laparoscopic Extracorporeal Oophorectomy and Intracorporeal Salpingectomy for Extremely Large (30 cm) Ovarian Cyst

Titiz H. *Even Women's Health, Brisbane, QLD, Australia*



Laparoscopy should be used in the management of ovarian cyst whenever it is possible. But laparoscopic removal of extremely large ovarian cyst can have following challenges:

1. Inadvertent puncture of cyst, 2. Reduced visualisation, 3. Difficulty in removal, 4. Potential risk of malignant ovarian neoplasm.

Possibilities of borderline and malignant ovarian tumor for extremely large ovarian cyst(10-35cm) are low (3.8 and 2.5 % respectively).

Case: 56 years old woman was admitted with severe abdominal pain. Ultrasound and CT showed right ovarian mucinous cyst with septations (30x23x15 cm) starting from pelvis and extending to epigastrium with no sign of malignancy. Tumor markers and blood tests were negative.

After counseling and consenting, patient had laparoscopic right extracorporeal oophorectomy and intracorporeal salpingectomy. Post-operative care was uneventful. Histopathology showed borderline mucinous ovarian tumor. This video demonstrates the surgical technique of extracorporeal oophorectomy and intracorporeal salpingectomy for an extremely large ovarian cyst.

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Management of Intraoperative Bleeding

Rindos NB, Donnellan N, Mansuria SM, Lee T. *Obstetrics and Gynecology, Magee-Womens Hospital, Pittsburgh, Pennsylvania*



A solid understanding of the management of intraoperative bleeding is an essential skill for laparoscopic surgeons. When addressed correctly and efficiently there are rarely long term consequences. If handled improperly, bleeding has the potential to initiate a streaming cascade of downstream complications such as ureteral or bowel injury. This video reviews some of the most commonly employed methods of obtaining hemostasis as well as the setting where each should be used.

We discuss three common types of bleeding encountered in gynecologic surgery. Diffuse bleeding which is encountered in ovarian beds and following blunt lysis of adhesions. Small vessels bleeding such as occurs following creation of the colpotomy and pedicle bleeding from the uterine vessels, utero-ovarian or IP ligament.

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Laparoscopic Hysterectomy and Unraveling the Adhesed Pelvis

Wang W, Wei B, Zhang Y, Song E, Fu L. *Gynecology Department, The Second Hospital of Anhui Medical University, Hefei City, Anhui Province, China*



The video is intended to describe how to manage severe adhesion and cut big uterus in the pelvis using laparoscopy. The patient is a 45 years old woman, had hypermenorrhea for three years. She performed cesareansection 12 years ago. The pelvic examination found the enlarged uterus like pregnant for 3.5 month with irregular shape. Ultrasound Examination detected multiple uterine fibroids located at the myometrium and perimetrium of the uterus. Diagnostic curettage was performed and endometrial pathology results suggest moderate endometrial dysplasia. We plan to perform laparoscopic hysterectomy. During the surgery, we found severe adhesion between the omentum and the abdominal wall. And the uterine fibroids located at the anterior wall of the uterus were too big and affected surgical instruments to complete the procedures. We want to show the tricks and tips how to overcome these difficulties.

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Re-Defined Technique for Total Laparoscopic Hysterectomy: “Meet Me Half Way Technique”

Sandoval-Herrera C. *Obstetrics and Gynecology, Mount Sinai Hospital and Medical Center, Chicago, Illinois*



This video will demonstrate the use of new instrumentation available to safely and efficiently perform a Total Laparoscopic Hysterectomy. This combination of new instruments allows for the traditional technique for Total Laparoscopic Hysterectomy to be redefined. The surgical dissection centers at 180 degrees at the colpotomy level and is completed half way on each side of the uterus including the uterine arteries and the colpotomy itself. The video is labeled to stand out anatomical landmarks that are easily found with the illuminated colpotomizer and surgical landmarks created with the technique itself.

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“Tubal Washings” – A Novel Technique to Treat and Preserve the Tube with the Diagnosis of Ectopic Pregnancy

Leal C, Rubio V, Garnica A. *Ob/Gyn, Division of Gynecology Oncology, Universidad de Monterrey, Chihuahua, Mexico*



With this technique we are presenting a different way to treat and preserve the Fallopian tube in a non-ruptured ectopic pregnancy.

The prevalence of ectopic pregnancy among women who go to ER with first trimester bleeding, pain, or both range from six to 16%. The overall

incidence of ectopic pregnancy increased during the mid-twentieth century, plateauing at approximately almost 20 per 1000 pregnancies in the early 1990's. The rising incidence is strongly associated with an increased incidence of pelvic inflammatory disease.

With this technique we are presenting a different and easy way to treat and at the same time preserve completely the Fallopian tube in a non-ruptured ectopic pregnancy.

Preserving the reproductive anatomy is an essential part for any reproductive age patient.

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Tackling Uterine Artery at the Origin: Safe and Effective for All Total Laparoscopic Hysterectomy and Ureter's Best Defence

Trivedi SP, Trivedi PH, Gandhi AC. *Dr. Trivedi's Total Health Care Pvt. Ltd., Mumbai, Maharashtra, India*



With the advent of energy sources and frantic attempts to control haemorrhage while tackling the uterine artery by the conventional approach by staying in proximity to the uterus, are we really safeguarding the ureter? This burning issue is resolved by the technique of **Direct posterior retroperitoneal approach of tacking uterines at the origin** from internal iliac.

In this series of **400 cases**, ureter is identified at the pelvic brim, traced downwards, retroperitoneum held with Maryland, opened and dissection carried out with Harmonic, lateral and parallel to the ureter. The only horizontal offshoot, from the internal iliac in this area is the uterine artery which is tackled prior to proceeding with total laparoscopic hysterectomy. The technique with a crystal clear visualisation of the anatomy and all its variations like aberrant artery, vein and double ureter; demonstrated. This technique is safe and effective with blood loss and operating time reduced and with enhanced ureteric and patient safety.

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Laparoscopic and Robotic Myomectomy: A Standard Technique

Mahmoud MS. *Obstetrics and Gynecology, University of Rochester and Rochester Regional Health System, Rochester, New York*



In this video we demonstrate a standard technique used to perform laparoscopic myomectomy using both conventional laparoscopy and robotic-assisted approaches. One case of each approach is presented with demonstrating the same key steps.

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The Use of Vasopressin to Reduce Blood Loss During Myomectomy

Rodriguez-Ayala G, Moses D, Nimaroff M. *Northwell Health System, Manhasset, New York*



Background: Fibroids affect between 5.4 to 77% of women. We will focus on the use of pitressin to reduce blood loss during conservative surgical management of fibroids with myomectomy.

Objective: There are 3 different techniques to use vasopressin during myomectomies. Of these three techniques, we prefer intramyometrial or intracervical methods and will be demonstrating its correct use in this video.

Design: Narrated step-by-step video demonstration of the optimal methods of vasopressin use during myomectomy.

Intervention: We use vasopressin solution in all myomectomies regardless of the surgical approach (i.e., abdominal, laparoscopic, robotic, hysteroscopic). A standard concentration of vasopressin 20 units in 30cc of normal saline is used and 20cc of the diluted vasopressin are injected.

Conclusion: The correct use of diluted pitressin solution during myomectomies aids in many aspects of the surgery including blood loss, time of surgery, and adequate visualization in order to effectively identify and remove all fibroids.

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Modified Laparoscopic Richardson's Angle Stitch. A Simple Technique to Prevent Vaginal Cuff Prolapse



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¹Minimally Invasive Gynecology, Centro Medico Docente La Trinidad, Caracas, Distrito Federal, Venezuela; ²Obstetrics and Gynecology, University of Miami, Miami, Florida

Objective: The objective of this educational video is to describe a step-by-step guide of a laparoscopic modification of the classic Richardson's angle stitch described for the prevention and treatment of level I De Lancey's pelvic support.

In our unit, we have successfully adopted a laparoscopic modification of the Richardson's angle stitch for the vaginal cuff closure during laparoscopic total hysterectomy.

Our video provides surgical pearls to perform vaginal cuff closure.

Conclusion: The modified laparoscopic Richardson's angle stitch can be easily performed at the time of vaginal cuff closure in both laparoscopic and robotic hysterectomy.

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Laparoscopic Sacrocolpopexy: A Simplified Technique



Mercky J, Picard A, Isoard L. Department of Obstetrics and Gynecology, St. Eustache Hospital, St. Eustache, Quebec, Canada

Sacrocolpopexy is one of the most challenging procedures in laparoscopic surgery.

We present a simplified technique of treatment of anterior and middle compartment.

The number of suture points is minimal : no more than six.

Covering the mesh in a tunnel in the right parameter minimizes the risks of erosion and organ damage.

As we use the uterus as a solid anchor point for the mesh, a hysterectomy is not performed. This results in a dissection limited to the right para-rectal fossa and a small window in the anterior peritoneum, reduced risk of trauma, reduced operative time and surgeon stress or fatigue.

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Stepwise Approach to Orienting a Specimen into a Containment Bag



DeStephano CC, Fouad L, Dinh T. Department of Surgical Gynecology, Mayo Clinic, Jacksonville, Florida

Placement of a large specimen into a bag for contained extraction can be a time-consuming and frustrating process. This may limit the use of minimally invasive approaches for removal of large pelvic masses. Using the Alexis Contained Extraction System, we present a stepwise approach to specimen orientation. This stepwise approach has facilitated our teaching of the technique and led to success in the operating room with removal of large pelvic masses using contained extraction.

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Laparoscopic Salpingostomy by Hydro-Dissection. A Conservative Minimally Invasive Technique for Ectopic Pregnancy



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Objective: The objective of this educational video is to describe the appropriate use of hydro-dissection during salpingostomy for the conservative laparoscopic treatment of non ruptured ectopic pregnancy.

We present this video to demonstrate the use of hydrodissection for pressure removal of products of gestation with minimal damage to the fallopian tube. Important key aspects of the technique are demonstrated.

Conclusion: Hydrodissection is a safe technique that should be performed during conservative treatment of non-ruptured ectopic pregnancy to minimize tubal damage.

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A New Technique for Simplifying Bladder Dissection During Total Laparoscopic Hysterectomy: The Retro-Version Movement of Uterus by Uterine Manipulator



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This maneuver can be described as a rotatory movement of the uterine manipulator on its long axis for 180 degrees for obtaining a retroflexed and retroverted uterus. To reach this purpose, we used Vcare[®] uterine manipulator because of its unique curvature. Following to the rotatory movement, the cervix spontaneously elevated in the pelvis leading to easy identification of the cup. Further stretching exerted on cervix provides clear identification of borders of bladder. The retroverted and retroflexed shape provides an extra surgical space and enhanced visualization. This technique mainly provides appropriately identified demarcation lines of the cervix, bladder, uterus and uterine vessels together with an enhanced surgical field. Under those enhanced surgical conditions, the surgeon can remove and dissect bladder easily and conveniently from the surgical field. According to us, this maneuver is safe and can help and facilitate to perform hysterectomy especially in the difficult cases.

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Laparoscopic Aspiration of an Ovarian Cyst in Pregnancy



Taylor C, Sigala W, Pedroso J, Gutierrez M, Vennart M, Volker KW. Las Vegas Minimally Invasive Surgery-Women's Pelvic Health Center, Las Vegas, Nevada

In this video we present a 33 year G6P4014 at 21 weeks gestation with an 11 cm right ovarian mass. She underwent uncomplicated laparoscopic aspiration and drainage of the cyst. The techniques and special considerations for laparoscopy in pregnancy are discussed. Laparoscopy can be a safe and effective surgical approach for managing adnexal pathology in pregnancy.

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Bladder Laceration in a Laparoscopic Sacrocolpopexy, Single Layer Repair Procedure



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Bladder injury during laparoscopy is estimated to occur one in tre hundred cases, some literature reports up to three percent of the cases.

Higher injury rates have been reported with laparoscopic hysterectomy and bladder neck suspension and other pelvic surgeries.,

We present a video of a laparoscopic sacrocolpopexy for treating a vault prolapse, in this procedure, we can see a bladder injury when dissecting the vault fascia, because of the anatomy distortion caused by the previous surgeries.

In the acute setting, bladder injuries can be treated with catheter drainage alone if the injury is small, uncomplicated, and isolated.

We repaired the injury with absorbable suture in a single-layer intracorporeal running fashion through all the layers of the bladder in a single movement, we go through transitional-epitelium, submucose, muscular and serosa.

Cystoscopic evaluation of the repair will ensure nonencroachment of the ureteric orifices, and the total closure of the defect.

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Laparoscopic Sacrocolpopexy and Sacrocevicopexy: Step by Step



Mahmoud MS. Obstetrics and Gynecology, Rochester Regional Healthsystem, Rochester, New York

In this video we demonstrate the steps used to perform a conventional laparoscopic sacrocolpopexy and sacrocervicopexy. One case of each procedure is presented and the steps are demonstrated.

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Direct Vision Box Training for Surgical Trainees with Little or No Prior Laparoscopic Experience



Kanno K, Andou M, Hada T, Shirane A, Yanai S, Nakajima S, Ebisawa K, Kurotsuchi S, Ota H. Department of Gynecology, Kurashiki Medical Center, Kurashiki, Okayama, Japan

With the wide adoption of laparoscopic surgery, various methods and theories have been developed to enable surgeons to acquire and improve their skills. One such method is off-the-job training using a dry box trainer. Monitor vision training (MVT) using a display monitor as in actual laparoscopic surgery is currently in general use. For surgical trainees with little or no prior laparoscopic experience, however, jumping straight into MVT is as difficult as actual laparoscopy. In this case, starting out with direct vision training (DVT) in which trainees can see what they are doing directly, rather than on the display monitor, provides them with an easier way to start laparoscopic surgery and encourages progress.

In this presentation, the importance of DVT from the perspectives of (1) temporary separation of bi-hand (BH) and hand-eye (HE) coordination, and (2) improving three-dimensional visuospatial ability is described, and experimental data suggesting its value is provided.

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Laparoscopic Uterosacral Ligament Suspension for Apical Support



Mohling SI, Elkattah R, Furr RS, Liu CY. Obstetrics and Gynecology, University of Tennessee College of Medicine, Chattanooga, Tennessee

This video demonstrates laparoscopic uterosacral ligament suspension performed at the time of hysterectomy. Many women have prolapse of the vagina following hysterectomy because the apex was not well repaired or supported at the time of their original surgery.

The pericervical ring is the point of confluence of the pubocervical fascia anteriorly, the rectovaginal septum posteriorly, and the uterosacral ligaments at the level of the ischial spines. Defects in the fascia connected to any part of the ring may result in pelvic floor prolapse. If the pericervical ring is not re-established and suspended to the level of the ischial spines at the time of hysterectomy, vaginal vault prolapse or other vaginal compartment defect may develop. When the apex of the vagina is suspended to the proximal part of the uterosacral ligaments at the level of the ischial spine, normal vaginal length and axis is usually restored.

483

Comprehensive Review of Techniques for Endoscopic Suture Placement and Retrieval



Farnam RW. Urogynecology, Las Palmas Medical Center, El Paso, Texas

This video demonstrates techniques for placement and retrieval of sutures during endoscopic surgery. It is intended to instruct surgeons transitioning from open and vaginal surgery to laparoscopic and robotic access. Suture preference is not always compatible with trocar use, and this video describes a comprehensive approach to endoscopic suture passage. Specifically three suture placement options and two suture retrieval options are discussed. This informative video demonstrates techniques that will help the beginning MIS practitioner to improve the safety and efficiency of endoscopic needle placement, and contains pearls that expert surgeons will find helpful.

484

Transvaginal Ultrasound-Assisted Laparoscopic Abdominal Cerclage for Twin Pregnancy at 10 Weeks



Guan X, Gisseman J, Kliethermes C. Baylor College of Medicine, Houston, Texas

Laparoscopic placement of the abdominal cerclage is a good alternative to open abdominal cerclage, and is associated with less morbidity. However, literature for laparoscopic cerclage placement during pregnancy is scarce, and no case reports were found for those with twin pregnancies during a PubMed search. We present a case of a patient G7P1 with recurrent pregnancy loss due to incompetent cervix with two-failed vaginal cerclage and one abdominal cerclage. While planning for tubal ligation, presents with amenorrhea and is found to have twin pregnancy. Transvaginal ultrasound assisted laparoscopic abdominal cerclage was performed successfully at 10 weeks gestation and patient is now at 15 weeks and cervix remains 4cm in length. Laparoscopic cerclage is feasible and should be encouraged as the procedure is tolerated with less pain and quicker recovery than an open cerclage.

485

Laparoscopic Essure Removal and Review of Anatomy



Arvizo C, Emery J, Uy-Kroh MJ. Obstetrics and Gynecology, Cleveland Clinic, Cleveland, Ohio

We present the case of a 27 year-old patient who presented with hypopigmented skin lesions, severe vulvar dermatitis and pelvic pain 6 weeks after Essure placement. Given her presentation and concern for nickel hypersensitivity, decision was made to proceed with removal of the Essure. In our video, we discuss the pertinent anatomy and procedural technique of Essure coil removal with subsequent bilateral salpingectomy.

486

Laparoscopic Life Hacks: A Video Survival Guide



Sandoval-Herrera C. Obstetrics and Gynecology, Mount Sinai Hospital and Medical Center, Chicago, Illinois

Surgical challenges in the day to day practice of minimally invasive gynecology can represent an impediment for completion of the procedure and at times a potential for prolonged surgical and anesthetic times or conversion to laparotomy and frustration to the surgeon. The video demonstrates a few "laparoscopic life hacks" that can aid in solving some of those challenges. The maneuvers presented in the video are detailed or highlighted and sometimes in slow motion. The technique modifications and maneuvers shown are performed with the principle to maintain the patient's safety during the surgery.

487

Laparoscopic Apical Support. The Perfect Technique to Minimize Failure



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This video demonstrates different laparoscopic techniques for the management of apical prolapse, providing level I DeLancey's pelvic supports and maintaining vaginal length without narrowing its caliber.

We present the techniques that we have been using in our program to teach fellows. This educational video demonstrates an easy to learn, safe and effective laparoscopic techniques to treat apical prolapse.

Conclusion: The treatment of apical prolapse should be considered at the time of hysterectomy. Different techniques are available. We strongly suggest surgeons to master at least one technique and to incorporate it as routine in patients undergoing hysterectomy.

488

Isolated Chronic Tubal Torsion and Considerations on Its Pathophysiology



Dede M, Bodur S, Ulubay M, Yenen MC. Obstetrics and Gynecology, Gulhane Military Medical Academy, Ankara, Turkey

A 33 year-old, gravida 2 and parity 2 women presenting with abdominal pain located on right iliac fossa following to history of intermittent pelvic pain for nine months after her tubal ligation performed at second cesarean section was admitted to outpatient clinic. It is always hard to have a preoperative diagnosis in the case of isolated fallopian tube torsion. The torsion must be suspected even when it is not presented with an acute clinic and also even suspicion of torsion merits diagnostic laparoscopy especially when it presents together with risk factors. The mechanism beneath the predisposing effect of tubal ligation might be derived from its destructive effect on bloody supply, venous and lymphatic drainage of the mesosalpinx which leads to formation of hydrosalpinx and diminished anatomical support. Those factors together cause the tubal remnants twist around their own bodies especially on the right side lacking protective effect of Sigmoid colon.

489

Bleeding Control Techniques in Laparoscopic Surgeries

Yanai S, Andou M, Kanno K, Nakajima S, Kurotsuchi S, Shirane A. *Gynecology, Kurashiki Medical Center, Kurashiki, Okayama, Japan*



The application of immediate pressure and suturing is difficult during strong bleeding in laparoscopic operations compared with open surgeries. Although a conversion to laparotomy can be necessary, hemostasis during laparoscopy may reduce the burden on the patient.

We think that the most important steps for hemostasis during laparoscopic operations is temporary hemostasis. In addition, it is important to keep the field of vision clear and make the anatomical position clear. After this initial step, it is possible to plan a strategy such as using gauze pressure, suturing, vessel clips, or other techniques.

As a result of using these techniques, in our 5969 laparoscopic surgeries over 5 years (2011-2016), there were only 3 cases that required a conversion to laparotomy due to severe bleeding, and only 2 cases needed a blood transfusion.

In this video, we will show hemostatic strategies in various situations in laparoscopic surgeries.

490

Laparoscopic Evaluation and Excision of Retroperitoneal Parasitic Myoma

Chuba N, Main J. *Obstetrics and Gynecology, Santa Clara Valley Medical Center, San Jose, California*



The aim of this video is to showcase the extraction of a retroperitoneal parasitic myoma following abdominal myomectomy and hysterectomy without prior use of morcellation. Parasitic myomas are a condition that is thought to result from the seeding of fibroid fragments into the peritoneum, most commonly seen after laparoscopic myomectomy, laparoscopic hysterectomy or use of morcellation. Limited literature currently exists on the incidence or prevalence of parasitic myomas following abdominal myomectomy or hysterectomy in the absence of morcellation. In fact, little is known about the pathologic mechanism of this disease process and its risk factors. We hope to highlight the complex laparoscopic evaluation, excision and removal of a symptomatic parasitic myoma identified twenty years after abdominal myomectomy without use of morcellation and thirteen years following abdominal hysterectomy in a patient with multiple prior abdominal surgeries.

491

Laparoscopic Myomectomy of an Intraligamentary Myoma

Argüelles Rojas S, Alfaro Alfaro J, Ayala Yáñez R, Flores Manzur MA. *American British Cowdray Medical Center, Mexico City, Mexico*



The study is about a laparoscopic myomectomy of an intraligamentary myoma. Myomas are the most common benign tumor on women's pelvis during reproductive age. These come from the myometrium cells and woman usually have pelvic pain and alterations in the menstrual cycle. The incidence is <1% of this type of myomas. In women during

reproductive age, symptomatic and without satisfied parity the laparoscopic approach is preferred.

This case is a patient of 31 years old, nulligesta, that begins with hiperpoly menorrhea. In the transvaginal ultrasound, we saw an intraligamentary myoma of 10 centimeters. We decided to make the laparoscopic myomectomy.

During the surgery the uterus measured 10x8x7 centimeters and we observed the presence of the intraligamentary myoma of 10 centimeters, having in the lower limit the right uterine artery at 1 centimeter. Myomectomy was completed laparoscopically without complications using the Morcellator, and the patient had no complications after the procedure.

492

Single Incision Laparoscopy for a 30cm Ovarian Cyst

Kliethermes CJ, Guan X. *Baylor College of Medicine, Houston, Texas*



This patient is an 18 year old G0, who presented with abdominal pain and distention. She was noted to have a 30cm ovarian cyst and was scheduled for ovarian cystectomy.

This video shows the versatility of the single-site platform. We demonstrate how to perform a challenging ovarian cystectomy while maintaining a minimally invasive surgical route and minimizing intraperitoneal spread. Due to the size of the cyst, we are unable to use a containment system and utilize the umbilical site for drainage. Next, using the single-site port, the cystectomy is started until the cyst can be brought through the port and the surgery is completed. Lastly, the delicate fimbrioplasty with salpingostomy can easily be performed extracorporeally due to the larger surgical site. We also describe our closure technique when using the larger single incision site to avoid future hernia formation.

493

Laparoscopic Management of a Large Paratubal Cyst

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Introduction: Paratubal cysts are a remnant of the Wolffian ducts. Most paratubal cysts are small and pedunculated in nature. Some paratubal cysts may be large and sessile in nature. Large paratubal cysts may be symptomatic and can lead to adnexal torsion.

In this video presentation we demonstrate the surgical technique of laparoscopic excision of a very large paratubal cyst with the preservation of the fallopian tube.

Case Description: A 20 year old G0P0 who was referred to our unit for evaluation of a large left adnexal mass. Her chief complaint was intermittent left lower quadrant pain for approximately 4 months. Ultrasound revealed an 8 cm left adnexal cystic structure.

Conclusion: Large paratubal cysts that stretch the fallopian tube in its surface can be safely excised laparoscopically without damage to the fallopian tube. Every effort should be made to preserve the fallopian tube in such patients who desire further fertility.

494

Tips & Tricks: Vaginal Knife Morcellation in Alexis Bag (After Total Laparoscopic Hysterectomy for 18 Weeks Size Uterus) Made Easier with Titiz Utero-Vaginal Manipulator

Titiz H. *Even Women's Health, Brisbane, QLD, Australia*



Food and Drug Administration (FDA) safety communication discouraged use of power morcellators for leiomyoma extraction after the case of disseminated leiomyosarcoma following a laparoscopic hysterectomy.

In a review article, the risk of unsuspected sarcomatous change in hysterectomy specimens was 0.15% (1 in 650).

Case: A 43 years old patient was presented with the symptoms due to multiple fibroids (18 weeks' size uterus). All pre-operative investigation did not suggest any malignancy. She has decided to have total laparoscopic

hysterectomy, bilateral salpingectomy and vaginal knife morcellation in a bag after counseling and discussing different treatment options. Alexis contained extraction system (6500 ml, by Applied Medical) was used. Patient had no intra or postoperative complications. Histopathology showed benign leiomyoma. This video shows followings: 1. Tips and tricks on how to do vaginal morcellation in Alexis bag safely 2. How Titiz utero-vaginal manipulator can help to overcome the challenges.

495

Urinary Bladder Dissection in TLH in a Patient with Previous 3 Caesarian Sections



Luthra AM, Luthra S, Pathak D. Luthra Maternity & Infertility Centre, Dehradun, Uttarakhand, India

Hysterectomy is the most often performed gynecological surgical procedure both in India and in the United States. Surgeon's skills and newer techniques have developed since the first Lap. Hysterectomy was done by Harry Reich in 1989.

TLH in women with previous two or three Caesarian sections is common nowadays.

This video shows how to tackle dense bladder adhesions in a woman with menorrhagia due to enlarged uterus with fibroid with previous three Caesarian sections.

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Laparoscopic Radical Parametrectomy for Cervical Cancer IB1 in Women After Prior Hysterectomy



Eom JM, Choi JS, Bae J, Jung US, Lee WM, Koh AR. Obstetrics and Gynecology, Hanyang University College of Medicine, Seoul, Republic of Korea

A 52-year-old Korean woman has undergone total LAVH due to CIS of cervix at another hospital. Since the histopathological report confirmed SCC of the cervix, the patient was referred to my hospital.

We performed a laparoscopic radical parametrectomy on March 3rd, 2016. Firstly, a laparoscopic exploration was done and then a bilateral pelvic lymphadenectomy was performed. After dissection of the bladder pillar, the vesico-vaginal space was joined to the paravesical space, completely separating the bladder from the anterior vaginal wall. The paravesical and paraarectal spaces were developed and the cardinal ligaments were exposed. Both parametrial tissues were then resected from the vaginal route using linear endocutter. Subsequently, a circumferential incision was made in the upper vagina. Both parametrium and upper vagina were pulled out through the vagina. The histopathological reports demonstrated no residual tumor in the specimen. After the operation, the patient has had no evidence of disease so far.

497

Total Laparoscopic Hysterectomy Using Percutaneous Endoscopic Instrument



Misirlioglu S,¹ Aksu S,² Arslan T,² Boza A,² Ata B,¹ Urman B,¹ Taskiran C.¹ ¹Department of Obstetrics and Gynecology, VKF Koc University School of Medicine, Topkapi, Istanbul, Turkey; ²Women's Health Center, VKF American Hospital, Istanbul, Turkey

A 48 years old woman was admitted with heavy vaginal bleeding. Endometrial biopsy was performed and endometrial hyperplasia with complex atypia was revealed out. Laparoscopic hysterectomy + bilateral adnexectomy was suggested. Final pathology was reported no evidence of cancer. Procedure was performed under general anesthesia in dorso-lithotomy position. After veress needle insertion, the abdominal cavity was insufflated with carbondioxide and pneumoperitoneum was obtained. M-LPS was performed through one optical transumbilical 5-mm trocar, one 5-mm ancillary port on the right side, one 3-mm ancillary port on left and one 2-mm percutaneous endoscopic instrument. A 5-mm 0-degree endoscope, 3 mm laparoscopic instruments and integrated bipolar and ultrasonic technology (Thunderbeat, Olympus Medical Systems Corp,

Tokyo, Japan) were used. All steps of hysterectomy and also vaginal cuff was sutured by using one 2-mm percutaneous endoscopic instrument (MiniGrip[®] Handle, Teleflex Inc. Wayne, USA).

498

Laparoscopically Assisted Pelvic Adhesiolysis and Hysterectomy with Bilateral Salpingectomy in a Patient with Tuberculous Abdominal Cocoon: A Case Report



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Abdominal cocoon is a rare entity with an unknown aetiology. The extensive peritoneal encapsulation brings great challenges for surgeons. In this video we present the case of a 41-year-old female diagnosed with cervical squamous cell carcinoma IA1 had a past history of tuberculosis. Abdominal cocoon was incidentally discovered during surgery. The procedure of laparoscopic pelvic adhesiolysis and hysterectomy with bilateral salpingectomy were elaborated step-by-step. Key points to dissect through the plane of membranes covering the pelvic organs were shown, and techniques to avoid the trap of cocoon confusion were presented. The operation time was 2 hours with 50ml-blood loss. No intraoperative complications. No conversion to laparotomy. The patient recovered uneventfully during 1-year follow-up. With enough patience and delegate dissections following the landmarks of pelvic anatomy, surgeons may provide better results for patients with severe pelvic adhesion by performing mini-invasive laparoscopic surgery.

499

Techniques for Laparoscopic Removal of Essure Coils



Schortz J, Lopez J, Keltz J, Chudnoff S, Levie M. Ob/Gyn, Minimally Invasive Gynecological Surgery Division, Montefiore Medical Center/Albert Einstein College Of Medicine, Bronx, New York

The Essure hysteroscopic procedure is a novel and useful technique for a minimally invasive approach to tubal sterilization. However, recently a number of chronic pelvic pain and acute pain, post procedure, have been reported. Case reports and studies have shown some improvement of such pelvic pain in patients after removal of the Essure device. The submitted video shows novel techniques utilizing transection of the fallopian tube as well as salpingostomy for the removal of Essure coils. Several surgical techniques utilized with laparoscopy are demonstrated in the video. The intended video may be used as instructional for practicing gynecological surgeons.

500

A Rare Case of Inferior Vena Cava Variation



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Objective: To introduce a rare case of inferior vena cava variation in the para-aortic lymphadenectomy.

Methods: This is a 60 years old patient with ovarian clear cell carcinoma, stage IIa. Laparoscopic hysterectomy with bilateral salpingo-oophorectomy, omentum resection, pelvic and para-aortic lymphadenectomy were performed.

Results: A rare inferior vena cava variation was detected in the procedure of para-aortic lymphadenectomy. The operating time of para-aortic lymphadenectomy was 50 minutes. The estimated blood loss of the total surgery was 100mL. There were no conversions or perioperative and postoperative complications. The number of para-aortic lymph nodes was 12. The number of pelvic lymph nodes was 22.

Conclusions: Extreme caution should be taken to prevent the injury of inferior vena cava in the para-aortic lymphadenectomy.

501

Laparoscopic Intraström Hysterectomy: A Novel Nerve-Sparing Approach



Kong X, Chen X. *Obstetrics and Gynecology, Second Affiliated Hospital of Harbin Medical University, Harbin, Heilongjiang, China*

In classic laparoscopic hysterectomy, the bladder is dissected or pushed down, and the uterus is removed by cutting the uterosacral and cardinal ligament. Damage of these structures may lead to progressive damage of the pelvic nervous system or pelvic support that results in future incontinence and sexual dysfunction. In intrafascial hysterectomy, the vesicocervical ligament which prevents herniation of the bladder and urethra into the vagina is severed. Laparoscopic intraström hysterectomy, is a easily performed nerve-sparing approach. In this procedure, the cervix and uterus are removed from the outer stroma of the cervix—pericervical ring. The functional part of the cervical stroma or pericervical ring is left intact, and the integrity of the ligaments and vesicocervical ligament is maintained, avoiding injury to the pelvic supportive and nervous system. Promising advantages have been achieved, including less blood loss, shorter hospital stay and less reported postoperative complications.

502

Surgical Management of Cesarean Scar Pregnancy



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The identification and reporting of Cesarean scar pregnancies (CSP) has increased dramatically with time. Methods of treatment include expectant, medical, surgical or a combination of any or all of these. The major risk of expectant and medical therapy is risk of rupture causing severe hemorrhage. This, along with a high failure rate has lead us to establish a new algorithm for the treatment of CSP in which surgical management is a central component. In this submission we present this treatment algorithm along with detailed video examples for all surgical intervention steps. Surgical intervention begins with the mapping the pregnancy and clipping of the anterior division of internal iliac arteries. The CSP is then evacuated either by laparoscopic guided suction aspiration or laparoscopic hysterotomy. This video will serve to provide a useful guide for practitioners, enabling them to provide safe care of this condition.

503

Needlescopic Conservative Staging of Borderline Ovarian Tumor



Gueli Alletti S, Rossitto C, Perrone E, Cianci S, Fagotti A, Scambia G. *Women and Child Health Pole, Catholic University of the Sacred Heart, Policlinico Gemelli Foundation, Rome, Italy*

2.4 mm needlescopic instruments (MiniLap[®], Teleflex, USA) represent the ultimate and thinnest tool for minimally invasive gynecologic surgery. Our report shows the surgical feasibility and specific characteristics of conservative staging of Serous Borderline Ovarian Tumor performed with the assistance of MiniLap percutaneous instruments.

Case: 29 years old women affected by right ovarian cyst suspected for BOT at preoperative MRI and US.

We performed conservative staging.

Instrumentation: 2 needlescopic instruments and 1 bipolar Maryland inserted through a 5 mm supra-pubic trocar.

Operative time was 62 minutes overall and EBL was 10 mL. No intraoperative complications were registered. The patient was discharged 1 day after surgery. Pathology report confirmed serous BOT.

The needlescopic instruments could represent and advantageous tool in adnexal benign or borderline disease. Further studies are mandatory to define the benefits, advantages, and costs of this novel approach with respect to other ultra minimally invasive procedures.

504

The Use of Hand-Assisted Laparoscopic Surgery for Removal of Very Large Uterus



Gomez D, Terrazas JL. *Obstetrics and Gynecology, University of South Florida, Tampa, Florida*

The use of hand-assisted laparoscopic surgery has been used extensively to improve surgical outcomes in the field of colorectal and urologic surgery. We describe a surgical case where hand-assisted laparoscopy was utilized for removal of a 2495g fibroid uterus in a patient presenting with abnormal uterine bleeding and abdominal distention. The patient was discharge home 12 hours post operatively and no complications encountered, with final pathologic interpretation confirming benign findings. The use of minimally invasive surgery should be considered even in the face of very large uteri that would otherwise be removed via laparotomy to improve surgical outcomes and decrease complications.

505

Surgical Management of Mullerian Anomalies



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An animation was created demonstrating the embryologic development of a normal uterus and the pathophysiology of Mullerian anomalies. We discuss the classification of Mullerian anomalies and surgical resection of 4 out of the 6 types that our group performed including Mullerian agenesis, unicornuate, bicornuate, and septated uterus. We also discuss some surgical management considerations for resection which may or may not have been demonstrated during these particular cases.

506

“Think Before You Act”: A Different Technique to Insert the Trocars to Prevent an Early Entry Complication



Leal C, Garnica A, Rubio V. *Ob/Gyn, Division Gynecology Oncology, StarMedica Hospital Universidad de Monterrey, Chihuahua, Mexico*

With this easy step in the technique we are presenting an easy way to prevent an early complication.

According to the literature the complications rate is in the range of 3-8/1000 procedures with a medium of 5.7/1000 procedures; this has been unchanged in the last 20 years.

More than 40% of the complications occur at the initial step, with the insertion of the Verres needle or the trocar insertion.

The most common complication at this point of the surgery are vascular injuries which accounts 0.5% with a mortality cited to be 17%.

More than 50% of complications are believed to be intestinal injuries with an incidence rate of 0.1% to 0.5% with a mortality rate of 3.6%.

We believe that complications can be preventable if we think of them before we act.

507

Laparoscopic Resection of a Cesarean Section Niche Defect for Treatment of Abnormal Uterine Bleeding



Ziola K, Rattray D, Thiel J. *Obstetrics, Gynecology and Reproductive Sciences, University of Saskatchewan, Regina, Saskatchewan, Canada*

Study Objective: To use narrated video to present a step-by-step explanation of a hysteroscopy-assisted laparoscopic excision of uterine niche defect and uterine reconstruction.

Setting: Laparoscopic excision of uterine niche defect is a fertility-sparing technique for patients in whom definitive treatment via hysterectomy is not an option. Identifying margins of the niche defect laparoscopically can be difficult.

Interventions: Laparoscopic excision of uterine niche is performed after intra-operative hysteroscopic transillumination landmarks the niche. Defect margins are marked laparoscopically. A uterine manipulator identifies the cervical canal. Reconstruction is performed in two layers, using a barbed suture in a running fashion. Adhesion barrier is applied to the reconstructed area.

Conclusion: Laparoscopic excision of uterine niche defect and reconstruction using hysteroscopy to aid with anatomical landmarking is an effective conservative surgical technique that should be considered for patients in whom fertility sparing is desired.

508

Laparoscopic Excision of a Pelvic Mass in a Patient with Primary Amenorrhea



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The objective of this video is to demonstrate laparoscopic resection of an adherent pelvic mass in a patient with primary amenorrhea. The workup and management of this diagnostic dilemma will be discussed. A 27 year-old G0 woman presented with primary amenorrhea and hypogonadotrophic hypogonadism. There was a discrepancy between her pelvic ultrasound, which reported hematometra, and her MRI, which queried an adnexal mass. The patient was consented for a hysteroscopy, laparoscopic salpingectomy, possible ovarian cystectomy, and possible salpingo-oophorectomy. Consent was obtained for video recording. In the operating room, the patient was found to have sexual infantilism and a large left ovarian mass. The mass was adherent to the omentum, sigmoid colon, right and left pelvic sidewall, right ovary, posterior uterus, and cul-de-sac. Frozen section showed an at least borderline serous papillary cystadenoma. Gynecologic oncology was called for further management.

509

The Supreme Training of Laparoscopic Suture and Ligation – Go Beyond Your Limit



Shirane A, Andou M, Kanno K, Yanai S, Nakajima S, Kurotsuchi S, Hada T, Ota Y. *Kurashiki Medical Center, Kurashiki, Okayama, Japan*

We have a difficulty in ligation and suture laparoscopically. There are three reasons. They are the lack of mobility, the poor sense of distance and the poor sense of touch. To overcome the lack of mobility, there are three tips. The first thing is making use of the gravity and the thread tension. The second is doing your wrist work freely. And the third is moving the ground. To overcome the poor sense of distance, there are also three tips. The first thing is always moving forceps and threads. The second is working in a small area. And the third thing is not staring at forceps, but overlook on the short tail of thread. To overcome the poor sense of touch, I can show you two tips. The one is feeling the texture with your eyes. The other is getting skills to ligate tightly anytime and anywhere. This time, we can show you seven techniques of laparoscopic surgeon's knot and training routines.

510

Retroperitoneal 10 cm Cyst Removal with Low Pressure (7mmHg) Laparoscopy



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We report a case of a 25-year-old nulligravida woman who complained about pelvic pain. The MRI showed a 10-centimeter left adnexal mass, which evoked an ovarian cyst or hydrosalpinx. Levels of CA 125, CEA, CA 19-9 were normal. Laparoscopic exploration with low pressure (7 mm Hg) pneumoperitoneum was performed and revealed a retroperitoneal cyst. Ovaries and tubes had no abnormalities. No sign of peritoneal carcinomatosis was found. Incision of the cyst wall, dissection, coagulation and section of umbilical artery, and of the peripheral vessels were performed. Complete low impact laparoscopic cyst removal was finally achieved. The patient had no complication and was discharged the

same day following laparoscopy. Pathologic exam revealed a cystic lymphangioma, which is a benign condition.

511

Vestigial Cyst of the Uterus from First Imaging to Laparoscopic Resection: A Case Report



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The submitted video abstract describes a rare case of large vestigial uterus cysts, followed-up over the course of 6 years and operated on laparoscopically.

The video focuses on clinical history, imaging and surgical aspects of the case.

A 41 year-old patient presented with a cystic-mass during pregnancy. The mass partially regressed after delivery and was explored with various ultrasounds and MRIs on several occasions during a 5-year follow-up period. The cystic structure became symptomatic as it grew larger and the patient sought surgical treatment. Laparoscopic resection of the tumor was performed. Preoperative imaging, intraoperative findings and pathology analysis confirmed the suspected diagnosis of vestigial cyst of the uterus.

The purpose of this video is to take the viewer through a diagnostic journey, beginning with the first imaging, and finishing with the surgical treatment. The video includes ultrasounds, MRI pictures and a surgical video.

512

Vaginal Laparoscopy



Abidi A, Park SJ, Jebelli B, Luna EN, Jones KD, Spencer LY. *Kaiser Permanent, Riverside, California*

Vaginal Laparoscopy can be used as an alternative to standard abdominal approach for removing adnexal structures and may be technically easier in multigravida and obese patients.

In this video we present a laparoscopic vaginal Bilateral Salpingo-oophorectomy as a prophylactic procedure for a 45 year old G2p2 patient with BRCA-1 mutation after a vaginal hysterectomy is completed.

513

A Novel Technique for Intact Laparoscopic Removal of a Large Benign Pelvic Mass



Moulton L, DeBernardo R. *Gynecologic Oncology, Cleveland Clinic Foundation, Cleveland, Ohio*

This video demonstrates a new technique in removing a benign pelvic mass laparoscopically. This technique was borne out of the common occurrence of large pelvic masses obscuring visual planes and identifiable structures during the laparoscopic dissection and excision. We suggest, under direct visualization, placing a trocar followed by an aspirator device directly into the mass, which then greatly reduces the size of the mass and its contents from the abdomen. This video demonstrates the effectiveness of this technique in a case involving a right sided pelvic mass and subsequent laparoscopic bilateral salpingo-oophorectomy.

514

Open Laparoscopy



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Purpose: In this video, the technique of open (Hasson) entry to the peritoneal cavity is discussed. This technique is reviewed in comparison to closed entry with insufflation by Veress needle and also direct entry with visualization. The surgical steps of open entry are listed and described using written, verbal, and figurative means. The advantages and disadvantages of this approach are discussed.

515

Total Laparoscopic Hysterectomy with Left Salpingoophorectomy Using Sutures without the Use of Any Energy Source



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Total laparoscopic hysterectomy with left salpingoophorectomy was carried out using sutures only, in a case of left tubo ovarian mass with left ovarian endometriotic cyst with severe endometriosis, adenomyosis uteri, and myoma uterus, with a history of previous myomectomy and ovarian cystectomy. The dissection aided with application of Marwah's Uterine Manipulator vaginally, involved opening the anterior leaf of broad ligament through the avascular triangle on left side for delineation of uterine vessels. As access was not available on right side for the uterine vessels, the roof of broad ligament was incised for uterine artery. Ureter was identified and uterine artery ligated. Infundibulopelvic ligament, round ligament on left side, tubo ovarian and round ligament on right side ligated and cut. Colpotomy performed with hook scissors. The entire procedure was carried out with blunt and sharp dissection and with sutures only, without using any energy source, thus making it safer and better for the patient.

516

Laparoscopic Management of Huge Myoma Nascendi



Sendag F, Peker N, Giindogan S, Aydeniz EG. Obstetrics and Gynecology, Acibadem University, Istanbul, Turkey

Objectives: To present a case with huge cervical myoma protruding from cervical external os managed with laparoscopic approach

Methods: We performed laparoscopic myomectomy at patients with huge intramural-submucous myoma located at uterine corpus and protruding from cervical external os. The incision was closed three layer suturing with barbed suture.

Conclusion: Cervical myoma with huge size should be managed laparoscopically

Keywords: Laparoscopy, myoma, cervical.

517

Bladder Hydro-Dissection to Overcome the Loss of Laparoscopic Triangulation



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Objective: The following video demonstrates the utility of hydro-dissection in laparoscopic bladder dissection, when performed from a mid-line instrument port.

Description: The advancement of minimally invasive gynecologic surgery gives rise to new challenges, and techniques to overcome them. The advent of less invasive, scar-less surgical approaches, often results in decreased ergonomics from the loss of port placement triangulation.

This creates challenges due to limited instrument utilization. This is especially true when performing bladder dissection.

Hydro-dissection is a technique wherein pressurized fluid is delivered into the tissue, entering into the plane of least resistance. When used during bladder dissection, pressurized fluid is used to dissect into an avascular plane. The following video demonstrates the utility of bladder hydro-dissection from a mid-line instrument port.

Conclusion: When performed from a mid-line instrument port, this technique allows the surgeon to overcome some of the challenges encountered from a mid-line instrument port.

518

Techniques to Increase Efficiency of Laparoscopic Suturing with Barbed Sutures



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It is well known that efficient laparoscopic techniques help decrease time of surgery. Using materials such as barbed sutures have allowed for more efficient laparoscopic surgery to be performed when suturing is involved. This video will provide a novel technique using barbed suture in an efficient way during laparoscopic suturing that may help surgeons decrease the surgical time associated with laparoscopic suturing.

519

Total Laparoscopic Hysterectomy Making Easy: The Technique and Tools – 8-Year Experience



Quayyum MA, Farhat S. Ob/Gyn, Feni Pvt. Hospital and Laparoscopy Institute, Feni, Ctg, Bangladesh

The aim of this video to evaluate our surgical technique with regards to the success of total laparoscopic hysterectomy (TLH) for the removal of the uterus.

Methods: A Retrospective observational study was carried out at Feni pvt. Hospital (FPH), Feni and Chowmuhan general hospital (CGH) Noakhali, Bangladesh based on TLH operations performed from January 2008 to December 2015. The Q-Colpotomizer system a very simple uterine manipulator device were used. The Pneumoperitoneum was maintained by sterile wet sponge vaginal pack.

Four thousands and ninety six women consented for TLH. Four thousands forty eight women (98.8%) had successful TLH with twenty four mini-laparotomy and twenty-four laparotomy conversions (1.2% failure rate).

Conclusion: Total laparoscopic hysterectomy can be carried out successfully with very simple equipments and adequate training is associated with low morbidity, few complications and a high success rate.

520

Vagina-Assisted Laparoscopic Sacro-Cervico-Colpopexy with Prolene Mesh and Metal Screw and Bilateral Round Ligament Shortening



Wang Y-T. Ob/Gyn, China Medical University Hospital, Taichung, Taiwan

Laparoscopic sacral colpopexy is a surgical procedure to correct the prolapse of vagina. But, the procedure will be more difficult if the patient asks to preserve the uterus. The video also demonstrate the method via the vagina-assisted approach to reduce the difficulty of the operation. The video also states the important anatomy of pre-sacral space. And, in order to strengthen the prognosis of the surgery, we could perform bilateral round ligament shortening by electrocauterization and suture. This modified method has better effects of uterine suspension with greater satisfaction degree.

521

Bilateral Adhesiolysis and Tubal Plasty with Low Pressure (7mmHg) MicroLaparoscopy (3 mm)



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A 35-year-old woman who had delivered two times, complained about 2 years of infertility. Hysterosalpingography showed bilateral hydrosalpinges. Microlaparoscopy was performed with 3-millimeter instruments and low pressure pneumoperitoneum (7 mm Hg). Pelvic exploration revealed bilateral hydrosalpinges and extensive peritoneal adhesions. Bilateral adhesiolysis was performed, to restore normal adnexal anatomy. Neosalpingostomy was achieved, including incision of the tubes, eversion of the tubal mucosa, and coagulation of the tubal walls to maintain the plasty open. The patient had no complication and was discharged the same day following surgery.

522

A New Technique for Simplifying Colpotomy Step in Total Laparoscopic Hysterectomy: The Retro-Version Movement of Uterus by Uterine Manipulator



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This maneuver can be described as a rotatory movement of the uterine manipulator on its long axis for 180 degrees for obtaining a retroflexed and retroverted uterus to provide a flattened and upwardly raised cervix. To reach this purpose, we used Vcare uterine manipulator due to its unique curvature. After the rotatory movement, the cervix is elevated in the pelvis leading to easy identification of the cup. Further stretching exerted on cervix provides clear identification of cervical cup and colpotomy line. The retroverted uterine shape provides an extra surgical field and enhanced visualization. This technique provides appropriately identified demarcation lines of the cervix, bladder, uterus and uterine vessels together with an enhanced surgical field. Under enhanced conditions, colpotomy can be performed easily and conveniently. According to us, this maneuver provides a simplified, safe and fast colpotomy step which can help and facilitate to perform hysterectomy.

523

Closed Contained Power Tissue Extraction



Salvay H. *Ob/Gyn, Sutter Maternity & Surgery Center, Santa Cruz, California*

The FDA recently approved a tissue extraction system soon to be marketed. This is the first power device allowed since the FDA warning in 2014. The design is a bag using a single incision approach with a power morcellator and a camera in order that the extraction can occur under visualization with the abdominal contents outside the bag containing the myxomatous tissue.

Presently using currently available equipment the same procedure can be performed.

The combination of a single incision access port, a large bag, and a power morcellator creates a Closed Contained environment for the direct visual removal of tissue that may be an alternative to vaginal morcellation or Open Contained abdominal incision extraction.

This video demonstrates the technique on how to perform tissue extraction contained in a bag with a power morcellator.

Video Posters – New Instrumentation or Technology

524

Single Port Transabdominal Cerclage Operation



Lee YS. *Kyungpook National University Medical Center, Daegu, Korea*

This video demonstrated the feasibility of the single port transabdominal cerclage operation.

Single port operation had many advantages over multiport operation, but still difficult one.

32 years patient had LEEP procedure due to microinvasive cervical cancer at Nov. 2013. After that her cervix was nearly absent and short cervical canal. We were to plan single port cerclage operation after 12week.

The key word for single port cerclage operation were hanging over traction suture, peritoneal window at broad ligament, use of vaginal tube for elevation of cervix, use of Mersilene suture, sure for proper point of suture, suturing point was medial to ascending, descending uterine vessel, cranial to margin of vaginal tube.

525

Cystoscopy in a World without Indigo Carmine



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Intra-operative cystoscopy has been studied as a means to identify ureteric injuries at the time of gynecologic surgery. The majority of published studies investigating intra-operative cystoscopy have utilized indigo carmine to dye the urine for visualization of ureteric jets. Unfortunately, this dye is currently not available in North America. The unavailability of indigo carmine may be a permanent reality that forces gynecologists to examine alternatives for evaluation of ureteric integrity. Various alternate methods have been suggested and range from cystoscopy without dye to other commercially available products that dye the urine. With this submission we provide a video review of the various methods to evaluate ureteric patency with specifics on advantages and disadvantages of each method. This review will equip practicing gynecologists to chose an alternative method to assess ureteric integrity that is tailored to their specific needs.

526

Demonstration of Bag Morcellation for Uterine Myomas: Educational Video



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MorSafe is an isolation bag for power morcellation to avoid spreading myomas during morcellation. Using an isolation bag during morcellation is feasible and could potentially improve the safety of minimally invasive gynecologic surgery. the purpose of this video is to demonstrate the each step of bag morcellation during laparoscopy. This technique involved inserting the isolation bag into the abdomen, where tissue slated for removal was placed within the bag. The surgeon then pulled the opening of the bag to the exterior of the abdomen, inflated the bag, and fragmented the tissue within the bag to contain and remove it. After each procedure, the surgeon visually inspected the isolation bag for tears, as well as the abdominal and peritoneal cavities for tissue pieces left behind.

527

Resection of a 5 cm Type I Vascular Submucosal Leiomyoma Using the Symphion™ Tissue Removal System



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Hysteroscopy is a minimally invasive surgical modality used to diagnose and treat intrauterine problems including abnormal uterine bleeding or anatomical abnormalities such as polyps or leiomyomas. We present a case using the Symphion™ tissue removal system to perform a hysteroscopic myomectomy.

Symphion™ is a newer system with three innovations working together: bladeless resection using a radiofrequency (RF) bipolar device while

providing spot coagulation, direct intrauterine pressure monitoring, and an integrated fluid management system.

This video presents a 56-year-old G3P3003 referred for postmenopausal bleeding. Pelvic ultrasound revealed two intramural fibroids. Office hysteroscopy showed a 5 cm Type I vascular submucosal fibroid. She underwent a hysteroscopic myomectomy using the Symphion™ system with complete fibroid removal. Bleeding was well controlled during the procedure providing a clear operative field. The surgery was uncomplicated, and the patient was discharged home the same day.

528

New Generation Mini-Laparoscopic Instruments in Common Gynecologic Procedures: A Demonstration of Feasibility in a Cadaveric Model



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In this video, the benefits of new generation mini-laparoscopic instruments in gynecologic procedures are discussed and the feasibility of this instrumentation for cystotomy repair is demonstrated. Over the last two decades there has been a trend towards smaller, fewer incisions in minimally invasive gynecologic surgery. This trend has led to the development of more innovative, reliable mini-laparoscopic instruments. These new instruments offer the advantage of improved functionality and durability compared to older models while maintaining the benefits of improved outstanding cosmetic results, decreased postoperative pain, and decreased hernia rates. Further studies are needed to examine the performance of these instruments in the clinical setting. Here we demonstrate the feasibility of cystotomy repair following laparoscopic hysterectomy in a cadaveric model using these new generation mini-laparoscopic instruments.

529

Preservation of the Uterine Support During Colpotomy



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At total laparoscopic hysterectomy, colpotomy is a significant part that needs an advanced skill not only to prevent unnecessary loss of blood and time but also to preserve the paracervical ligaments, and the length of vagina. We prefer a uterine manipulator with an anatomical blade instead of a cup since the length of anterior and posterior vaginal fornices is different. Manipulator's shaft and blade are firmly pushed cranially to delineate the attachment of paracervical ligaments around the cervical side. Then monopolar cautery, that is set to 40 watts for both cutting and coagulation modes, is used to cut anterior vaginal fornix on the edge of blade. The rest of the vagina is separated circumferentially from the cervix using an ultrasonic scalpel. During this separation it is important to cut ligaments from their closest connection to the cervical side. Using this technique is feasible to preserve uterosacral and cardinale ligaments.

530

MyoSure Reach Tissue Removal Device for Hysteroscopic Myomectomy and Adhesiolysis



Rizk B. University of South Alabama, Mobile, Alabama

This video demonstrates a hysteroscopic myomectomy of fibroids in the lower uterine segment occluding entry into the cavity and adhesiolysis using the new MyoSure Reach Tissue Removal System.

The case involves a 43 year old woman who presented with AUB-L, dysmenorrhea, and dyspareunia. Her pre-operative work-up included an

ultrasound which demonstrated 2 uterine fibroids in the lower uterine segment.

Both fibroids were completely removed and the patient had clinical resolution of all symptoms.

531

Total Laparoscopic Hysterectomy with Bilateral Salpingectomy Using ThunderBeat Energy



Kershenovich J, Diaz BP, Dickter C, Alfaro JA. Obstetrics and Gynecology, American British Cowdray Medical Center, Mexico, Mexico

Minimally invasive surgery requires a source of energy for dissecting body tissue and simultaneously achieve adequate hemostasis.

In recent years, developments in laparoscopic technology have reduced surgical time and side effects produced by thermal spread.

Currently, ThunderBeat has replaced the two most used sources of energy; it is the world's only integration of ultrasonic and advanced bipolar energies delivered through a single multifunctional instrument.

ThunderBeat comparing with other laparoscopic instruments, offers the following advantages:

- Faster cutting speed.
- Reliable 7 millimeters vessel sealing.
- Precise dissection with fine jaw design.
- Minimal thermal spread.
- Fewer instrument exchange.
- Reduce mist generation.

We present a video of a total laparoscopic hysterectomy with bilateral salpingectomy with ThunderBeat in a 57 year old women G4C4 diagnosed with uterine adenomiosis. The purpose of this video is to expose the advantages of using only one device.

Video Posters – Oncology

532

Incidental Injury and Repair of Obturator Nerve During Laparoscopic Pelvic Lymphadenectomy



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Objective: To demonstrate a surgical video wherein obturator nerve was iatrogenically injured and repaired immediately with laparoscopic end-to-end anastomosis.

Methods: This is a step-by-step demonstration of an incidental injury and repair of obturator nerve during pelvic lymphadenectomy. The patient was referred to our division for laparoscopic staging for uterine cancer. Left obturator nerve was iatrogenically injured. The nerve was transected cleanly without any fraying of the edges. The obturator nerve edges were oriented and stay sutures were placed in order to perform tension-free anastomosis. Epineural end-to-end coaptation was completed with 5-0 polypropylene sutures.

Results: Postoperatively, the patient did not exhibit any clinically apparent loss of adductor function and was discharged home on postoperative day one.

Conclusion: Laparoscopic repair of obturator nerve injury during gynecologic surgery is feasible. In this case, immediate repair of the damaged nerve by an experienced laparoscopic gynecologic surgeon did not result in any neurologic deficit postoperatively.

533

Robotic Pelvic Lymph Node Dissection



Wasson MN, Butler K, Magrina J. Gynecologic Surgery, Mayo Clinic Arizona, Phoenix, Arizona

Pelvic lymphadenectomy is part of most gynecologic malignancy staging procedures. Level 1 entails removal of the external iliac, internal iliac, and obturator lymph node bundles. Level 2 includes the nodes removed in

level 1 plus the common iliac nodes. It may precede or follow hysterectomy. Paraortic lymphadenectomy involves removal of lymph nodes in levels 3 and 4. We demonstrate a right level 2 pelvic lymphadenectomy with an intact uterus. Following full pelvic lymph node dissection, the retroperitoneal anatomy including the obturator nerve, external iliac vein, common iliac artery, and psoas muscle will be easily visualized cephalad. Caudally, the superior vesicle artery, obturator nerve, and external iliac artery will be seen.

534

Laparoscopic Nerve Sparing Radical Hysterectomy with Bipolar and Scissors



Puntambekar SP, Puntambekar SS, Parikh HP, Sainani SA, Telang MA. Galaxy Care Laparoscopy Institute, Pune, Maharashtra, India

The aim of this video is to demonstrate easy and duplicable steps of Laparoscopic Nerve Sparing Radical Hysterectomy with bipolar and scissors and impact on the incidence of early bladder dysfunctions. We were able to achieve tumor free margin and adequate lymph node dissection by maintaining the integrity of both ureters by using Bipolar Coagulation and Scissors along with the vascular clips.

200 Cases of Laparoscopic Nerve Sparing Radical Hysterectomy were done between 2007-2015 at Galaxy Care Laparoscopy Institute. The uterine vein holds key in this technique and so it is clamped and cut medial to the hypogastric nerve thus preserving parasympathetic nerve fibres and hypogastric plexus. Bladder function was restored back to normal after 48 hours. The use of these instruments is feasible and easy and thus makes this procedure lucid and duplicable.

535

Robot-Assisted Repair of Major Vascular Injury During Lymphadenectomy



Lee YS. Kyungpook National University Medical Center, Daegu, Korea

The objective of this video is to demonstrate the techniques about robot-assisted repair of vascular injury at external iliac vein and aorta during lymphadenectomy. When vascular injury is occurred, it needs the method to control bleeding without early or late complication or laparotomy. At first, to compression at bleeding point by tiny gauze then identify the bleeding point, to try bleeding control by Bipolar cautery. Then it doesn't work, to apply Surgicel Fibrillar and compression. In spite of these methods were failed, it is necessary to repair vascular injury. With advantage of robotic fine movement technology, it is rather simple to repair the vascular injury without laparotomy. It needs holding of distal to vein injury by vessel loop and holding of vascular suture during continuous suturing. We use continuous 5-0 prolene suturing to repair the defect.

536

Single-Port Laparoscopic Transperitoneal Infrarenal Para-Aortic Lymphadenectomy as Part of Staging Operation for Early Ovarian Cancer and High Grade Endometrial Cancer



Lee YS, Lee YH, Chong GO, Hong DG. Kyungpook National University Medical Center, Daegu, Korea

The aim of this video was to demonstrate the techniques of single-port laparoscopic transperitoneal infrarenal paraaortic lymphadenectomy as part of surgical staging procedure in case of early ovarian cancer and high grade endometrial cancer.

Rectosigmoid was mobilized, and then the avascular space of the lateral rectal portion was found by using upward traction of rectosigmoid mesentery. Inframesenteric nodes were removed without injury to the ureter and the left common iliac nodes were easily removed due to the upward traction of the rectosigmoid. The superior hypogastric plexus was found overlying the aorta and sacral promontory, and presacral nodes were removed at subaortic area. Peritoneal traction suture to right abdomen was needed for right para-aortic lymphadenectomy. Even though the technique

of single-port surgery is still a difficult operation, the quality of single-port laparoscopic transperitoneal infrarenal para-aortic node dissection is excellent, especially mean number of para-aortic nodes.

537

Anatomical Landmarks for Total Laparoscopic Nerve-Sparing Radical Hysterectomy: Focused on Posterior Leaf of Vesicouterine Ligament



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Voiding difficulty is associated with mechanical or thermal damage to vesical nerve branch, mainly due to hemorrhage in manipulating posterior leaf of vesicouterine ligament.

In this video, venous network around uterine cervix and anatomical landmarks needed for posterior leaf of vesicouterine ligament are shown. Recommended procedure on cardinal ligament manipulation is to transect deep uterine vein at first, then transect veins join to deep uterine vein one by one in proximal side so as to protect vesical nerve branch in maximal quantity.

Knowledge of venous network around uterine cervix and its relation to pelvic autonomic nerve is essential for laparoscopic nerve-sparing radical hysterectomy. Recognizing the variation of veins join to deep uterine vein helps to protect peripheral autonomic nerve near bladder, that is essential to preserve voiding function.

538

Retroperitoneal Para Aortic Lymph Node Dissection



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The laparoscopic lymph adenectomy is respected as a standard procedure in specialized centers.

If a para aortic lymph adenectomy is required it can be challenging in endometrium cancer as this patients are often of older age with concomitant diseases and a high rate of obesity.

Fatty tissue and the small bowel can be huge obstacles to ensure a radical level of the treatment.

The video shows a complete and strict retroperitoneal access with the advantage that hardly Trendelenburg position is necessary and the small bowel is outside. The disadvantage is the unfamiliar view and the reduced access to the cava. The technique allows performing a radical surgery by a CO₂ pressure of 12mmHG. Only a slight Trendelenburg position is necessary and the lateral position of the trocars allows direct access to the renal artery. All structures can be exposed and the nerves and ureter are in a save field.

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Single Port Radical Hysterectomy with Total Mesometrial Resection (TMMR) as Part of Surgical Procedures in Cases of Cervical Cancer



Lee YS. Kyungpook National University Medical Center, Daegu, Korea

The objectives of this video is to demonstrate the techniques of single port radical hysterectomy with total mesometrial resection as part of surgical procedures in cases of cervical cancer. But, total mesometrial resection is proceeds as follows, peritoneum of douglas pouch is incised and open the rectovaginal space and identify the pararectal space, then, traction suture of hanging over suture is apply to inferior hypogastric plexus and hypogastric nerve

Next procedure is to separate lateral part of uterosacral ligament from nervous part of inferior hypogastric plexus and hypogastric nerve until insertion part of iliococcygeous or endopelvic fascia.. After that, to dissect the rectovaginal ligament to pelvic floor.

Even though single port radical hysterectomy is difficult but total mesometrial resection techniques is more difficult. it took a long time 203 minutes and blood loss was 100ml, 7 days later she can do self voiding without catheterization.

540

Infrarenal Minimally Invasive Para-Aortic Lymphadenectomy in Gynecologic Cancer. A Report of the First 100 Cases in Argentina



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The aim of this study was to evaluate perioperative outcomes in patients with gynecologic malignancies who underwent laparoscopic/robotic para-aortic infrarenal lymphadenectomy.

We included 110 consecutive patients with cervical cancer FIGO stage IB2 or above (N=22), endometrial cancer (N=54) or early stage ovarian cancer (N=34), who underwent transperitoneal (N=100) or extraperitoneal (N=10) laparoscopic para-aortic lymphadenectomy up to the right ovarian vein between May 2009 and May 2014. All cases were successfully performed through laparoscopic approach. The median duration of the surgery was significantly longer in the first group; 190 vs 140 minutes ($p=0.0214$). The median number of lymph nodes removed was 10. The median hospital stay in patient group 1 was 48 hours versus 36 hours in the second group ($p=0.018$). Ten patients (9.1%) experienced vascular complications during the procedure, but none required conversion to laparotomy in either group. Five patients developed lymphocyst but only one required drainage. Blood transfusion was required in 13 patients (11.81%).

541

SLN in Endometrial Cancer by Hysteroscopic Injection of ICG and Laparoscopic-NIR Mapping



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The video shows the technique of sentinel node procedure in endometrial cancer following hysteroscopic injection of ICG. After laparoscopic evaluation of the abdomen and tubal coagulation (to avoid any spillage) a hysteroscopy is performed. Identification of the lesion/s and peritumoral injection of 5 mg of ICG with a 40 mm, 22 Gauge needle inserted in the operative channel of the hysteroscope, is shown.

Laparoscopic mapping using a near-infrared camera is performed. Different routes of drainage are found: a parametrial route on the left side; an external iliac route on the right side and others routes going up to the aortic area along the sacral area and/or ovarian vessels. The complexity of uterine drainage leads to different sites of mapping. Hysteroscopic injection of tracer leads to a higher mapping in the aortic area compared to cervical injection.

Video Posters – Pelvic Pain

542

Laparoscopic Management of Ovarian Remnant Syndrome



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Ovarian remnant syndrome (ORS) is a condition in which a portion of ovarian tissue is inadvertently left behind at the time of salpingoophorectomy, causing pelvic pain or a pelvic mass. Predisposing factors include previous surgeries causing adhesions and inflammatory conditions such as endometriosis. The gold standard for treatment is surgical excision with pathological confirmation of ovarian tissue.

We present two cases of ORS managed by robotic laparoscopic excision with ureterolysis. The first patient had a history of robotic-assisted total laparoscopic hysterectomy with left salpingoophorectomy. This was followed by one and a half years of left lower quadrant pain. Imaging showed a cystic mass consistent with ovarian remnant. The second patient had a one year history of cyclic left lower quadrant pain after total abdominal hysterectomy with bilateral salpingoophorectomy. Both

patients had dense adhesions and required careful ureterolysis in order to successfully remove the ovarian remnant.

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Laparoscopic Management of Parasitic Myoma



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In this video we present the case of a 44yo G3P3 with history of laparoscopic supracervical hysterectomy for fibroids who presents with cyclic vaginal bleeding and pelvic pain. Physical exam and ultrasound reveal several discrete pelvic masses likely consistent with fibroids. On laparoscopy, several parasitic fibroids were noted in the pelvic cavity, the largest measuring 10 cm and receiving blood supply from the descending colon. Techniques for dissection of fibroids from the colon and posterior cul-de-sac are shown. Technique for laparoscopic trachelectomy is then described for removal of all parasitic fibroids. Vaginal cuff is then sutured laparoscopically. In conclusion, symptomatic parasitic fibroids can be safely and effectively managed laparoscopically. Physical exam and imaging studies optimize intra-operative identification of myoma and avoidance of injury.

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Laparoscopic Management of Endometrioma with Incidental Inguinal Hernia



Stockwell E, Taylor C, Pedroso J, Volker KW. Gynecology, Las Vegas Minimally Invasive Surgery, Las Vegas, Nevada

In this video we present the case of a 28yo G0 with left sided pelvic pain, dysmenorrhea, and adnexa mass who desired surgical management. On laparoscopy she was noted to have a prominent right inguinal canal, a left inguinal hernia, a left adnexal mass, bowel adhesions, and normal right adnexa. Technique for inguinal hernia dissection is described. Bowel adhesions are taken down using bipolar energy and blunt dissection. Traction-counter-traction technique for the dissection of left endometrioma from ovarian cyst wall is also described. Plasma energy is then used to fulgurate the ovarian stroma. In conclusion, incidental inguinal hernias may contribute to pelvic pain in the context of endometriosis. A good understanding of the pelvic anatomy is essential to avoid intra-operative injury.

545

The Instruction of Laparoscopic Presacral Neurectomy (LPSN)



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Severe pelvic pain and dysmenorrhea are common clinical symptoms. Although several medical treatments have been proposed for the management of pain, some patients have little or no significant clinical response to the treatments. Consequently, surgical treatments are considered in these cases.

LPSN is the interruption of the superior hypogastric plexus (SHP) and performed to treat severe dysmenorrhea and pelvic pain. However, the technique remains controversial because some researchers question the effectiveness of this surgery.

Several nerve bundles usually constitute the SHP and single trunk is approximately 20% of the anatomical sections according to the literature. To achieve effectiveness with this surgery, the SHP should be clearly identified and completely resected based on an accurate understanding of the anatomy.

We report our technique of LPSN and demonstrate that it is an useful surgical procedure to improve symptoms and the quality of life in patients with severe pelvic pain and dysmenorrhea.

Video Posters – Robotics

546

Robotic Cerclage in Advanced Endometriosis

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Hospital, Washington, District of Columbia*



Objective: To demonstrate a stepwise surgical technique of robotic-assisted transabdominal cerclage placement in a patient with deeply infiltrative endometriosis.

Design: Step-by-step surgical tutorial using narrated video.

Setting: The George Washington University Hospital.

Patients: 38 year-old woman with infertility and history of three first trimester losses, one second trimester loss and another second trimester loss despite McDonald cerclage placement.

Interventions: The procedure used a four port approach. Merselene tape is preloaded in the abdomen. Survey of the pelvis revealed the presence of advanced recto-vaginal endometriosis hindering visualization of the cervico-uterine isthmi on the posterior side of the uterus. Retroperitoneal spaces dissection bilaterally was necessary to lateralize the ureters and mobilize the rectum away from the cervico-vaginal junction where the cerclage will be placed. Abdominal cerclage was placed. There was minimal blood loss with no complications.

Conclusion: Robotic-assisted abdominal cerclage can be performed safely in patients with advanced stage endometriosis.

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Robotic-Assisted Total Intracorporeal Ureteroileoneocystotomy

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This video presents a repair of left ureteral injury that was sustained following a laparoscopic hysterectomy with bilateral salpingo-oophorectomy. The ureter was transected above the pelvic brim. The pelvic ureter was unable to be salvaged due to fibrosis. After 3 months of diverting the urine via nephrostomy tube, a primary robotic-assisted ureteroileoneocystotomy was performed.

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Robotic-Assisted Laparoscopy for Resection of a Non-Communicating Rudimentary Horn

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Background: Chronic pelvic pain can be a challenging condition to treat. We present the case of a 23-year-old G0 patient who presented with severe pelvic pain minimally responsive to daily narcotics

Objective: To demonstrate the usefulness of robotic-assisted laparoscopic surgery for resection of rudimentary horn

Design: Narrated step-by-step video demonstration of the robotic-assisted laparoscopic resection technique

Intervention: Using the da Vinci Xi surgical system, a non-communicating right-sided small rudimentary horn was identified and resected. There was minimal blood loss during this procedure and no complications.

Main Results: The patient had a non-communicating right rudimentary horn causing severe pelvic pain. On POD#1 patient had complete resolution of symptoms and narcotics use was discontinued.

Conclusion: This case demonstrates the usefulness of robotic-assisted laparoscopy when meticulous dissection is needed due to the articulating nature of robotic instruments.

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Robot (Xi) Assisted Transperitoneal Infrarenal Lymphadenectomy by Bipolar and Vessel Sealer Robot Instrument

Lee YS. *Kyungpook National University Medical Center, Daegu, Korea*



The objective of this video is to demonstrate the techniques of infrarenal paraaortic lymphadenectomy by Bipolar and Vessel sealer Robot instrument. Demonstrate case was 65yr old, patient with ovary ca. stage I, High grade serous ca. BMI was 30, operation time is 45 minutes and blood loss was minimal. Almost of surgeons used the robotic monopolar curved scissors to remove lymph nodes. But it may cause cautery injury to major vessel, aorta or inferior vena cava. Vessel sealer robotic instrument had several advantages, such as reduced rate of lymphocyst, chylous ascites and vascular injury.

The number of obtained nodes were adequate.

It was possible to remove lymph nodes more precisely by blunt removal of nodes with use of bipolar robot forceps and vessel sealer.

Video Posters – Urogyn/Pelvic Floor Disorders/Vaginal Surgery

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Combined Laparoscopic Repair of Vesivaginal (VVF) and Ureterovaginal (UVF) Fistula

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Vaginal Hysterectomy is rarely associated with urinary complication which took place during vaginal hysterectomy in this case leading to VVF and UVF. The UVF due to the surgeons attempt to suture bladder vaginally and later abdominally. This led to urinary leak from catheter and through abdominal drain. On examination Foleys bulb was visible in vagina and diagnosis of VVF was made, but that didn't explain urinary leak in abdominal drain.

On diagnostic lap, bladder was separated from vault and was split open. Left ureteric orifice was visible and cannulated, right was visible on suture removal. This explained abdominal leak along with vaginal leak. The bladder wall was reconstructed by rotating fundus of right side bladder towards trigone .

Simultaneous repair of VVF and UVF was done. This probably is the first reported case as per our knowledge.

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Laparoscopic Burch Colposuspension: Elevating Routine Treatment Options for Complex Patients



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Laparoscopic Burch colposuspension is an effective treatment for stress urinary incontinence (SUI) in complex patients. Here, we review surgical technique and anatomy, and discuss several advantages of the Burch over standard midurethral slings. We propose enhancing classic Burch colposuspension by placing an additional lateral suture, increasing support in patients with suboptimal tissue. Three sutures bilaterally suspend a larger portion of the bladder neck, maximizing elevation of the urethra. The Burch is an excellent option for patients who are not candidates for slings, as it avoids mesh, can be used in poor tissue (from prior surgery, infection, radiation or chemotherapy), and paravaginal defects can be repaired concurrently using the same dissection. The Burch is an alternative for patients wishing to avoid mesh or autologous fascial harvest. Because it is such a powerful tool, Burch colposuspension should remain in the armamentarium of the modern gynecologic surgeon caring for complex patients with SUI.

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Laparoscopic Native Tissue Repair of the Posterior Compartment



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The posterior compartment defect is traditionally treated by vaginal route. This requires opening the vaginal mucosa and leads to a central scar. Fascia and Mucosa is separated and the access to the upper third of the vaginal wall is difficult to identify especially the definition of structures like bowel and ureter is problematic.

For the treatment of rectocele and enterocele we have developed a laparoscopic approach. The peritoneum is opened in the pouch of Douglas and the recto-vaginal septum is opened. The preparation follows an avascular space up to the anus. A running suture forms a new ceiling and enables a thickening of the vaginal wall by gathering the facial tissue. The fascia is sutured by an absorbable, mono-filamental suture 2-0. The laparoscopic access provides a perfect view at all structures. This allows the facial suturing at the whole length of the posterior vaginal wall.

Virtual Posters – Basic Science/Research/Education

553

Perspectives on Preparedness for AAGL Fellowship in Minimally Invasive Gynecology: A Quantitative Assessment of Program Directors and First-Year Fellows



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Study Objective: Assess differences in perceptions of preparedness for AAGL Fellowship in Minimally Invasive Gynecology (FMIGS) between AAGL Program Directors (PD) and First-year Fellows (F1).

Design: Anonymous electronic survey (Google Forms, Mountain View, CA).

Setting: National survey.

Patients: AAGL FMIGS PDs and F1s.

Intervention: Participants completed surveys about their perceptions of F1s readiness for fellowship training. The survey instrument was developed by the Fellowship Council, modified with permission, and sent through AAGL-maintained listservs.

Five domains of preparedness were assessed: 1) professionalism, 2) level of independence in clinical and surgical settings, 3) psychomotor ability, 4)

clinical evaluation/management, and 5) academia/scholarship. Responses were reported using a five-point Likert scale. Differences in perceptions of preparedness were compared using Wilcoxon Rank Sum and Fisher Exact tests.

Measurements and Main Results: Response rates were 66% (26/39) and 62% (26/42) for F1s and PDs respectively. Significant differences between PD and F1 responses were most frequent in the surgical independence and clinical evaluation/management domains (7/9 and 10/10 queries respectively). This included perceptions of F1 ability to independently perform basic laparoscopic and robotic hysterectomies.

Participants agreed F1s demonstrated patient ownership (81% vs 92%, $p=0.42$). However, PDs were less likely to believe the F1 could independently and safely perform 30 minutes of a gynecologic procedure (62% vs 96%, $p<0.005$). PDs were also less likely to agree that F1s would recognize features of critically ill patients (73% vs 96%, $p<0.05$). PDs and F1s agreed F1s had genuine interest in academic projects (81% vs 65%, $p=0.35$), but PDs were less likely to agree that F1s had a basic understanding of statistics (65% vs 35%, $p=0.05$).

Conclusion: PDs and F1s demonstrated key differences in perceptions of the fellows' preparedness for FMIGS training across all domains. Perceptions were most discordant in surgical independence and clinical evaluation/management domains. Understanding these differences may offer insight into focused areas of improvement in AAGL FMIGS programs.

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Development of Low Fidelity Trainer to Teach Residents Total Vaginal Hysterectomy



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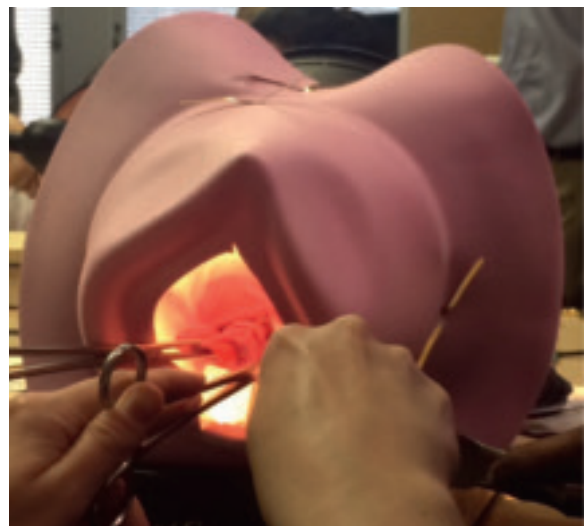
Study Objective: Decline in hysterectomies and provider comfort have led to decreased exposure to total vaginal hysterectomy (TVH) during residency training. Our goal was to develop an inexpensive, low fidelity TVH trainer that could be used by Ob-Gyn residents when performing simulation for TVH.

Design: Pilot design of a novel low fidelity vaginal hysterectomy trainer utilized during residency simulation training to teach TVH.

Setting: The model is manipulated with traditional surgical instruments and suture during dedicated simulation session.

Patients: Ob-Gyn residents at a single academic center.

Intervention: A complete low fidelity vaginal hysterectomy trainer was constructed using common items; the model was adapted from previously published models to include vulva and more realistic-feeling materials. Items used included: "pelvic base"- flower pot and board; "vulva"- pink foam cowboy hat (figure 1); uterine model insert (figure 2) (suspended





within pelvic base) composed of “uterus”- pool noodle, “uterosacral ligaments”- elastic bands, “round ligament and fallopian tubes”- long balloons, “ovaries”- round balloons, “vessels and ureters”-pipe cleaners, and “peritoneum”- Press’n Seal. Residents were asked to rate confidence in performing TVH using 5 point agreement scale, pre- and post-simulation with trainer.

Measurements and Main Results: Five pelvic bases and 16 uterine inserts were constructed for approximately \$10 per pelvic base and \$2 per uterine insert. The pelvic bases are reusable; only the inserts are replaced. The trainer functioned well, although reloading the pelvic base was time consuming. All residents (n=14) successfully performed the steps of TVH. Change in mean resident confidence was statistically significant pre- (M=2.08) and post- (M=3.17) simulation, $p=0.004$.

Conclusion: Our low fidelity vaginal hysterectomy trainer can easily be constructed for minimal cost and used in residency training programs to practice total vaginal hysterectomy in a simulated environment and improve resident confidence in performing TVH. We have since updated the trainer to facilitate reloading the pelvic base.

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Development of Novel Model for Vaginal Cuff Closure Training in a Box Trainer



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Study Objective: To develop a novel benchtop model for vaginal cuff closure training that is clinically representative, cost-effective, and repeatable.

Design: Pilot design of a novel tissue model for use in training of vaginal cuff closure.

Setting: Industry research and development laboratory.

Patients: Researchers participating in laparoscopic hysterectomies in a research setting.

Intervention: A novel model for vaginal cuff closure training was developed using pig esophagus in a box trainer. The novel model was compared to a prior hydrogel model, cadaver models, and tissue as observed during live surgeries with regard to mechanical properties, geometry, and fibrous orientation of tissue layers.

Measurements and Main Results: Various tissues were considered to replace the previously used hydrogel model used in a box trainer (a tubular single-layer isotropic hydrogel). The novel model is fabricated from pig esophagus, and has two weakly-attached layers. Both models had thickness similar to vaginal cuff, but the novel model was less stiff, could be manipulated like the vaginal cuff, and had lifelike anisotropy; in short, it behaved more like vaginal cuff. The two tissue layers were able to slide relative to one another. The hydrogel model was less expensive, and could be used as received, whereas the new model required some assembly.

Conclusion: A novel model for vaginal cuff closure training was developed that improved upon the current model in several ways. This tissue model facilitates benchtop testing that better simulates live surgery without requiring a cadaver. This is a pilot study: future work will focus on continuing to develop the model.

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Real-Time Feedback – Trying Something New – What Works? What Gets in the Way? Program Directors’ Perspectives on the myTIPreport Rollout Experience



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Study Objective: To describe Ob/Gyn and FPMRS Program Directors’ (PDs) experiences with short-term implementation of a “real-time,” web-based tool for feedback on milestones and surgical skills, “myTIPreport.”

Design: Ob/Gyn residency and FPMRS fellowship programs participated from November, 2014-May, 2015. After programs used myTIPreport for 6 months, PDs were asked to describe experiences with myTIPreport, barriers to program use, and facilitators of program use.

Setting: 7 Ob/Gyn and 7 FPMRS programs at major academic centers

Patients: Not applicable.

Intervention: myTIPreport, a “real-time,” web-based tool for feedback on milestones and surgical skills.

Measurements and Main Results: While 12 Ob/Gyn residency and 7 FPMRS fellowship programs participated, the post-use survey was completed by 7 Ob/Gyn and 7 FPMRS PDs. Most PDs (79%) reported “biggest buy-in” for myTIPreport use from learners. The most often reported challenge to myTIPreport implementation was getting learners/teachers to use the program. In particular, PDs described challenges with learner/teacher diads finding time for feedback and remembering program log-ins/passwords. The “implementation tips/tricks” that PDs reported as most helpful were thorough orientation of users to myTIPreport, tracking and providing incentives for use, and leadership support (Chair, PD, Division Directors) of program use. While 12 of 14 of PDs were not satisfied with their “team’s level of myTIPreport use,” the majority (86%) viewed implementation as successful in 6 months. Development of a hand-held application for program use was the most common suggestion for improvement and this has been developed and implemented.

Conclusion: The majority of PDs viewed myTIPreport implementation as successful within 6 months. Facilitators of use included user orientation and use tracking.

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Meta-Analysis and Systematic Review to Determine the Optimum Imaging Modality for the Detection of Deep Infiltrative Endometriosis in the Rectum



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Table 1. Diagnostic test accuracy of imaging techniques in assessing DIE in the rectum.

Method	Studies	N	Affected	Sens.	95%CI	Heterog.	Spec.	95%CI	Heterog.
Barium enema	2	112	83	86%	78-93%	Low	87%	76-98%	High
CT	2	131	99	98%	96-100%	High	100%	93-100%	Low
MRI	9	643	339	83%	77-89%	High	96%	93-98%	Low
MRI 3D	1	23	13	85%	58-96%	N/A	90%	60-98%	N/A
MRI CE	2	209	50	90%	82-98%	Low	91%	87-95%	Low
SVG	3	444	97	85%	71-100%	Very high	94%	90-97%	Low
TRU	5	384	239	94%	91-98%	Moderate	98%	96-100%	Low
TVS	12	1330	572	91%	87-95%	High	97%	95-99%	Moderate
TVS 3D	1	202	77	95%	87-98%	N/A	93%	87-96%	N/A
TVS BP	1	194	81	98%	91-99%	N/A	100%	97-100%	N/A
TVS WC	1	61	51	88%	77-94%	N/A	80%	49-94%	N/A

CT = Computed tomography, MRI = Magnetic resonance imaging, 3D = 3 dimensional, CE = Contrast enhanced, SVG = Sonovaginography, TRU = Transrectal ultrasound, TVS = Transvaginal ultrasound, BP = Bowel prep, WC = Water contrast; Heterog. = Heterogeneity.

Study Objective: To review the accuracy and determine the optimum imaging modality for the detection of deep infiltrative endometriosis (DIE) in the rectum in women with a clinical history of endometriosis.

Design: A systematic review was conducted using MEDLINE, Embase, PubMed and Google Scholar to identify studies published between January 1990 and March 2016. Studies were considered eligible if they were prospective and used any imaging modality preoperatively to assess for the presence of DIE, specifically in the rectum, which was then correlated with the laparoscopic gold standard. DIE in the rectum included lesions in the rectosigmoid. We restricted the eligibility to studies having at least 10 affected and 10 unaffected women.

Setting: N/A.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: The electronic searches retrieved 1034 records. After excluding the records that were clearly not eligible by reading title and abstracts, we completely evaluated 106 study groups for eligibility: 55 were excluded because they were related to studies that included less than 10 affected/unaffected women; and 12 were excluded due to potential redundant information with regards to the same population. We included 39 study groups in the analyses and the main results are reported on Table 1.

Conclusion: All assessed methods have good accuracy for diagnosing DIE of the rectum. As TVS is the simpler, faster, more readily available, and avoid ionizing radiation, we believe it should be the first line diagnostic tool for the women with suspected DIE in the rectum.

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Long Non-Coding RNA RAD51-AS1 Predicts Negative Prognosis and Promotes Proliferation in Ovarian Cancer



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Study Objective: Recently, we found a new long non-coding RNA (lncRNA) : RAD51-AS1 was significantly up-regulated following 10-8 estrogen (E2) treatment in ovarian cancer cell lines. Given that E2 has long been implicated in epithelial ovarian cancer (EOC) progression, we aimed to explore the function of RAD51-AS1 in ovarian cancer.

Design: Expression of RAD51-AS1 were tested by qRT-PCR. Chromatin Immunoprecipitation (ChIP) and Dual luciferase reporter system were used to certify the regulation of E2 by estrogen receptor. Tissues from 103 cases of epithelial ovarian tumor, 31 cases of borderline ovarian tumor and 29 cases of normal ovarian were arranged on a tissue array and the expression of RAD51-AS1 was tested by in-situ hybridization. The expressing pattern of RAD51-AS1 was tested through cell proliferation assay, scratch wound assay, cell invasion assay, cell cycle and apoptosis experiment. A microarray analysis (HTA 2.0) was

followed to detect the associated changing genes by knockdown of RAD51-AS1. Nude mouse model of ovarian cancer induced with SKOV3.ip cell line was established to observe the effects of RAD51-AS1 on the transplanted carcinoma.

Measurements and Main Results: RAD51-AS1 was significantly up-regulated in Skov3, Skov3-ip and HO8910 cells after 10-8 E2 treatment for 24h and the regulation was mainly mediated by estrogen receptor-alpha. In situ hybridization showed that expression of RAD51-AS1 was correlated with advanced FIGO stage, high histological grade, lymph node metastasis, and poor prognosis. Knockdown of RAD51-AS1 suppressed cell proliferation, migration and invasion obviously, not only in vitro, but also in vivo. Results of microarray analysis indicated that the downstream regulations of RAD51-AS1 were mainly through the MAPK pathway.

Conclusion: The estrogen receptor-alpha regulated lncRNA: RAD51-AS1 promotes proliferation, migration and invasion in ovarian cancer, and plays an important role in tumor progression. RAD51-AS1 could be a biomarker for the poor prognosis and therapeutic target of ovarian cancer.

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Role of Metronidazole in Reducing Surgical Site Infections After Hysterectomy



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Study Objective: To evaluate whether the combination of cefazolin plus metronidazole was more effective in preventing surgical site infection than the existing recommendations of cefazolin or second-generation cephalosporin prior to hysterectomy.

Design: Retrospective cohort study of a Michigan Surgical Quality Collaborative (MSQC) database from July 2012 through February 2015.

Setting: Cases were abstracted from the MSQC database. MSQC is a statewide group of hospitals that includes patients from both public and private insurance payers. Specially trained, dedicated nurses abstract patient characteristics, intraoperative data and 30-day postoperative outcomes.

Patients: Patients over age 18 who underwent abdominal, vaginal, laparoscopic or robotic hysterectomy for benign or malignant indications.

Intervention: Patients undergoing hysterectomy who received one of the following prophylactic antibiotic regimens: cefazolin, second generation cephalosporin or cefazolin plus metronidazole. Primary outcome was any surgical site infection.

Measurements and Main Results: The study included 18,255 hysterectomies. The overall rate of surgical site infection was 1.8% (n=329). The unadjusted rate of surgical site infection was 1.8% for cefazolin alone, 2.1% for second-generation cephalosporin and 1.4% for cefazolin plus metronidazole. After adjusting for substantial differences in

patient and operative factors among the antibiotic cohorts using multivariate logistic regression modeling, the risk of surgical site infection was significantly lower for patients receiving cefazolin plus metronidazole compared to those receiving cefazolin alone (OR 0.47, 95% CI 0.26–0.85). There was no difference in risk of surgical site infection between patients receiving cefazolin and those receiving second-generation cephalosporins (OR 1.03). Results were confirmed by propensity score matching analysis.

Conclusion: Cefazolin plus metronidazole appears to reduce risk for surgical site infection after hysterectomy compared to cefazolin alone or second-generation cephalosporin alone. Implementation of this regimen has the potential to substantially decrease infectious morbidity associated with hysterectomy.

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The Role of Mentorship on the Career Choices for Obstetrics and Gynecology Residents



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Study Objective: The benefits of mentoring in medicine include positive role models and impact on career selections. Mentees tend to practice in the same field as their mentors and had the same types of academic or non-academic practices. The process by which obstetrics and gynecology residents decide on sub-specialization is unknown. This study aims to determine a mentor's impact on the career choices of current Ob/Gyn residents.

Design: This cross-sectional study was conducted over 3 months. A 25-item questionnaire related to career choices and mentorship was distributed to current Ob/Gyn residents at the University of Toronto, Toronto, Canada. Chi-square was used to test the differences.

Setting: N/A.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: 31 of 62 residents responded to the survey (50% response rate). 74% of the respondents were female and 26% were male. Of the 71% of residents who entered residency with defined career plans, 81% did not feel their residency experience altered those plans. 68% of residents had decided on an academic or non-academic practice prior to residency and 89% of these residents had not changed

Conclusion: Many obstetrics and gynecology trainees enter residency with a career plan and seek out mentors in the same field. Mentors can have a significant impact on career planning decisions and can influence a trainee's decision to pursue subspecialization in obstetrics and gynecology.

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Meta-Analysis and Systematic Review to Determine the Optimum Imaging Modality for the Detection of Deep Infiltrative Endometriosis in the Rectovaginal Septum



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Study Objective: To review the accuracy and determine the optimum imaging modality for the detection of deep infiltrative endometriosis (DIE) in the rectovaginal septum (RVS) in women with a clinical history of endometriosis.

Design: A systematic review was conducted using MEDLINE, Embase, PubMed and Google Scholar to identify studies published between January 1990 and March 2016. Studies were considered eligible if they were prospective and used any imaging modality preoperatively to assess for the presence of DIE, specifically RVS DIE, which was then correlated with the laparoscopic gold standard. We restricted the eligibility to studies having at least 10 affected and 10 unaffected women.

Setting: N/A.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: The electronic searches retrieved 1034 records. After excluding the records that were clearly not eligible by reading title and abstracts, we completely evaluated 106 study groups for eligibility: 55 were excluded because they were related to studies that included less than 10 affected/unaffected women; and 12 were excluded due to potential redundant information with regards to the same population. We included 16 study groups in the analyses and the main results are reported on Table 1.

Conclusion: The sensitivities of SVG and the MRI methods were very good, being better than TVS and much better than TRU. The sensitivity of all imaging methods was very good. As SVG is simpler, faster, and more readily available than MRI methods, we believe it should be the first line diagnostic tool for the women with suspected DIE in this region.

Table 1. Diagnostic test accuracy of imaging techniques in assessing DIE in the RVS.

Method	Studies	N	Affected	Sens.	95%CI	Heterog.	Spec.	95%CI	Heterog.
MRI	4	293	95	76%	67-86%	Low	93%	87-100%	High
MRI CE	2	209	63	79%	70-89%	High	95%	92-99%	Moderate
MRI with Gel	1	58	16	94%	72-99%	N/A	90%	78-96%	N/A
SVG	1	54	36	81%	65-90	N/A	100%	82-100%	N/A
TRU	1	346	84	18%	5-48%	N/A	95%	88-98%	N/A
TVS	6	486	173	47%	22-71%	Very high	96%	92-99%	High

MRI = Magnetic resonance imaging, CE = Contrast enhanced, SVG = Sonovaginography, TRU = Transrectal ultrasound, TVS = Transvaginal ultrasound; Heterog. = Heterogeneity.

their plans during residency. 61% of respondents had a mentor and 58% had identified their mentor during residency. Male residents were more likely to seek out same gender mentors compared to female residents (83% vs. 69%, $p=.033$). 70% of respondents felt that their mentor was important or very important in their career planning decisions. 53% had the same field and 55% had the same practice type as their mentor. 86% of respondents felt that a formal career-planning program would be helpful.

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Does Visuospatial Aptitude Predict Surgical Performance in Ob/Gyn Residents?



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Study Objective: To determine if written visuospatial perception (VSP) aptitude testing is correlated to laparoscopic and robotic simulated skills testing or evaluations of operative ability.

Design: Prospective cohort study.

Setting: Two tertiary care academic centers in the U.S.

Patients: Obstetrics and gynecology residents (postgraduate years 1-4) from two tertiary care academic centers (A&B).

Intervention: Participants completed a short survey regarding their level of training, demographics, and career interests. They then underwent a validated VSP test, a laparoscopic peg transfer test from the Fundamentals of Laparoscopic Surgery (FLS) program and a 3-D peg transfer simulation exercise on the da Vinci Skills Simulator. Residency evaluations of operative performance, standardized under the ACGME Milestones framework, were collected for both obstetric and gynecologic technical skills. Correlation analyses controlling for possible confounding factors were performed to compare the performance on VSP testing to simulated or real-life operative skill.

Measurements and Main Results: 18 residents completed the study, 11 from program A and 7 from program B. There was an even representation of junior and senior-level residents, and the majority had practiced FLS or robotic simulation in the past. The VSP test performance was not correlated with FLS peg transfer time or total number of drops. On the robotic simulation exercises, average peg transfer time was significantly correlated with VSP score ($B=-0.56$, $p=0.05$); meaning that as VSP score decreased the time taken on robotic simulator task increased. Milestones grades were not correlated with VSP performance.

Conclusion: In this small sample of residents, VSP ability was correlated with performance on robotic peg transfer simulation, but not laparoscopic peg transfer simulation or subjective evaluations of operative skill.

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Ex-Vivo Human Artery Burst Pressures with the ALTRUS Thermal Tissue Fusion System



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Study Objective: To calculate the burst pressure of human uterine and ovarian arteries in ex-vivo hysterectomy specimens performed with the ALTRUS Thermal Tissue Fusion System.

Design: Basic Science Research.

Setting: Ambulatory Surgical Center, Parkridge East Hospital, Chattanooga, TN.

Patients: Uterine and ovarian arteries were harvested from 13 total laparoscopic hysterectomy specimens. In all specimens, the ALTRUS device was used in securing these vessels.

Intervention: Loop magnification was used to identify and harvest uterine and ovarian arteries. Each harvested vessel included two portions: A- the sealed portion and, B- 1 cm of normal non-occluded vessel. Cannulation of the non-occluded portion of the harvested arteries then followed. Vessel burst pressure testing was then performed using a calibrated system with air as the distending medium while the vessel was submerged in a normal saline bath maintained at body temperature. This proceeded until the intra-arterial air escaped from the sealed end as air bubbles under progressive insufflation. The pressure at this point was recorded as the vessel burst pressure. Average and standard deviation of all obtained burst pressures were calculated.

Measurements and Main Results: Thirty arteries were harvested and underwent burst pressure testing. Of these arteries, 23 were uterine and 7 were ovarian. The overall average burst pressure of uterine and ovarian vessels with the ALTRUS device was 835.3 +/- 295.2 mmHg.

Conclusion: The ALTRUS Thermal Tissue Fusion System provides an excellent vessel seal with a mean burst pressure of 835mmHg. This is well above the normal systolic blood pressure of arterial vessels and thus provides a reliable and hemostatic seal when used in total laparoscopic hysterectomy.

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Meta-Analysis and Systematic Review to Determine the Optimum Imaging Modality for the Detection of Uterosacral Ligament Deep Infiltrative Endometriosis



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Study Objective: To review the accuracy and determine the optimum imaging modality for the detection of deep infiltrative endometriosis (DIE) in the uterosacral ligaments and/or torus uterinus in women with a clinical history of endometriosis.

Design: A systematic review was conducted using MEDLINE, Embase, PubMed and Google Scholar to identify studies published between January 1990 and March 2016. Studies were considered eligible if they were prospective and used any imaging modality preoperatively to assess for the presence of DIE, specifically the uterosacral ligaments, which was then correlated with the laparoscopic gold standard. Uterosacral ligament DIE included lesions in the torus uterinus and rectocervix. We restricted the eligibility to studies having at least 10 affected and 10 unaffected women.

Setting: N/A.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: The electronic searches retrieved 1034 records. After excluding the records that were clearly not eligible by reading title and abstracts, we completely evaluated 106 study groups for eligibility: 55 were excluded because they were related to studies that included less than 10 affected/unaffected women; and 12 were

Table 1. Diagnostic test accuracy of imaging techniques in assessing DIE in the uterosacral ligaments and/or torus uterinus.

Method	Studies	N	Affected	Sens.	95%CI	Heterog.	Spec.	95%CI	Heterog.
MRI	5	328	139	74%	59-89%	Very high	84%	75-93%	High
MRI CE	2	389	170	73%	66-79%	Very high	93%	90-96%	Low
MRI with gel	2	140	51	80%	70-91%	Low	95%	91-100%	Low
SVG	2	255	49	67%	57-78%	Very high	98%	96-100%	Low
TRU	1	140	10	80%	49-94%	N/A	98%	93-99%	N/A
TVS	6	714	259	68%	54-82%	Very high	91%	85-96%	Very high

MRI = Magnetic resonance imaging, CE = Contrast enhanced, SVG = Sonovaginography, TRU = Transrectal ultrasound, TVS = Transvaginal ultrasound; Heterog. = Heterogeneity.

excluded due to potential redundant information with regards to the same population. We included 18 study groups in the analyses and the main results are reported on Table 1.

Conclusion: All assessed methods have good accuracy for diagnosing DIE of the uterosacral ligaments and/or torus uterinus. As TVS is simpler, faster, and more readily available, we believe it should be the first line diagnostic tool for the women with suspected DIE in this region.

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Abstract withdrawn

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Development of Novel Method to Assess Strength of Vaginal Cuff Closure in Total Laparoscopic



Hysterectomy

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Study Objective: Develop a quantitative method to assess the strength of vaginal cuff closure.

Design: Feasibility study in a cadaver of a method to assess whether a vaginal cuff closure satisfies a minimum closure strength requirement.

Setting: University hospital.

Patients: One cadaveric pelvis.

Intervention: There is no validated, quantitative method to quantify cuff closure in laparoscopic hysterectomy. Digital examination, visual inspection, and clinical observation of post-operative bleeding are all used clinically, but in a laboratory setting, more repeatable and quantifiable methods can be used. A novel method to assess the strength of cuff closure was tested in a cadaver.

Measurements and Main Results: A rod with a high density polyethylene (HDPE) sphere with a diameter of 1.5" was inserted into the vaginal canal of a cadaveric pelvis after cuff closure. The rod was mounted to a force transducer mounted to a linear slide on a tripod. The sphere was lubricated to minimize friction. The linear slide and force transducer allowed the HDPE sphere to be advanced at a consistent angle under displacement control into the vaginal canal. This loading method enables evaluation of both load and displacement thresholds while accounting for stress relaxation of biological tissue. The sphere was advanced 7cm beyond the introitus, then advanced under displacement control to 0.5lbf. This load was maintained for 60 seconds. The sphere distributed a uniform force across the cuff.

Conclusion: A quantifiable method to assess cuff closure was developed and evaluated. The 0.5lbf minimum strength is likely similar to or above digital palpation. The benefit of this method is that it is quantifiable. The next step is to show repeatability and show that the model can distinguish between good and poor vaginal cuff closure and then to fine tune the choice of force, time of exposure, and shape of the probe.

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Discharge Readiness Following Conventional Laparoscopic and Robotic-Assisted Hysterectomy



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Study Objective: Evaluate patient readiness for discharge following conventional laparoscopic (TLH) and robotic-assisted hysterectomy (RA-TLH).

Design: Prospective cohort quality improvement study of all patients undergoing TLH and RA-TLH between November 25, 2015 and March 15, 2016.

Setting: Tertiary care hospital.

Patients: One month following discharge, all patients who underwent TLH or RA-TLH were called for a phone interview to assess discharge readiness following surgery and knowledge of postoperative restrictions and symptoms.

Intervention: Baseline data on discharge readiness, knowledge of postoperative restrictions/symptoms, 30-day readmission rate, complications, and length of stay after surgery were collected. Following collection of baseline data, a patient education video on the discharge process and expectations after surgery was developed and implemented. Post-video implementation data is currently being collected.

Measurements and Main Results: A total of 39 of 41 patients (response rate 95.1%) were interviewed following TLH and RA-TLH. Of 39 respondents, there were zero 30-day readmissions while 3 (7.7%) patients required postoperative evaluation in the emergency room. Overall, 32 of 39 (82.1%) of patients reported they were ready for discharge after surgery. There were no statistically significant differences in discharge readiness between TLH (77.8%) versus RA-TLH (83.3%), between oncology cases (83.3%) versus benign cases (81.5%), or between same day discharges (83.3%) versus discharge on postoperative day 1 or greater (81.8%). Of those who reported they were ready for discharge, 15 of 32 (46.9%) called the office more than once postoperatively versus 5 of 7 (71.4%) who reported not being ready for discharge ($p=0.407$). Of 39 patients, 20 (51.3%) strongly agreed they felt knowledgeable of what symptoms to expect after surgery and 25 (64.1%) strongly agreed they felt knowledgeable of the postoperative instructions.

Conclusion: Patients' subjective perceptions of readiness for discharge and expectations after TLH and RA-TLH are low. This provides an opportunity for quality improvement.

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Patient Characteristics of Female to Male Transgender Individuals Undergoing Hysterectomy for Gender Affirmation



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Study Objective: Our gynecology practice has served as a referral center for transgender individuals who desire gender affirmation surgery as part of female to male transition. Little is known about the characteristics of this patient population.

Design: Retrospective chart review of transgender individuals who underwent gender affirmation surgery at our institution.

Setting: Academic affiliated community hospital.

Patients: ICD-9 and -10 codes for 'gender identity disorder' and 'transsexualism' were used to identify 37 transgender patients who had presented to our gynecology clinic for care. 12 of these patients were trans men (male to female) and underwent gender affirmation surgery.

Intervention: All patients underwent gender affirmation surgery in the form of total or supracervical hysterectomy with or without bilateral salpingo-oophorectomy by a single provider.

Measurements and Main Results: A retrospective chart review of patients who presented between 2/2012 and 3/2016 was performed. Average age at the time of surgery was 30.9 years and 92% were nulliparous. 58% of these patients presented for gender confirmation surgery, the remainder for other gynecologic issues such as vaginal bleeding and pelvic pain. Sexual preferences and behaviors varied widely among all patients. The most common comorbidity (33%) was a mental health diagnosis. 75% had previously undergone bilateral mastectomy "top surgery" and 100% were on testosterone therapy prior to presentation. The majority had a robotic-assisted procedure (83%).

Conclusion: There is limited data in the field of transgender medicine, specifically regarding individuals undergoing female to male transition. We have identified patient characteristics and motivations for undergoing hysterectomy. This is the first step in increasing awareness and provider education to improve care for this population.

These patients will be invited to participate in an upcoming focus group aimed at optimizing peri-operative gynecologic care for these individuals.

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Virtual Reality Robotic Simulation Performance**Assessment: Simulator Metrics vs. GEARS**

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Study Objective: To compare the performance metrics of virtual reality (VR) robotic surgical simulators to the Global Evaluative Assessment of Robotic Skills (GEARS) metrics for basic robotic tasks. The goal was to determine if a difference exists between the scoring mechanisms of both validated tools for measuring surgical expertise.

Design: Prospective randomized study.

Setting: Surgical education and training center.

Patients: Residents, fellows, and attending surgeons (n=18).

Intervention: Participants were randomized to a specific order in which they used the dV-trainer and da Vinci Skills Simulator (dVSS). The subjects performed two warm-up exercises: Pick & Place and Basic Camera Targeting and then completed two trials of Ring & Rail 1 (RR1) and Suture Sponge 1 (SS1) on each simulator. The simulator performance was video recorded and the de-identified videos were sent to expert robotic surgeons to review using GEARS.

Measurements and Main Results: The subjects' demographics can be seen in table 1.

The second trial of RR1 and SS1 was used for video review and simulator evaluation. The ranges of individual simulator metrics were calculated and quintiles were identified. The simulator metrics were then categorized into the appropriate quintile, allowing comparison to the Likert GEARS scoring system.

In a preliminary analysis, the Economy of Motion simulator metric and the GEARS Efficiency metric were compared for both the dV-Trainer and dVSS. No differences were found in Efficiency for RR1 or SS1 in either system.

Table 1. Demographics

Average Age	31
Male	67%
Female	33%
Left Handed	0%
Right Handed	100%
Average Number of Total Laparoscopic Cases	127
Average Number of Total Robotic Cases	9
Have Had Previous Robotic Training	50%
Have Not Had Previous Robotic Training	50%
Have Previously Used a Robotic Surgery Simulator	83%
Have Not Previously Used a Robotic Surgery Simulator	17%

Table 2. Economy of Motion and GEARS Efficiency

dV-Trainer	
RR1	p=0.742
SS1	p=0.667
dVSS	
RR1	p=0.212
SS1	p=0.454

Conclusion: To our knowledge, no study has compared simulator metrics to video evaluations performed by experts. The preliminary data suggests that no difference exists between simulator scores and GEARS. Since the simulator's evaluation is similar to an expert robotic surgeon for basic tasks, this may indicate that a human evaluator may not be necessary for assessment of these skills. A more

exhaustive analysis will be performed with additional subjects and completed by AAGL 2016.

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Competitive Laparoscopic Skills Training Among Obstetrics and Gynecology Residents

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Study Objective: To determine if introducing a competitive element to laparoscopic skills training would encourage practice, thereby improving overall skill acquisition and enhancing performance.

Design: Prospective cohort study.

Setting: Academic institution.

Patients: Obstetrics and gynecology residents.

Intervention: Residents were asked to complete a box trainer peg transfer task in a baseline assessment, second assessment after 4 weeks, and then a final competition assessment with prizes. The box trainers were then available 24 hours a day for unstructured peg transfer practice. The data was analyzed to assess the relationship between number of voluntary practice sessions on the box trainers and the task score, and whether this was affected by the announcement of a competition.

Measurements and Main Results: Twenty-seven Ob/Gyn residents performed the baseline assessment and completed the pre-test survey. Ten different residents (38%) logged practice sessions on the box trainer during the course of the study, with a mean of 36.5 minutes prior to the 2nd assessment and a mean of 21.1 minutes prior to the competition. The residents who practiced had a higher mean score at the 2nd assessment compared to the mean baseline score (93 vs. 32.1, p = .52). Those who practiced also had a higher mean competition score compared to the mean baseline assessment score (126.4 vs. 61.3, p = .64). More residents that were interested in a surgical subspecialty practiced on the box trainer compared to those who were undecided or interested in a nonsurgical subspecialty, which was statistically significant (66.7% vs. 22.2%, p = .04).

Conclusion: Though not statistically significant, practice did lead to higher mean assessment score. With the decrease in overall resident participation in the competition assessment and the decrease in mean practice time from 2nd assessment to competition compared to baseline to 2nd assessment, we can conclude that introducing a competitive element did not result in increased voluntary training by residents.

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Meta-Analysis and Systematic Review to Determine the Optimum Imaging Modality for the Detection of Bladder Deep Infiltrative Endometriosis

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Study Objective: To review the accuracy and determine the optimum imaging modality for the detection of bladder deep infiltrative endometriosis (DIE) in women with a clinical history of endometriosis.

Design: A systematic review was conducted using MEDLINE, Embase, PubMed and Google Scholar to identify studies published between January 1990 and March 2016. Studies were considered eligible if they were prospective and used any imaging modality preoperatively to assess for the presence of DIE, and specifically bladder DIE, which was then correlated with the laparoscopic gold standard. Bladder DIE included bladder, ureters and uterovesical pouch. We restricted the eligibility to studies having at least 10 affected and 10 unaffected women.

Setting: N/A.

Patients: N/A.

Intervention: N/A.

Table 1. Diagnostic test accuracy of imaging techniques in assessing bladder DIE.

Method	Studies	N	Affected	Sens.	95%CI	Heterog.	Spec.	95%CI	Heterog.
MRI	1	92	13	23%	8-50%	N/A	100%	95-100%	N/A
TVS	1	500	41	44%	30-59%	N/A	100%	99-100%	N/A

MRI = Magnetic resonance imaging, TVS = Transvaginal ultrasound; Heterog. = heterogeneity.

Measurements and Main Results: The electronic searches retrieved 1034 records. After excluding the records that were clearly not eligible by reading title and abstracts, we completely evaluated 106 study groups for eligibility: 55 were excluded because they were related to studies that included less than 10 affected/unaffected women; and 12 were excluded due to potential redundant information with regards to the same population. We included 2 study groups in the analyses and the main results are reported on Table 1. **Conclusion:** The sensitivity of TVS for detecting bladder endometriosis seems to be slightly better than MRI, although the sensitivity of both methods is not very high. Specificity of both MRI and TVS was excellent. As TVS is the simpler, faster, and more readily available, we believe it should be the first line diagnostic tool for the women with suspected DIE in this region.

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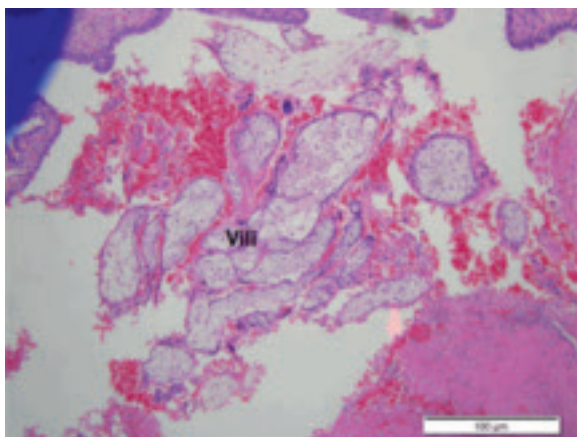
Does Methotrexate Lead to a Pathological Reaction in the Fallopian Tube When Administered to a Patient with an Ectopic Pregnancy?



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Study Objective: Methotrexate administration for the treatment of ectopic pregnancies was demonstrated to cause tubal mass enlargement by ultrasound follow up. Our hypothesis was that by administering Methotrexate, a local necrotic reaction occurs, leading to an enlargement of the mass, hematoma formation and a cascade of events that may lead to rupture of the fallopian tube. We assume that when the EUP spontaneously resolves, an apoptotic reaction takes place with gradual disappearance of the gestational tissue.

Design: A total of 30 pathologic specimens were collected. Group A included 10 patients who received Methotrexate and who were hemodynamically stable but failed medical treatment. Group B was composed of 10 patients who had a viable EUP with a fetal heart rate. Group C, included 10 patients who had a self resolving ectopic pregnancy but were operated based on relative indications.



All of the specimens were examined by a single pathologist who was blinded to the different treatment approach administered to the patients. The specimens were put on slides and were dyed using the Cleaved Caspase-3 (Asp175) Rabbit mAb.

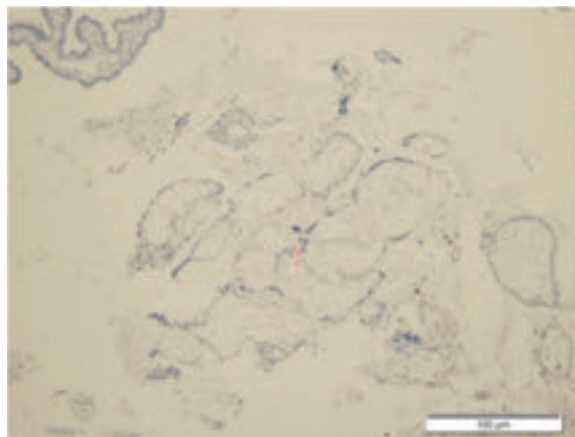
Setting: A Tertiary Gynaecological Center.

A University affiliated Pathological institute.

Patients: Patients hospitalised and treated in a tertiary gynecological referral center, between January 2001 - June 2013.

Intervention: Specimens dyeing using the Cleaved Caspase-3 mAb.

Measurements and Main Results: Surprisingly, apoptosis rate found was less than 1% per slide, regardless of which group was tasted. Necrosis was not evident in either of the pathological specimens.



Conclusion: As ectopic pregnancies present a daily challenge to the gynaecologist, we owe our patients to know and fully understand the full extent of the treatment were administering. To the best of our knowledge, this is the first study to examine the subject of the cellular reaction after Methotrexate therapy, we will continue to pursue the matter and are searching for the right histopathological approach in order to prove our hypothesis.

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Efficacy of the Routine Postoperative Visit in Benign Gynecologic Ambulatory Procedures



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Study Objective: Evaluate the efficacy of the routine postoperative visit following uncomplicated benign gynecologic ambulatory surgical procedures in identifying postoperative problems and complications.

Design: Retrospective chart review.

Setting: Academic medical center.

Patients: Patients undergoing uncomplicated outpatient benign gynecologic procedures between January 2012 and May 2015. Exclusions include oncologic, urogynecologic, infertility and obstetric procedures, as

well as those involving intraoperative complications or advanced laparoscopic procedures.

Intervention: Routine postoperative visit.

Measurements and Main Results: 152 patient records were included. Procedures included laparoscopic tubal ligations, loop electrode excision procedures, and both diagnostic and operative hysteroscopic procedures. 48 patients did not show to their post-op visit (31.6%) and of these, one was seen at an outside emergency room (ER) for what was determined to be routine post-op healing but did not show up for an urgently scheduled clinic visit. Of the 104 patients seen for a post-op visit, 70 (67.3%) did not report any problems at all and only 18 (17.3%) reported any problems related to their surgery, such as pain or bleeding. Another 16 patients (15.3%) had problems unrelated to the procedure or underlying diagnosis. No significant complications were identified. Overall, 12.5% of patients required clinical evaluation (18 at post-op visits, 1 at an outside ER) for a problem related to surgery and 88.2% of patients either did not show to their post-op visit or did not have any problem relating to their surgery addressed at this visit.

Conclusion: For most uncomplicated outpatient benign gynecologic procedures, significant surgical complications are rare and the vast majority of patients undergoing such procedures do not have any surgical problems addressed by the time of their post-op visit. Given the minimal impact on patient safety, the direct and indirect costs associated with such visits, and various alternative means of communication with patients, routine post-op clinic visits are not needed.

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Implementation of a HIPAA Compliant, Free User-Friendly Application in the Outpatient Setting, to Maximize the Utilization of Resources in a Community Based Hospital



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Study Objective: Introduction: Utilization of resources in community-based hospital is extremely important, as these tend to be limited and achieving the maximum utilization permits better care to be offered to an underserved community.

To determine if the implementation of a HIPAA Compliant, Free and user friendly computer application ‘Gyn-surgical Calendar’ helped maximize the operative schedule.

Design: A retrospective cohort study. Data was collected from the Gynecological surgical schedule from January 26th 2014 to January 26th of 2016.

Data was divided into two groups – Group 1: surgical cases scheduled prior to the Gyn-surgical calendar; Group 2: cases scheduled after implementing the calendar. The total number of cancellations and cancellations due to no show/lost to follow up where taken into account.

Setting: Community based hospital, outpatient-setting gynecology clinic.

Patients: Patients booked for gynecological surgery in an outpatient setting from January 26th 2014 to January 26th of 2016.

Intervention: A free user-friendly application was implemented to document patients scheduled for surgery in an outpatient setting, creating immediate access to booking staff.

Measurements and Main Results: A total of 430 patients where booked for surgery.

Group 1 had total of 121 patients, 18 cancelled surgeries (15%) of which 9% (11/121) was not performed due to no show /lost to follow up.

Group 2 had 309 patients, 41 cancelled surgeries (13%) of which 5% (15/309) where not done due to no show /lost to follow up.

With implementation of the calendar there was a reduction in 4% of canceled surgeries due to no show/lost follow up.

Conclusion: By implementing a ‘Gyn Calendar’, the no show/missed follow up rate of patients booked for surgery decreased improving the utilization of resources in an underserved community.

The user-friendly application reduces fragmentation and allows an accessible and structured way to follow up patients, providing timely alerts and enabling prompt actions to reduce lost surgical time.

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Medical Team Training in Laparoscopic Surgery

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Study Objective: To determine the association between implementation of a medical team training program and reduced rate of communication errors and improved logistics chain.

Design: Prospective study in the operation unit of the Vestfold Hospital Trust from March 2015 until November 2015.

Setting: Academic affiliated federal state hospital.

Patients: All interdisciplinary operation teams in the gynecological unit in the period March 2015 until November 2015 undergo the medical team training program.

Intervention: A novel medical team training program was implemented in 2015. The program required academic preparation, briefing and debriefing in the operation room and included checklists as an essential part of the program, based on crew resource management curricula from flight crew training. A video showing severe acute hemorrhage during laparoscopic surgery was used for the scenario in all training cases and a real body mannequin with real operation equipment was utilized.

Measurements and Main Results: We measured the time from the start of the bleeding until the bleeding was under control, the number of communication mistakes and logistic problems before and after the team training. The average time needed to get the bleeding under control was before the training 4:32 min. and after the training 2:55 min.. The average number of communication mistakes was reduced by the training from 12 to 8 and the number of logistic problems was reduced from 2 to 0.

Conclusion: Participation in the medical team training program was associated with lower rates of communication mistakes and logistical problems as well as reduced problem solving time.

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The Relationship of Surgical Performance on Visuospatial Ability in Gynecological Residents

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Study Objective: To examine the relationship between visuospatial ability and performance in surgery among gynecological residents and to determine if visuospatial ability is a constant property.

Design: This is a prospective, non-blinded study involving the gynecological residents over two academic years.

Setting: This study took place at a single academic teaching center, Mt Sinai Hospital, in Manhattan, NYC.

Patients: Gynecological residents were evaluated.

Intervention: Over two academic years, residents completed three visuospatial ability (VSA) tests (snowy pictures, card rotation and form board) annually and were evaluated on their performance in gynecologic surgeries using a validated global rating scale consisting of the general skills (GS) and case skills (CS) subscales.

Measurements and Main Results: Between 8/2014 and 5/2016, 37 residents were enrolled and 245 surgical evaluations were included. Three VSA tests were compared to two years of surgical data. Only 12 of 37 residents had VSA and surgical scores for 2 years. Although not significant, as the card rotation and form board tests increased, so did the GS and CS scoring ($p = .07$) and ($p = .08$), respectively. There was no correlation between GS and CS scores and snowy pictures. The general skill and case skill means increased from year 1 (GS: 3.50/ CS: 3.59) to year 2 (GS 3.69/ CS: 3.61). Comparing year 1 to 2, the form board and snowy picture tests did not significantly increase ($p = 0.16$ and 0.99). The card score did increase significantly ($p = 0.02$).

Conclusion: Higher scores on the form board and card components of the VSA tests trended towards better performance in the operating room. The form board and snowy picture test remained constant over 2 years but the

card score increased significantly. Without limiting previous exposure to VSA testing, only the form board component of the VSA test may be useful in predicting which candidates may make better surgeons.

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The Development of a Retroperitoneal Dissection Model



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Study Objective: To develop a laparoscopic simulation model for retroperitoneal anatomy and dissection.

Design: Educational pilot study.

Setting: Academic tertiary care center.

Patients: Seven expert laparoscopic surgeons participated. Experts were defined as individuals who had completed > 100 advanced minimally invasive procedures. Experts possessed advanced laparoscopic skills, were involved in laparoscopy training with residents, and had an interest in laparoscopy education.

Intervention: A low-fidelity 3D simulation model was developed representing key anatomic structures encountered during retroperitoneal dissection and ureteric identification.

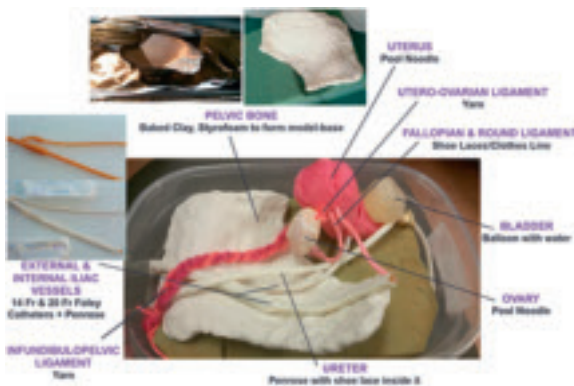


Figure 1. Model Construction and Materials

Several models were constructed and trialed to allow for adjustments. Materials, construction steps and costs were determined and three final models were created. The models were trialed by the expert laparoscopic surgeons.

Measurements and Main Results: The total cost of one model ranged from 65 to 75 USD. The majority of model materials were reusable except for two parts, costing < 1 USD per additional use.

Material Used	Anatomical Correlation	Cost per unit (USD)	Units utilized per model
Styrofoam*	Base to hold the model	4.89	1
Fetal Muscle*	Uterus and Ovary	3.86	2
Open-Bake Clay*	Pelvic Bone	17.11	1
Balloon*	Bladder	0.78	1
White Laces/Clothes Line*	Round Ligament Fallopian Tubes	0.78 to 10.89	1
Yarn*	Ureter with penrose as an outside sheath IP and Uterocervical ligaments	10.11	1
Paint*	To paint the round/fallopian/other structures if needed	4.27	2
Foley Catheters*	Vessels with penrose outside sheath	1.41	2
Penrose Drain*	Outside sheaths for Vessels and the Ureter	3.01	3
Cotton Balls**	Retroperitoneal Fat	3.29	1
Penrose Drain GLAD soap**	Peritoneal Layer	5.66	1
TOTAL COST PER MODEL			65 to 75 USD

Figure 2. Cost Breakdown for Model Creation: Total cost 65 - 75 USD per model. Additional cost per use < 1 USD

Table 1. Participant demographics

Demographic	Result (N=7)
Age (Average in years)	40.1
Level: Staff/Fellow	5 (71%) / 2 (29%)
Years in Practice (Average)	11.8
Fellowship Training	7(100%)
Handedness: Right/Left	6 (86%) / 1 (14%)
Laparoscopic Retroperitoneal Dissection >100 cases:	
Primary Surgeon	6 (86%)
Assistant Surgeon	7 (100%)
Laparoscopic Hysterectomy >100 cases:	
Primary Surgeon	6 (86%)
Assistant Surgeon	7 (100%)
Laparoscopic Oophorectomy >100 cases:	
Primary Surgeon	6 (86%)
Assistant Surgeon	7 (100%)

Demographic information is presented in table 1.

Participants assessed face validity using a 5-point Likert-scale. They agreed or strongly agreed that the model resembled the texture of the ureter, vessels, and peritoneal layer (86% of participants), approximated the correct anatomical course of the ureter (100%), and closely approximated live surgery (71%). They also agreed or strongly agreed that the model would be useful for teaching laparoscopic retroperitoneal dissection (100%) and for assessing a learner's ability prior to the operating room (86%). All participating experts agreed or strongly agreed that the model was cost effective and 86% felt it was easily reproducible.

Conclusion: This unique model fills a gap in laparoscopic simulation training. No other low- or high-fidelity models for laparoscopic retroperitoneal ureteric dissection have been identified in the literature. This simulation model is cost-effective, easily reproducible and closely resembles retroperitoneal dissection during laparoscopic gynecologic surgery. This model can be used for education and assessment.

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“myTIPreport”: Training for Independent Practice – A Tool for “Real-Time” Formative and Summative Feedback on Milestones & Procedural Skills



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Study Objective: To develop a web-based tool for “real time,” venue-based formative feedback and summative review of milestone level attainment and procedural skill competency.

Design: Software engineers developed this web-based application (myTIPreport). OB/GYN ACGME milestones and case log procedures were incorporated into myTIPreport. For milestones, each item within each level of each milestone set was programmed such that “yes/not applicable” responses could be recorded. Overall milestone level achieved for each assessment was also documented. Additionally, surgical procedures, divided into 10 “key” steps, were programmed in to myTIPreport with ratings ranging from novice to expert. Overall surgical procedural ability was also recorded.

Setting: Program developed for feedback in the “real-time” clinical setting

Patients: Not applicable.

Intervention: Description of educational tool development.

Measurements and Main Results: Over six months, myTIPreport was developed. With a secure log-in, the program directs users to generate either new formative feedback or review past feedback. Summative feedback is also presented. OB/GYN and FPMRS milestones and selected surgical procedures were successfully incorporated into the program. Formative and summative assessments are possible for each element of

each milestone set. Likewise, all selected surgical procedures were successfully incorporated with successful assignment of competency level to each “key” step as well as to each procedure overall. Software engineers ensured consistency of application function, operational integrity, and application efficiency.

Conclusion: A web-based tool, myTIPreport, was successfully developed for “real-time,” venue-based formative and summative assessment of milestones and surgical skills. Tool implementation could facilitate meaningful feedback between residents and fellows and teachers and could provide valuable information on resident/fellow progress with milestone level attainment and surgical skills competency. Future directions include implementation in other ACGME specialties and subspecialties and this work is underway.

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Understanding the Principles of Electrosurgery During Laparoscopic Surgery: A Survey Amongst Trainees and Consultants in Obstetrics and Gynaecology



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Study Objective: The study objective was to evaluate the knowledge and understanding of electrosurgery principles during laparoscopic gynaecological surgery amongst trainees and consultants, according to level of experience and competence. We aimed to use these results to assess the risk of potential injury due to improper use of electrosurgery at laparoscopy.

Design: An observational study was conducted using a standardised questionnaire designed to assess the participants' knowledge and understanding of basic electrosurgery principles. Doctors of varying experience and special interest working in the Department of Women's Health were selected to complete the study, which was performed under supervision to avoid any bias from others or use of reference aids. Participants were selected by allocating questionnaires to those doctors scheduled to be either operating or assisting in gynaecology operating theatres where electrosurgery would be used. To date, 30 doctors have been recruited and recruitment will continue until a sample size of 50 is achieved. The questionnaire included free text and multiple choice questions to assess both knowledge and understanding of the use of electrosurgery in laparoscopic surgery.

Setting: The study was performed at the University Hospital of Wales, department of Women's Health.

Patients: N/A.

Intervention: N/A.

Measurements and Main Results: Preliminary results indicate that knowledge and understanding of electrosurgery used during laparoscopic surgery is poor, with under 50% of participants so far demonstrating comprehensive knowledge of the basic principles. Detailed results are to follow on completion of collection of data.

Conclusion: Sound understanding of the basic principles of electrosurgery along with its application during laparoscopic surgery is key to avoid potentially serious complications at laparoscopy. Low levels of awareness of key principles increases the risk of improper use of electrosurgical devices, thus increasing complication risks. Training should involve ongoing, regular assessment of such knowledge to reduce risk of electrosurgery related injuries during laparoscopic surgery.

580

The Effect of Stress on Efficiency and Accuracy in Laparoscopic Skills Among Obstetrics and Gynecology Residents



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Study Objective: To evaluate the impact of stress on laparoscopic skills among obstetrics and gynecology Residents.

Design: Observational Prospective Cohort Study.

Setting: Urban teaching university hospital.

Patients: 31 Obstetrics and Gynecology Residents, Post Graduate Years 1-4.

Intervention: We assessed four basic laparoscopic skills at two sessions. The first session was the baseline; six months later the same skills were assessed under audiovisual stressors. We compared the effect of stress on accuracy and efficiency between the two sessions.

Measurements and Main Results: A linear model was used to analyze time. Under stress, residents were more efficient in three out of the four modules. Ring transfer (Hand-eye coordination, bimanual dexterity), $P=0.0304$. Ring of Fire (Bimanual dexterity, measure of depth perception), $P=0.0024$ and Dissection Glove (Respect of delicate tissue planes), $P=0.0002$. Poisson regression was used to analyze the total number of penalties. Residents were more likely to acquire penalties under stress. Ring transfer, $P=0.0184$ and Cobra (Hand-to-hand coordination), $P=0.0487$ yielded a statistically significant increase in penalties in the presence of stressors. Dissection Glove $P=0.0605$ yielded a non-significant increase in penalties.

Conclusion: Our work confirmed that while under stress residents were more efficient, this translated into their ability to complete tasks faster in all the tested skills. Efficiency, however, came at the expense of accuracy.

581

Hurdles in Starting Laparoscopy in a Rural Medical College: Our Experiences



Sangwan V. BPS Govt. Medical College Khanpur Kalan Sonapat, Sonapat, Haryana, India

Study Objective: Although laparoscopy surgery has certain proved advantages over open surgery like less scarring, less postoperative pain, early return to work etc but has a long learning curve. The pressure of feeling we are behind as a surgeon if we don't embrace laparoscopy made us to take it on. With this paper we want to share our experiences i.e. beginner problem we faced, efforts and modification we adopted and current status of our journey.

Design: A retrospective study.

Setting: All laparoscopic procedures performed in our newly established government medical college in rural India (from 2013) were retrospectively analyzed for time trend, difficulties faced and modifications did. Data analysed statistically with spss20.

Patients: All the patients underwent laparoscopic procedures in the department of Ob/Gyn in our institute.

Intervention: Laparoscopic procedure as per indication.

Measurements and Main Results: We have performed cases of 27 diagnostic laparoscopy, 10 cases of laparoscopic ovarian cystectomy, 09 cases of ectopic pregnancy, and cases of LAVH and 05 cases of TLH. Over a period of about two years out of total only 8 cases were performed in first year of study. It was our technical deficiency, nonavailability of mentor, anaesthetists reluctance for general anaesthesia due to prolonged duration of surgery and administrative pressure of long waiting list. To overcome these problems we underwent lap training with experts, attended CMEs, conferences and convinced anesthetists and administration for these surgeries. We also selected and trained our O.T. staff about technical demands of laparoscopy.

Conclusion: Start by doing what is necessary; then do what's possible and suddenly you are doing impossible. However conversion to open surgery should be kept at low threshold rather than landing yourself and patient in complications.

582

Ulipristal Acetate: Has Our Management of Fibroids Changed?



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Study Objective: To assess the effectiveness of ulipristal acetate as a treatment for fibroids. Including, the impact on fibroid size, symptom improvement, side effects of ulipristal acetate subsequent treatment required.

Design: Retrospective review study.

Setting: Retrospective review of all patients in one Health and Social Care Trust in Northern Ireland prescribed ulipristal acetate from August 2012 and October 2015.

Patients: Forty-four patients were identified and data was collected through retrospective chart and regional electronic care record review.

Intervention: Ulipristal acetate prescribed for management of fibroids.

Measurements and Main Results: The commonest primary presenting complaint was heavy menstrual bleeding.

There was 53% significant improvement in menstrual bleeding, 59% have had further treatment since being prescribed ulipristal acetate. most commonly myomectomy.

There was a statistically significant reduction in fibroid size pre and post ulipristal acetate treatment (p 0.00139 using Wilcoxon Signed Rank test). The side effects of ulipristal acetate were not tolerated in 16% of patients, 2 patients (4.5%) of patients became pregnant while on ulipristal acetate the importance of counseling.

There was no symptomatic response in 45% of patients.

Conclusion: Although ulipristal acetate was originally licensed as a pre surgery treatment for fibroids our study found that 41% of patients commenced on ulipristal acetate have so far required no further treatment.

583

Long Non-Coding RNA aHIF Predicts Poor Prognosis in Epithelial Ovarian Cancer and Affects Cell Proliferation Through the Regulation of Cell Cycle, Apoptosis and Senescence



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Study Objective: The contribution of aHIF, a well-known long non-coding RNA, to epithelial ovarian cancer (EOC) remains largely unknown. In the present study, we aimed to investigate its expression pattern, clinical significance, and biological function in EOC.

Design: Retrospective study, in vitro and in vivo study.

Setting: Obstetrics and Gynecology Hospital of Fudan University.

Patients: EOC patients admitted to the Obstetrics and Gynecology Hospital of Fudan University between 2005 and 2008.

Intervention: N/A.

Measurements and Main Results: Expression of aHIF in EOC tissues and its correlation with clinicopathological factors and overall survival (OS) was examined. A series of in vitro and in vivo assays were performed to determine the function and mechanism of aHIF in EOC progression.

Clinically, aHIF was overexpressed in EOC tissues relative to normal controls, and the overexpression correlated with advanced International Federation of Gynecologists and Obstetricians stage and high histological grade. Multivariate analysis indicated that aHIF is an independent prognostic factor for overall survival in EOC. Gain- and loss-of-function experiments demonstrated that aHIF promotes EOC cell proliferation both in vitro and in vivo. The proliferative effect was linked to the promotion of cell cycle progression and inhibition of apoptosis and senescence. Moreover, Downregulation of Bcl-2 by aHIF may partially explain aHIF-induced EOC cell proliferation.

Conclusion: These results highlight the importance of aHIF in EOC cell proliferation and suggest that aHIF is a potential prognostic biomarker.

584

Evaluation of the Short-Term Effectiveness of a Training Program in Minimally Invasive Surgery (MIS) in Dakar, Senegal



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Study Objective: To evaluate the short-term effectiveness of a training program in minimally invasive surgery (MIS) in a developing country.

Design: Cross-sectional study involving the evaluation of surgeons who participated in a 4-day MIS training. The evaluation was carried out by assessing knowledge scores before and after the training.

Setting: Training and study took place at The Centre Hospitalier National de Pikine, a teaching hospital in Dakar, Senegal.

Patients: Not applicable.

Intervention: A comprehensive 4-day MIS training module that consisted of didactic lectures, dry labs and live surgeries. Training was carried out by a team of gynecologists with expertise in the field of MIS. All participants submitted a pretest and posttest questionnaire at the beginning and conclusion of the training respectively.

Measurements and Main Results: All 6 study participants had some prior experience with MIS and worked in government-owned institutions in Senegal. Of the 6 participants, 3(50%) had performed less than 6 operative laparoscopies, 1(6.6%) had performed 6-10 operative laparoscopies and 2(33.3%) had performed 20 or more operative laparoscopies in the last 6 months. There was a slight but not statistically significant improvement in the test scores of trainees pre and post training. On the pre-training test, 2 trainees scored 80%, 2 scored 60% and 2 score 50%. On the post-training test, 2 scored 90%, 1 scored 80%, 2 scored 60% and 1 scored 50%. One area in which participants improved was knowledge of techniques for gaining entry into the peritoneal cavity.

Conclusion: Although there was only a slight increase in knowledge scores pre and post training during this short MIS course, there was a subjective improvement in confidence on MIS knowledge based on trainee comments. There is a need and feasibility of effective training in MIS in developing countries. Participants may benefit from targeted training based on their skills in combination with frequent refresher courses.

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Increasing Minimally Invasive Hysterectomy at Centro Medico Nacional 20 de Noviembre



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Study Objective: The aim of this study was to determine the frequency of the use of the different routes in women undergoing hysterectomy for benign disorders in November 20th National Medical Centre.

Design: We performed a retrospective review of all patients who underwent hysterectomy for benign disease during from January 2014 to 2015 at November 20th National Medical Centre after the implementation of a minimally invasive approach as a quality indicator in women's healthcare.

Setting: November 20th National Medical Centre.

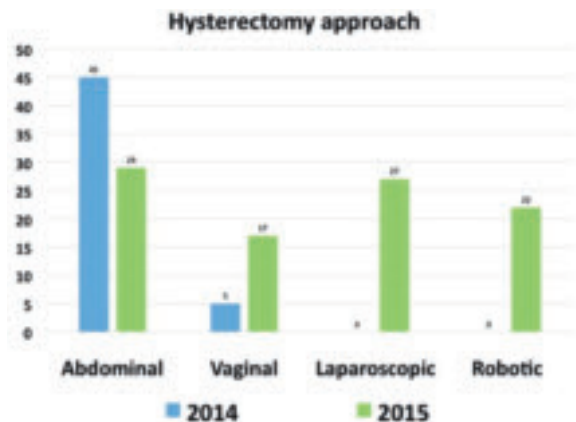
Patients: All patients who underwent hysterectomy for benign disease from 2014 to 2015. Cases were excluded if they were classified as partial hysterectomy or obstetric-related.

Intervention: N/A.

Measurements and Main Results: A total of 145 hysterectomy cases were reviewed. The minimally invasive (MI) hysterectomy rate increased 68% from 2014 to 2015. We found that the abdominal approach decreased

Hysterectomy approaches in 2014 and 2015 in November 20 National Medical Centre

Hysterectomy	2014	2015
Abdominal	45 (90%)	29 (30.5%)
Vaginal	5 (10)	17 (17.89%)
Laparoscopic	0	27 (28.4%)
Robotic	0	22 (23.15%)
Total	50	95



Hysterectomy approaches in USA, Australia, France and Germany

Country	Vaginal	Laparoscopic	Abdominal
Australia	39%	13%	48%
France	48%	27%	25%
Germany	55%	12%	33%
USA	19%	25%	56%

from 90% in 2014 to 30.5% in 2015. There was an increase in laparoscopic and vaginal approaches from 0% to 51 and 17% respectively in 2015. Also we found that robotic-assisted hysterectomy had an increase of 23.15% in 2015 compared to 2014.

The technicity (the number of hysterectomies performed vaginally and laparoscopically divided by the total number of hysterectomies performed annually in a single department) increased in 2014 from 0.1 to 0.6 in 2015.

Conclusion: Initiatives implemented in 2015 at the November 20th National Medical Centre allowed our surgeons to perceive the minimally invasive approach as a new indicator of institutional and departmental surgical quality. If every institution makes MI surgery a priority, it is possible to increase the rate of minimally invasive procedures, resulting in fewer complications, shorter recovery times and increased patient satisfaction.

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Mucinous Adenocarcinoma Diagnosed on Incidental Appendectomy at the Time of Hysterectomy: A Case Report

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Study Objective: Discuss the pathological findings of a mucinous adenocarcinoma as diagnosed after performing an appendectomy at the time of hysterectomy based upon an abnormal appearing appendix. Furthermore, we aim to highlight the importance of gynecologist obtaining privileges to perform appendectomies at the time of pelvic surgeries.

Design: Case report.

Setting: Community hospital.

Patients: A 47-year-old African American gravida 6-para 4024 presented to her gynecologist requesting evaluation and treatment of abnormal uterine bleeding (AUB), dyspareunia, pelvic pressure and generalized abdominal pain. Examination revealed an enlarged uterus with clinical and physical findings consistent with uterine fibroids and adenomyosis.

Intervention: A total laparoscopic hysterectomy (TLH) with contained vaginal extraction (CVE) using the Applied Medical Contained

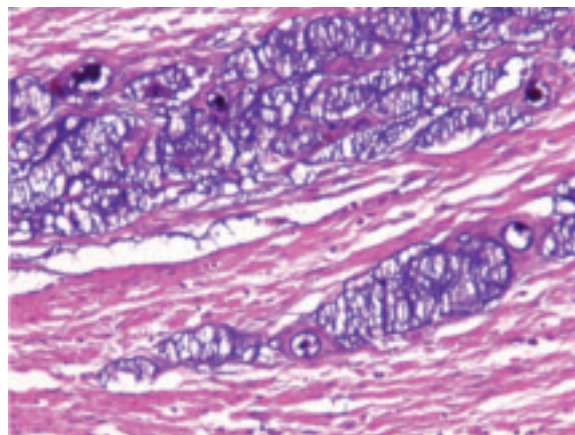


Figure 1. Mucin stain. Intermediate power of goblet cell carcinoid acini with cellular and luminal mucin.

Extraction System was performed for the treatment of the abnormal uterine bleeding secondary to leiomyomas (AUB-L) and adenomyosis (AUB-A). An incidental appendectomy was also performed as the attending surgeon was concerned with the hyperemic, rigid, and cystic appearance of the appendix.

Measurements and Main Results: The final pathology revealed a mucinous adenocarcinoma of the appendix with features consistent with ex-goblet cell carcinoid, signet ring cell type. Uterine, cervical, and fallopian tube pathology was negative for malignancy. The patient would later undergo a right hemicolectomy and a bilateral oophorectomy. The pathology from those specimens was negative for any additional abnormal cells.

Conclusion: Gynecologic surgeons should feel comfortable performing appendectomies at the time of pelvic surgery especially when abnormalities are visually noted. This practice should become a routine part of post graduate medical education training and a part of the credentialing process for all gynecologists.

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Abnormal Uterine Bleeding: Can a Single Investigation Diagnose It?

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Study Objective: To analyse the utility of ultrasonography, hysteroscopy and endometrial biopsy individually in cases of abnormal utrine bleeding.

Design: A prospective study.

Setting: 100 patients with complain of abnormal uterine bleeding were included. All patients after detailed history, clinical examination underwent ultrasonography, hysteroscopy and hysteroscopic guided biopsy. Data was collected and analysed with microsoft excel 2013.

Patients: 100 females in the age group of 20-50 yrs with complain of abnormal uterine bleeding constituted study group. Females with IUCD and unmarried females were not included in the study group.

Intervention: All the patients underwent routine baseline investigations followed by ultrasonography (abdominal), hysteroscopy and guided biopsy. Histopathological results were considered standard.

Measurements and Main Results: The analysis of results revealed that 93% of patients were 31-50yr age group (38.60±6.09). menorrhagia was most common symptom (45%) followed by metrorrhagia (19%), menometrorrhagia (14%) and postmenopausal bleeding (8%). Eighty percent patients with menorrhagia were in 31-40 yr age group and other symptoms like metrorrhagia and menometrorrhagia were predominantly present in more than 41 yr age group. ultrasonography revealed uterine pathology in 40 patients with endometrial hyperplasia being most

common. hysteroscopic examination revealed pathology in 45 patients and endometrial polyp as most common finding. biopsy confirmed pathology in 50 patients with hyperplasia as most common report. considering biopsy as gold standard transabdominal ultrasonography was 73.03% sensitive 95.83% specific with a positive and negative predictive value of 95% and 96.6%, for hysteroscopy sensitivity 89.79%, specificity 97.95% with a positive and negative predictive value of 97.77% and 90.56%.

Limitation: Non-availability of transvaginal ultrasound.

Conclusion: Ultrasonography is a non invasive, widely available investigative modality and along with endometrial also comment on adnexal pathologies. hysteroscopy is diagnostic as well as therapeutic also but still in developing countries universal availability is an issue. So its the availability and patients symptoms, age and clinical findings finally guides us the investigative modality to be used.

Virtual Posters – Endometriosis

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Influence of Antiangiogenic Agent Bevacizumab on Endometriosis Experimentally Induced in Rats



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Study Objective: The aim of this study is to evaluate the effect of anti-angiogenic agent bevacizumab in two different dosages on endometriotic lesions induced in rats.

Design: Experimental study.

Setting: This study was carried out in the Department of Obstetrics and Gynecology and Experimental Surgery Sector, in the School of Medicine of Ribeirão Preto, University of São Paulo.

Patients: 30 female Wistar rats.

Intervention: Endometriotic lesions was first induced in the 30 rats by the implantation of endometrium tissue on the peritoneum. The rats were, then, allocated in 3 groups of 10 rats. The first was the control group, in which no medication was used after surgery. The second received the drug twice a month and the third received the same drug (bevacizumab) twice a week.

Measurements and Main Results: At the time of removal of the lesion, it was observed that the control group developed typical endometriotic lesions, while both medication groups did not present them. All the lesions and a piece of uterine tissue were removed of all the 30 rats for further genetic and pathologic evaluation of the angiogenic genes and receptors expression.

Conclusion: The endometriotic lesions are richly vascularized and many studies have proven that the emergence of new vessels is central. This study showed that there is an important difference between the appearance of the lesions when using or not antiangiogenic medication. Further evaluation will prove these differences on molecular levels.

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Increased Expression of ID2, PRELP, and SMOC2 Genes in Patients with Endometriosis



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Study Objective: Endometriosis is a benign, estrogen-dependent disease with symptoms such as pelvic pain and infertility, and it is characterized by the ectopic distribution of endometrial tissue. This study aimed to analyze the gene expression ID2, PRELP and SMOC2 in women with and without endometriosis.

Design: Cross-sectional study.

Setting: A tertiary referral hospital.

Patients: Women with or without endometriosis.

Intervention: The expression of the ID2, PRELP, and SMOC2 genes was compared between the endometrium of women without endometriosis in

the proliferative phase of their menstrual cycle and the eutopic and ectopic endometrium of women with endometriosis in the proliferative phase. Paired tissue samples from 20 women were analyzed: 10 from endometrial and peritoneal endometriotic lesions and 10 from endometrial and ovarian endometriotic lesions. As controls, 16 endometrium samples were collected from women without endometriosis. The expression analysis was performed by real-time Polymerase Chain Reaction.

Measurements and Main Results: There was no significant difference between gene expression in the endometrium of women with and without endometriosis. The ID2 gene was expressed in the most advanced stage of endometriosis and in ovarian endometriomas, the PRELP was expressed in peritoneal lesions, and the SMOC2 was expressed in both peritoneal and endometrioma lesions.

Conclusion: Considering that the genes studied participate either directly or indirectly in cellular processes that can lead to cell migration, angiogenesis, and inappropriate invasion, it is possible that the dysregulation of these genes causes the development and maintenance of ectopic tissue.

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Influence of Antiangiogenic Agent Propranolol on Endometriosis Experimentally Induced in Rats



Rosa-e-Silva JC, Zanardi JVC, Fortunato GG, Meola J, Poli-Neto OB, Candido-dos-Reis FJ, Nogueira AA. Gynecology and Obstetrics, School of Medicine of Ribeirao Preto, University of Sao Paulo, Ribeirao Preto, Sao Paulo, Brazil

Study Objective: To assess the anti-angiogenic effect of two doses of propranolol on the endometriosis lesions induced in female rats compared to controls.

Design: Experimental study.

Setting: Experimental Surgery Sector.

Patients: 30 female Wistar rats.

Intervention: We studied the effect of this drug on differentiation markers, invasion, cell proliferation and apoptosis by immunohistochemical staining, and also the influence on the adhesion, motility and angiogenesis of endometriotic lesions by extracting total RNA, cDNA synthesis and quantification by real time PCR. We used 30 Wistar adult rats, virgin females and submitted to laparotomy for induction of endometriosis lesions. The rats were listed in three groups, and sacrificed after 14 days of low dose treatment (PB, n=10) and high dose (PA, n=10) of propranolol; and control group (C, n=10) without treatment. The lesions were excised for histological analysis with the contralateral uterine horn and confirmed the presence of endometrial glandular and stromal tissue. Immunohistochemical reactions were performed for MMP-9, Metallothionein, TIMP-2, Caspase-8 and PCNA, and evaluation of gene expression by VEGF, CALD1 PCNA, TNF and SPARC primers, in tissue from injury and uterus.

Measurements and Main Results: In this study, for the material obtained from lesions, was observed a reduction in immunohistochemical staining for MMP-9 in the control group (100% positive) to the treated groups - PA 60% of positivity and PB = 11.1% positive; $p < 0.05$. Moreover, for metallothionein, with 60% of positivity in the control group, 10% and 11.1% for PA, PB, $p < 0.05$; the quantification by real-time PCR, to the significance level of 0.05, there was a decrease in gene expression of PCNA (median control group=1.04; PA =0.32; PB=0.69). In other immunohistochemistry markers and quantification of gene expression to the material from injury no significant differences were observed.

Conclusion: Treatment with anti-angiogenic drugs offers new prospects for therapeutic approach for patients with endometriosis.

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Spontaneous Fertility After Expectant or Surgical Management of Rectovaginal Endometriosis with/without Ovarian Endometrioma: A 7-Year Retrospective Analysis



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Genetics, Maternal and Child Health (DiNOGMI), IRCCS AOU San Martino - IST, University of Genoa, Genoa, Liguria, Italy

Study Objective: To assess the cumulative spontaneous pregnancy rate (cSPR) in women with rectovaginal endometriosis (RV) with/without ovarian endometrioma (OMA) treated by expectant or surgical management.

Design: Retrospective analysis of a prospectively collected database (January 2009 - December 2015).

Setting: University teaching hospital.

Patients: The study included patients with RV with/without OMA, without history of infertility and with partners with normal semen analysis. At one year, cSPR was calculated by Kaplan-Meier analysis and comparisons were performed using the log-rank test.

Intervention: The study included patients with RV without OMA who either directly tried to conceive (group eRV; n = 121) or tried to conceive after surgery (group sRV; n = 96), and patients with RV with OMA who either directly tried to conceive (group eOMA; n = 163) or tried to conceive after surgery (group sOMA; n = 125).

Measurements and Main Results: At one year, cSPRs was lower in Group eRV (30.6%) than in Group sRV (45.7%; p=0.039). Similarly, cSPRs was inferior in Group eOMA (18.0%) than in Group sOMA (34.5%; p=0.019). Furthermore, at 1-year follow-up, cSPRs was significantly higher in Group eRV (30.6%) than in Group eOMA (18.0%; p=0.014), and in Group sRV (45.7%) than in Group sOMA (34.5%; p=0.036).

Conclusion: cSPRs are significantly lower in women treated by expectant versus surgical management. In addition, the presence of OMAs, both in patients treated with expectant or surgical management, caused a further decrease of cSPRs.

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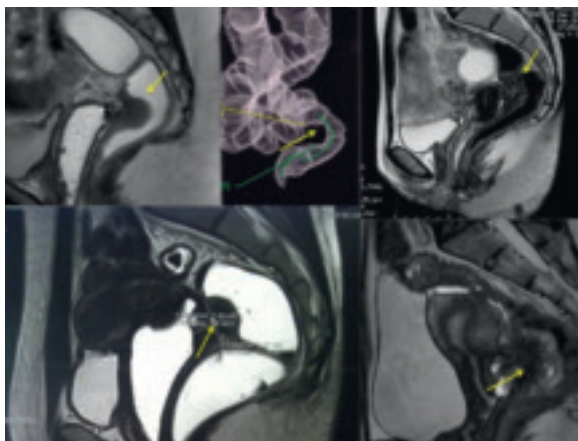
Full Thickness Disc Excision in Deep Endometriotic Nodules of the Rectum. A Prospective Cohort of 105 Patients



Roman H,¹ Tuech J-J.² ¹Gynecology and Obstetrics, Rouen University Hospital, Rouen, Seine Maritime, France; ²Surgery, Rouen University Hospital, Rouen, Seine Maritime, France

Study Objective: To date, a majority of patients presenting with large endometriosis of the rectum are managed worldwide by colorectal resection. However, postoperative rectal function may be impacted by radical rectal surgery. The objective of our study was to assess the postoperative outcomes of patients with rectal endometriosis managed by full thickness disc excision.

Design: Prospective study.



Setting: University hospital.

Patients: 105 patients with large colorectal endometriosis (figure 1) managed by disc excision between June 2009 and April 2016.

Intervention: Laparoscopic deep shaving followed by full thickness disc excision to remove the shaved rectal area. Disc excision was performed using: Contour® Transtar™ stapler (the Rouen technique) in 41 patients, End to End Anastomosis (EEA) circular transanal stapler in 61 patients, and direct (transvaginal or suprapubic) excision in 3 patients.

Measurements and Main Results: The largest diameter of disc specimens achieved was significantly higher using the Rouen technique (58±9 mm) than the End to End Anastomosis stapler (34±6 mm). Eleven patients (10.5%) had associated resection of sigmoid colon for multiple colorectal endometriosis

Diverting stoma was performed in 62 patients (59%) with very short distance between rectal and vaginal sutures. Six rectovaginal fistulae were recorded (5.7%) in patients with associated large resection of infiltrated vagina; as five of them have been undergoing stoma, no rectovaginal fistula was actually complicated and their reparation was not technically difficult. Transitory bladder voiding was revealed in 13 patients (12.3%), however no patient required systematic bladder catheterization longer than 6 months. Median postoperative value for the Gastrointestinal Quality of Life Index and the Knowles-Eccersley-Scott-Symptom Questionnaire improved progressively 1 and 3 years after surgery.

Conclusion: Disc excision is a valuable alternative to colorectal resection in selected patients presenting with rectal endometriosis, achieving better preservation of rectal function. The Rouen technique allows successful removal of large nodules of the low and mid rectum, with favorable postoperative outcomes.

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Outcomes of Surgical Management of Deep Infiltrating Endometriosis of the Urinary Tract



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Study Objective: To report the outcomes of surgical management of deep infiltrating urinary tract endometriosis.

Design: A retrospective review of data.

Setting: Rouen University Hospital, France.

Patients: From July 2009 to December 2015, 81 women treated for urinary tract endometriosis were included, 39 of whom were treated for bladder endometriosis, 31 for ureteral endometriosis and 11 for both ureteral and bladder endometriosis, leading to a total of 42 cases of ureteral endometriosis and 50 bladder endometriosis.

Due to bilateral ureteral localizations in 8 women, 50 ureteral interventions were recorded.

Intervention: Preoperative data, surgical procedure data and postoperative outcomes were analyzed.

Measurements and Main Results: Ureterolysis was performed for 39 lesions. 4 women underwent primary segmental resection of the ureter with immediate end-to-end ureteral anastomosis, and 7 women had ureteral resection with ureteral reimplantation into the bladder. No nephrectomy was performed.

Among the 11 ureteral specimens obtained, intrinsic ureteral endometriosis was histologically revealed in 5/10 (50%) cases.

50 women presented with DIE of the bladder, and underwent either full-thickness excision of the nodule (70%) or excision of the bladder wall up to the submucosal layer without opening of the bladder (30%).

In 42 women operated for ureteral nodules, 7 major post-operative complications were noted. In 50 patients managed for bladder endometriosis, 1 severe postoperative complication occurred in a patient who underwent full-thickness partial cystectomy associated with resection of a vaginal nodule.

Delayed postoperative outcomes were favourable with a significant improvement in painful symptoms and the absence of troubling urinary symptoms.

Conclusion: Conservative surgery in association with postoperative amenorrhea can be proposed in a large number of cases of urinary tract endometriosis. Although outcomes are globally favorable, the risk of postoperative complications should not be overlooked, as surgery tends to be performed in association with other complex procedures.

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Cost-Benefit Analysis for the Use of Transvaginal Ultrasound to Avoid Laparoscopy in Women with Minimal Endometriosis Disease



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Study Objective: 15% of women who present to a gynaecology clinic have chronic pelvic pain (CPP). Up to 56% of this group will not have underlying pouch of Douglas obliteration, endometriomata or deep infiltrating endometriosis (DIE) when scheduled for routine diagnostic laparoscopy. We aim to estimate the costs of a general gynaecologist's conventional surgical approach (model 1) vs medical management following an ultrasound assessment by an expert in DIE diagnosis (model 2) to women with CPP.

Design: We compared two models of care: (1) a conventional model whereby general gynaecologists seeing women with suspected endometriosis proceed directly to diagnostic laparoscopy without a detailed transvaginal ultrasound (TVS) by an expert in DIE assessment and (2) an approach whereby general gynaecologists order a detailed TVS by an expert in DIE assessment and having excluded complex disease do not proceed to laparoscopy but rather insert a Mirena IUS. The costs to the public health system for consultation, ultrasound and various surgical

interventions for endometriosis were retrieved from New South Wales Ministry of Health: consultation \$A225, detailed ultrasound \$A500, diagnostic laparoscopy \$A2,541, insertion of Mirena IUS \$A255. Calculations of the cost of treating noncomplex disease were performed and compared for both clinical pathways.

Measurements and Main Results: For an outpatient gynaecology unit that reviews 1000 new consultations annually, 15% (150/1000) women would present with CPP. Of these 56% (84/150) women would not have underlying POD obliteration with complex endometriosis. With model 1 the cost of treating each non-complex case is \$A2,992, whereas for model (2) \$A1,430.

This means that there is a cost saving of \$A1,562 per case or \$A131,208 annually.

Conclusion: The modern approach to minimal endometriosis using transvaginal ultrasound will lead to a significant cost saving of \$A1,562 per case, or \$A131,208 per year.

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Genitourinary Involvement in Deep Infiltrating Endometriosis



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Study Objective: To analyze the prevalence of ureteric and bladder involvement in deep infiltrating endometriosis, and identify possible preoperative risk factors for genitourinary endometriosis involvement.

Design: Retrospective chart review.

Setting: Tertiary care referral center for management of endometriosis, at the Ottawa Hospital.

Patients: All patients undergoing surgical management of deep infiltrating endometriosis were included.

Intervention: Patients that underwent surgical management of deep infiltrating endometriosis (confirmed based on OR and pathology report) performed at the Ottawa Hospital between Jan 1, 2008 – Jan 1, 2015 (present). Pertinent patient and surgical features were recorded.

Measurements and Main Results: Three hundred and thirty seven patients underwent surgical management of deep infiltrating endometriosis in the specified time period. Mean age was 37.49 (SD+/-7.49). 52.23% of patients were nulligravid and 54.76% of patients had previous surgery for endometriosis. 34.42% of patients underwent a hysterectomy, while the rest had conservative surgery. Bilateral ureterolysis was performed in 57.57% of cases and cystoscopy in 49.66%. Over 60% of patients had superficial peritoneal endometriotic implants near the ureters, and 17% had superficial bladder involvement. Thirteen percent of patients had a ureteric nodule, 4% had a hydroureter and 1.5% had a bladder nodule. There were seven cases of genitourinary injuries or intraoperative findings requiring additional intervention.

Conclusion: GU involvement is common in cases of deep infiltrating endometriosis and should be anticipated preoperatively. One should be comfortable with ureteric dissection when planning surgery for advanced endometriosis and should consider imaging of the GU system if there are preoperative features of deep endometriosis.

596

Risk Factors for Reoperation and Outcomes for Patients Receiving Adjuvant Hormonal Therapy after Initial Excision of Endometriosis Over a Six-Year Period



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Study Objective: To review risk factors for reoperation in patients after initial excisional surgery for endometriosis and outcomes for those receiving adjuvant hormonal therapy.

Design: Retrospective data collection; chart, electronic and histopathology record review for excisional surgery over a six year period by two laparoscopic surgeons.

Setting: Gynaecology department of a United Kingdom District General Hospital.

Patients: 108 women undergoing surgery for suspected endometriosis, 42% received adjuvant hormonal therapy (n=45) after primary laparoscopy, 58% did not (n=63).

Measurements and Main Results: Patients aged ≤30 years were more likely to undergo reoperation (OR 2.47 [95% C.I. 1.08-5.61], p=0.03). There was no association with operator and reoperation rate, (RR 0.96 [95% C.I. 0.55-1.67], p=0.89) or use of adjuvant hormonal therapy (OR 1.40 [95% CI 0.61-3.15] p=0.41).

Irritable bowel syndrome was associated with reoperation but this was not statistically significant (OR 2.33 [95%C.I. 0.83-6.52] p=0.10. Depression was not associated with reoperation (OR 1.51 [95%CI 0.61-3.72] p=0.36); neither was the combination of fibromyalgia and irritable bowel syndrome (OR 1.35 [95%CI 0.21-8.48] p=0.74)

Patients in the adjuvant group were younger (average 29 vs 33yrs) (p=0.01) and had more associated psychomotor comorbidities such as IBS, depression and fibromyalgia compared with those not receiving adjuvant therapy, though this wasn't significant (49% vs 35%, p=0.14).

In the adjuvant group significantly more patients had a recurrence of symptoms after their initial surgery (71% vs 33%, p=0.0001). There was a non-statistical difference in average interval between surgery and recurrence between the two groups; 12 months (range 1-144) versus 20 months (range 2-144) (p=0.39).

44% (n=20) required at least one further laparoscopy in the adjuvant group versus 27% (n=17) in the non-adjuvant group (p=0.05).

Conclusion: Overall those patients that had adjuvant therapy had a higher incidence of pre-existing comorbidities and a significantly higher rate of symptom recurrence necessitating further laparoscopy. The only significant risk factor associated with reoperation was age under 30.

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Sonographic Scoring System to Classify the Degree of Myometrial Involvement and Extension of Adenomyosis



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Myometrial Involvement	Myometrial Involvement	Focal Adenomyosis	Adenomyosis
1. Only the superficial part of the myometrium is involved	2. The entire myometrium is involved	3. Focal adenomyosis	4. Adenomyosis
5. Extension of adenomyosis to the endometrium	6. Extension of adenomyosis to the endometrium	7. Extension of adenomyosis to the endometrium	8. Extension of adenomyosis to the endometrium
9. Extension of adenomyosis to the endometrium	10. Extension of adenomyosis to the endometrium	11. Extension of adenomyosis to the endometrium	12. Extension of adenomyosis to the endometrium
13. Extension of adenomyosis to the endometrium	14. Extension of adenomyosis to the endometrium	15. Extension of adenomyosis to the endometrium	16. Extension of adenomyosis to the endometrium
17. Extension of adenomyosis to the endometrium	18. Extension of adenomyosis to the endometrium	19. Extension of adenomyosis to the endometrium	20. Extension of adenomyosis to the endometrium

Study Objective: To purpose a score system based on transvaginal sonographic (TVS) features to grade the severity of the adenomyosis in order to improve the management of symptomatic patients.

Design: Prospective study.

Setting: University hospital.

Patients: Patients who underwent TVS and showed ultrasonographic signs of adenomyosis.

Intervention: Ultrasound criteria for focal and diffuse adenomyosis and for adenomyoma were defined and scored. Symptoms were evaluated by visual analog scale (VAS) ranging from 0 to 10 and menstrual bleeding scored with pictorial blood loss assesment chart (PBAC).

Measurements and Main Results: A score number from 1 to 4 assigned to the extension and myometrial involvement of each type of adenomyotic lesions and for junctional zone alterations. We defined minimal adenomyosis score =1 , mild score 2 , moderate score 3 ,severe adenomyosis a score ≥ 4

A prospective study to validate this scoring system is ongoing.

Conclusion: Often only the presence or absence of adenomyosis is reported. The quantification of adenomyosis and the extension of the disease in the myometrium seems to be important in correlation to the severity of symptoms but also for an emerging request of surgical treatment.

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A Rare Cause of Post-Hysterectomy Vaginal Bleeding; Vaginal Cuff Endometriosis with Endometrial Hyperplasia



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Study Objective: To describe a rare case of post-hysterectomy endometriosis with endometrial hyperplasia, likely secondary to estrogen replacement, and to discuss treatment options.

Design: Case report and description of laparoscopic technique.

Setting: Academic Tertiary Referral Center.

Patients: A 53 year-old female presented with post-menopausal bleeding, 12 years after a hysterectomy and BSO. The patient had been on oral estradiol for hormone replacement. Pelvic ultrasound was normal, but she was noted to have vaginal cuff granulation tissue and a tender vaginal cuff nodule on pelvic examination. Biopsy revealed endometriosis with simple hyperplasia without atypia.

Intervention: Expectant, medical and surgical treatment options were reviewed with the patient. The decision was made to proceed with definitive surgical management, due to persistent pain and due to the concern for more advanced pathology that may not be accessible for vaginal cuff biopsy. Laparoscopic enterolysis, vaginal cuff revision, and

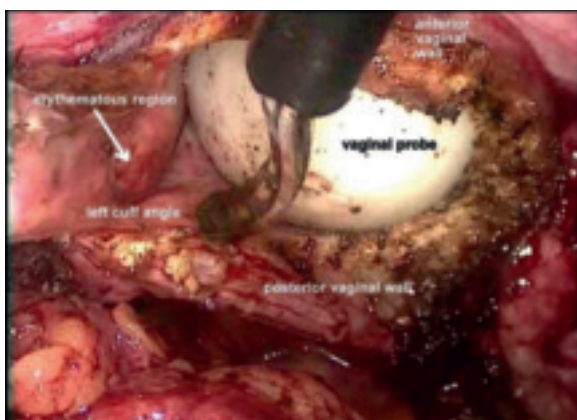


cystoscopy with stent placement. Upon speculum exam, the patient had a 5 mm nodule in the middle of the vaginal cuff and a deep left vaginal cuff angle that was tented up and erythematous, corresponding with the tender nodule on examination.

Once the vaginal cuff was exposed, a speculum exam was performed and the area of concern was marked using a spinal needle and indigo carmine. The area was excised using monopolar scissors and an elliptical portion of the vaginal cuff was excised and the vaginal cuff was closed in the usual fashion.

Measurements and Main Results: Pathology showed endometriosis of the vaginal cuff without hyperplasia or malignancy. The patient's postoperative recovery was uneventful and no recurrence of bleeding or pain was noted during a 2 year follow up period.

Conclusion: Vaginal cuff endometriosis should be considered in the differential diagnosis of vaginal bleeding post-hysterectomy. Consideration for combined HRT should be given following hysterectomy and bilateral salpingo-oophorectomy when endometriosis is known or suspected.



599

The Success Rate of GnRH Agonist for Small Recurrent Endometrioma

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Study Objective: The endometrioma is usually treated surgically. However, almost patients do not want re-operation and the decrease of ovarian function is also afraid when endometrioma is recurred. Therefore 3-6 months GnRH agonist therapy was performed before final decision of re-operation.

Design: The 63 patients with recurred endometrioma received 3-6 GnRH agonist therapy. If endometrioma is disappeared, operation was canceled.

Setting: Prospective study in university hospital.

Patients: We divided two groups; group A (42 patients) is cyst size 3cm or less, group B (21 patients) is cyst size above 3 cm.

Intervention: We got the result of the effect of 3-6 months GnRH agonist therapy before determination of re-operation in group A and B. The statistical analysis was done by SPSS program.

Measurements and Main Results: Group A : In the 32 of 42 patients, cysts were disappeared after GnRH agonist therapy for 3 months ($p < 0.01$). In the 7 of 42 patients, cysts were not disappeared and decreased in size after GnRH agonist therapy for 3 months. The GnRH agonist therapy for 6 months for these patients, and then cyst was disappeared in the 5 of 7 patients (< 0.05).

Group B : In none of 21 patients, cysts were disappeared after GnRH agonist therapy for 3 months. In only 1 of 42 patients, cysts were not disappeared and decreased in size after GnRH agonist therapy for 3 months. However this one patient had also cyst after the GnRH agonist therapy for 6 months.

Conclusion: Therefore, the 3-6 months GnRH agonist therapy can be performed before re-operation in the patients with recurrent endometrioma with cyst size 3 cm or less.

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Efficacy of Long-Term Post-Operative Medical Treatment for Preventing Endometrioma Recurrence in Adolescents



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Study Objective: This study was performed to evaluate the efficacy of postoperative cyclic oral contraceptive (OC) use after initial gonadotropin releasing hormone agonist (GnRH_a) treatment for prevention of endometrioma recurrence during the adolescent period.

Design: Retrospective cohort study.

Setting: A tertiary care hospital

Patients: This study included 176 reproductive-aged women who underwent conservative laparoscopic surgery for endometrioma. As a post-operative medical treatment, patients were given monthly GnRH_a depot for 3 to 6 months, followed by cyclic OCs. Women were classified into two groups according to age: adolescents (≤ 20 years, $n = 34$; group I) and reproductive-aged women (25-35 years, $n = 142$; group II). The recurrence rate of endometrioma was compared between the two groups.

Intervention: Patients underwent laparoscopic surgery for endometrioma and were given short-term post-operative GnRH agonist treatment and followed by OCs.

Measurements and Main Results: During the treatment period (median: 41 months), the crude recurrence rate was 5.8% (2/34) in group I and 4.2% (6/142) in group II. The cumulative proportion of recurrent endometrioma after 60 months was not significantly different between the two groups (5.3% in group I and 8.5% in group II). After postoperative medical treatment (median: 44 months), the bone mineral density of the adolescent group was similar at all sites compared to a reference population.

Conclusion: Postoperative medical treatment using GnRH_a followed by long-term cyclic OCs effectively reduces the recurrence rate of endometrioma without bone loss in adolescents. A large-scale, prospective study is warranted in the future.

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Is MRI the Best Imaging Modality in Cases of Severe Endometriosis?



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Study Objective: To assess the accuracy of MRI in diagnosing bowel and urological involvement in cases of severe endometriosis.

Design: Retrospective study.

Setting: Endometriosis centre in the United Kingdom.

Patients: All patients with stage 4 endometriosis confirmed at laparoscopy who had MRI pelvis pre-operatively.

Intervention: All patients with suspected Stage 4 endometriosis undergo an MRI pre-operatively which is reported by a Radiologist who specialises in gynaecology imaging. Patients with bowel or urological involvement on MRI are seen by the multi-disciplinary team comprising of the colorectal surgeon, stoma nurse and urologist and counselled appropriately.

Measurements and Main Results: 19 Patients with Severe endometriosis were operated between March 2015 and March 2016. Operative notes and MRI report were unavailable for 2 patients and 1 patient respectively.

5 patients underwent TLH and the rest had excision of endometriosis.

15 patients had unilateral/bilateral endometriomas on MRI. 14/15 had this confirmed at surgery.

11 patients had bowel involvement on MRI, operative notes were unavailable for 1 patient. All 10 patients had rectovaginal nodule that was shaved at laparoscopy. None required bowel resection. 4 cases of bowel involvement were not picked up on MRI; 3 were performed in our unit (1 patient had had previous TLH) and 1 patient had MRI at the referral hospital. 1 cases of Bladder nodule was excised without opening the bladder, not picked up on MRI.

1 case of endometriosis overlying ureter not diagnosed on MRI.

Conclusion: MRI gives us useful information especially in cases of rectovaginal endometriosis which helps in pre-operative planning and counselling. Our patients with confirmed bowel involvement on MRI are seen by the multi-disciplinary team involving colo-rectal surgeons and stoma nurse so that they have the opportunity of making an informed choice before embarking on major surgery. This knowledge also helps in appropriate allocation of operating time including the presence of colorectal surgeons in more complex cases.

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Laparoscopic Treatment of Bladder Endometriosis: Outcomes on 223 Patients Treated in an Endometriosis Unit



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Study Objective: Evaluate outcomes of laparoscopic excision of bladder endometriosis.

Design: Retrospective analysis.

Setting: Endometriosis Unit.

Patients: 223 women from January 2004 to December 2015.

Pre-op study obtained with transvaginal US, abdominal US and cystoscopy.

Intervention: Bladder wall opening and resection was obtained using bipolar scissors, monopolar hook or ultrasound devices. Distance of the excision margins from both ureteral ostia was visualized and ureteral double-J catheter was considered if less 2 cm. The bladder was closed by double-layer intra-corporeal laparoscopic running suture (3/0 monofilament). At the end of the procedure, the bladder was filled with 180-200 mL of a 0.9 % NaCl solution, for watertight closure testing. Single strengthening stitches were applied if a leakage was noticed.

Measurements and Main Results: The average size of the nodules was 3.1 cm. Twenty patients (9,8%) have had associated ureteric lesions with obstructive signs and pielectasy, requiring ureterocystoneostomy.

Mean hospital stay was 9,5 days. There were no intraoperative complications related to the urinary phase.

Peri-and post-operative complications were observed in 16 patients: ureteral fistula (1, 0,4%), ureteral stenosis (1, 0,4%), vesico -vaginal fistula (3, 1,2%), sepsis (2, 0,8%), uroperitoneum (1, 0,4%), hemoperitoneum (5, 2%), intestinal complications (3, 1,2%).

Suture leakage was reported at cystography in 7 cases (3,1%); in all these patients the catheter was left up to 20 days with complete healing of the leakage. Median follow-up was 55,5 months.

The rate of recurrence at 12 months of follow-up is 2,9%.

Conclusion: Laparoscopic eradication of bladder endometriosis proved, in our experience, to be a safe and effective approach in the resolution of symptoms reported at 12 months, and with a rate of relapse of 2,9%.

The laparoscopic approach to bladder endometriosis should be considered, as the only radical ablative treatment when performed in reference centers and in expert surgical hands.

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How Does Rectal Endometriosis Appears on Tridimensional Endorectal Ultrasound?



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Study Objective: To evaluate the accuracy of endorectal tridimensional ultrasound (3D ERUS) in diagnostic of deep infiltrating endometriosis (DIE) lesions.

Design: Retrospective cohort study.

Setting: Academic Hospital.

Patients: A total of 187 patients with symptoms of DIE attended on a reference center in Brazil from February 2008 to July 2015 submitted to 3D ERUS after clinical evaluation.

Intervention: 3D ERUS was performed in a B&K Profocus Blue with a 2050 probe, acquisition of a cube of information built with 255 images, 0,25mm each. The 3D cube can be analyzed without patients presence in axial, sagittal or coronal planes. Three scans of 6cm length were acquired, starting at 12 to 14 cm from the anal verge. We analyzed the presence and characteristics of lesions suggesting endometriosis.

Measurements and Main Results: The median age was 35yo (21 to 52yo). In 53(28,4%) patients were identified lesions suggestive of endometriosis. 60 patients were submitted to laparoscopy, most of them that had positive on 3D ERUS. Lesions were characterized by a hypoechoic anterolateral image, infiltrating the rectal wall from the serosa up to the submucosa. The median latero-lateral diameter was 18mm (5 to 34mm) x 9,25mm height (2 to 35mm) x 16,5 (6 to 36mm) width. The median percentual of the wall circumference involvement was 14,5 % (7,5 to 26,6%). The median distance from the distal margin of the lesion to posterior vaginal fornix was 12,5mm (0 to 44mm) and to the pelvic floor was 50,5mm (10 to 90mm). Sensibility, specificity, accuracy, positive predictive value and negative predictive value were respectively 72%, 97%, 85%, 95% and 79%. The Kappa of the 3D ERUS compared with laparoscopic confirmation was 0,69.

Conclusion: 3D ERUS gives important information for surgical planning that can provide adequate preparation of patient and surgical team, with a good sensitivity, specificity accuracy, positive and negative predictive value and a substantial Kappa agreement.

604

What Is the Importance of the Term "Powder Burn"?



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Study Objective: Determine the awareness of and preference for the use of two definitions of the term “powder burn” endometriosis and discuss the histology and the clinical implications.

Design: Survey of physicians.

Setting: Survey distributed at academic meetings.

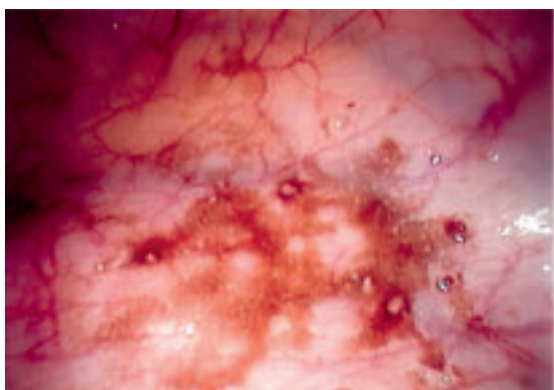
Patients: Surveys were distributed to 100 physicians at two academic meetings. These surveys were returned by 10 physicians.

Intervention: N/A.

Measurements and Main Results: Five of ten physicians identified a dark scarred lesion (figure 1) as the appropriate lesions for the term “powder burn”.



One physician identified the vesicular lesions with iron (figure 2) as the appropriate lesion.



Four out of ten physicians identified either image as an appropriate endometriosis lesion. Two of ten physicians believed that the information presented to them in the survey was new information. Eight of ten physicians believed this information regarding “powder burns” was clinically important. Five of ten physicians felt a distinction was academically important.

Conclusion: The term “powder burn” can clearly be applied to at least two or more appearances of endometriosis. Dark scarred lesions are readily characterized by H&E stains; whereas, vesicular lesions with surrounding intraperitoneal hemosiderin are more readily characterized using iron staining as well. In addition, since the vesicular lesions are frequently less than 1 mm, the pathologist needs information regarding the size of the lesion. This information appears important in communications with pathologists. Pathologist should be notified regarding the size of lesions, as well as the stains that are suggested for the lesions they will be viewing. In either situation diagnostic accuracy requires histologic finding compatible with the clinical picture.

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A Multidisciplinary Team Approach to Severe Endometriosis



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Study Objective: It is important to individualise the management of women with severe endometriosis. We have developed a multidisciplinary team (MDT) including a gynaecologist, a radiologist and a colorectal surgeon. The main aims of this study are:

1) To evaluate management outcomes of patients discussed at our monthly MDT meetings.

2) To assess impact of surgical treatment to severe endometriosis on women's quality of life and pain score outcomes.

Design: In our retrospective study we define severe endometriosis as involving the para-rectal area, according to British Society of Gynecological Endoscopy (BSGE) criteria.

The cohort also included all MDT patients who underwent surgical treatment to stage 4 endometriosis from January 2013 to December 2015. Two independent authors reviewed the data.

Setting: A large gynaecology department accredited by BSGE for treatment of Stage 4 endometriosis.

Patients: The study included a total of 87 patients.

All patients completed the standardized BSGE Quality-of-Life and Pain questionnaire pre- and post-operatively at 6 and 12-month intervals.

Intervention: N/A.

Measurements and Main Results: There was a significant improvement in pain scores post-operatively at 6 months and 12 months (p -values < 0.01) compared to pain pre-operatively. There was no statistically significant difference between pain scores at 6 months compared to 12 months. Patients perceived a significant improved in quality of life at 6 months and 12 months post-operatively (p -value < 0.01). Interestingly, there was a significant improvement in quality of life between 6 and 12 months even though pain scores were not significantly different.

Conclusion: Surgical treatment of endometriosis improves pain and quality of life. Streamlining the management of these patients via a multidisciplinary team approach empowers women to choose between medical and surgical management and provides a holistic approach to patient care. Further large-scale prospective studies are warranted to evaluate the impact of an MDT approach on the management of patients with severe endometriosis.

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Management of Ovarian Endometrioma by Single Incision Laparoscopic Surgery: Case Series



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Study Objective: To describe the experience of gynecology team, at a tertiary care center, when performing single-port laparoscopic surgery.

Design: This is a retrospective study reviewing the medical records of 26 patients treated at gynecology clinic of Hospital da Baleia - Benjamin Guimaraes Foundation, between June 2014 and May 2015, who underwent single-port laparoscopic surgery. This study was approved by the institution's Ethics in Research Committee.

Setting: This study was approved by the institution's Ethics in Research Committee.

Patients: 26 patients treated at gynecology clinic of Hospital da Baleia - Benjamin Guimaraes Foundation, between June 2014 and May 2015, who underwent single-port laparoscopic surgery.

Intervention: Single-incision laparoscopic surgery.

Measurements and Main Results: The mean age of patients is 31.2 years and the surgical indication in all cases was endometrioma approach. The mean operative time was 55.32 minutes with a mean hospital stay of 23.18 hours. Postoperative complications were described. We recorded two conversions to laparotomy infra-umbilical due to technical difficulties during the procedure.

Conclusion: The results suggest that single-port laparoscopic surgery is a minimally invasive technique feasible in endometriomas approach.

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Impact on Ovarian Reserve According to the Type of Ovarian Endometrioma Excision: CO₂ Fiber Laser



Vaporization (AcuPulse DUO, Lumenis) versus

Conventional Excision. Interim Analysis

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Study Objective: To compare how ovarian reserve is affected according to surgical endometrioma (OMA) treatment (CO₂ fiber laser vaporization versus conventional excision).

Design: Randomized prospective pairwise-data study. Twenty patients are selected. The recruitment period is still on-going. Eight patients have been included until January 2016 and five of them have already gone under surgery. The end of recruitment is due by September 2016.

Setting: Tertiary referral hospital in Barcelona.

Patients: Patients with bilateral OMA with surgical indication are selected.

Intervention: OMA of each ovary is surgically removed with two different types of cyst excision previously randomised: CO₂ fiber laser vaporisation with Lumenis AcuPulse DUO versus conventional excision. A blinded ultrasonographer evaluates antral follicle count (AFC) in both ovaries, before, three and six months after surgery. Therefore, each ovary will be compared with its contralateral in the same patient.

Measurements and Main Results: Until January 2016, eight patients underwent surgery. The median age was 35.4 years and 62.5% of the patients were sterile. 75% of them had deep infiltrating endometriosis associated. The major diameter of OMA treated with laser (group 1) was 55.4 mm and for OMA treated with stripping (group 2) was 63.7 mm. Presurgical AFC was 4 for group 1 and 2.2 for group 2. Five patients were evaluated after three months, the AFC for group 1 was 4.75 and for group 2 was 2.25. After six months of the surgery, three patients were evaluated, one of them was pregnant. AFC for group 1 was 5 and 3.5 for group 2.

Conclusion: The recruitment period is still on-going, therefore the study size is yet not achieved and neither the follow-up period in order to perform the final statistical analysis. But, if these preliminary results finally are confirmed, CO₂ laser vaporization should be considered as another surgical treatment for patients with endometriomas.

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Non-Invasive Method for the Diagnosis of Endometriosis by Mass Spectrometry



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Study Objective: Non-invasive diagnostics of endometriosis by the mass spectrometry method.

Design: A case-control study.

Setting: Department of Operative Gynecology of the Research Center for Obstetrics, Gynecology, and Perinatology (Moscow, Russia).

Patients: We recruited 40 patients with ovarian cysts and with peritoneal endometriosis who then underwent laparoscopic surgery between 2015 and 2016. The comparison group consisted of 20 patients with uterine fibroids and without endometriosis, which was confirmed by laparoscopy.

Intervention: The lipidomic approach was applied to analyze biological fluids, endometrium, and endometriotic lesions of different localization by mass spectrometry in order to search for endometriosis biomarkers.

Measurements and Main Results: At first endometriotic lesions were studied by the spray-from-tissue direct mass spectrometry. Differences in the mass spectrometric profiles of the endometriotic tissue and comparison group were analyzed in combination with the morphological features of endometrioid heterotopy in order to find specific biomarkers. At the second stage previously identified lipids and free fatty acids were verified in the blood and peritoneal fluid of patients with endometriosis. A

new possible non-invasive method for diagnosis of endometriosis was proposed based on mass-spectrometric analysis of blood plasma.

Conclusion: For the first time a detailed investigation of biological samples from patients with external genital endometriosis was performed by mass spectrometry methods. Our clinical lipidomics approach defines the net outcome of several imbalanced lipids and fatty acids which may be crucial for endometriosis pathophysiology. Two important classes of lipids, the phosphatidylcholine and sphingomyelin, have been suggested as possible biomarkers for endometriosis, as these lipids are strongly related to apoptosis suppression. In the future the results of these studies may near the understanding of the pathobiology of the disease and make it possible to elaborate new approaches to treatment that target pathophysiological mechanisms.

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Relations of Pelvic Endometriosis and Ileal Endometriosis: Report of Two Cases



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Study Objective: To show the relation between ileal endometriosis and pelvic endometriosis.

Design: Case report and literature review.

Setting: A tertiary hospital.

Patients: Two patients presenting with endometriosis affecting ileum.

Intervention: Both patients was undergone laparoscopic surgeries for excision of pelvic endometriosis and ileocecal resection.

Measurements and Main Results: [Case 1] 28-year-old 0G0P. Her chief complaint was dysmenorrhea and vomiting during the periods. She visited at the emergency room on the fifth day of the menstruation. Bowel obstruction was suspected by CT-scan. We performed an emergency laparoscopic surgery, and found a thickened bowel wall and strong obstruction involving the terminal ileum. Her pelvic adhesion was severe due to endometriosis. Her Douglas pouch was completely closed and chocolate cysts were noted in both ovaries. The r-ASRM score was 116 points, severe. An excision of endometriosis and ileocecal resection was performed. Ileal endometriosis was confirmed by the pathological examination. Her postoperative course was good. Her symptoms were improved. [Case 2] 43-year-old 4G3P. Her chief complaint was repeated upper abdominal pain during the periods. She visited at the emergency room and was performed laparoscopic surgery in the diagnosis of intestinal obstruction. Distal ileum had been confined by the adhesion of endometriosis. However, only scattered peritoneal endometriosis was revealed in the pelvis. Both ovaries were normal and Douglas was open. The r-ASRM score was 5 points, minimal. An electrocauterization of endometriosis and ileocecal resection was performed. Her postoperative course was good, there is no recurrence of symptoms.

Conclusion: Ileal endometriosis often cause acute bowel obstruction. In our two cases, even if endometriosis affect the extra-pelvic organ such as intestinal tract, pelvic endometriosis is not always severe. Therefore it is necessary to pay attention to the menstrual history and clinical symptoms to diagnose intestinal or other organ endometriosis.

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Endometriosis Map



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Study Objective: To develop a software of a visual map that corresponds practically and objectively to the anatomical areas affected by endometriosis.

Design: The software is a graphic representation of all sites of endometriosis. It should be filled at the time of surgery indication, namely with all the propaedeutics completed and the surgeon having already identified the locations affected by the disease. In this new version, it is possible to fill out a postoperative map, comparing it to the preoperative findings (MAP).

Setting: Computer software.

Measurements and Main Results: The surgeon with the MAP at the time of surgery, has a special tool that concentrates all the details of the case. This MAP can be checked at any time in surgery and may guide the surgical team, even in the absence of medical records. Postoperatively, the MAP allows an evaluation of our propaedeutics in cases of endometriosis, comparing all the sites identified in the diagram preoperatively with the surgical findings.

Conclusion: The MAP becomes an important tool for the physician self-evaluation, both on physical examination, as in the imaging. It's possible to save patient data (demographic and patient complains) and image results as endometriosis findings, allowing it to be used for multicenter research protocols.

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Cost-Benefit Analysis for the Utilisation of Detailed Preoperative Ultrasound in Women with Complex Endometriosis Disease



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Study Objective: About 15% of women who present to a gynaecology clinic have chronic pelvic pain (CPP). Up to 26% of this group will have underlying pouch of Douglas obliteration yet 82% of gynaecologists admit to not being able to perform advanced laparoscopic surgery. We aim to estimate the costs of a general gynaecologist's conventional surgical approach (model 1) vs an ultrasound-based approach (model 2) to women with CPP and complex disease.

Design: Model 1: general gynaecologist seeing women with suspected endometriosis proceeds directly to diagnostic laparoscopy without an advanced ultrasound examination, finds underlying POD obliteration/complex endometriosis disease and then refers the woman to an advanced laparoscopic surgeon; model 2: general gynaecologist orders a detailed ultrasound examination by sonologist with expertise in endometriosis and refer cases with probable POD obliteration/complex endometriosis disease to a skilled advanced laparoscopic surgeon avoiding diagnostic laparoscopy. The costs to the public health system for consultation, ultrasound and various surgical interventions for endometriosis were retrieved from New South Wales Ministry of Health: consultation \$A225, detailed ultrasound \$A500, diagnostic laparoscopy \$A2,541, colonoscopy \$A4,880 and laparoscopic bowel surgery \$A14,923.

Calculations of the cost of treating complex disease were performed and compared for both clinical pathways.

Measurements and Main Results: For an outpatient gynaecology unit that reviews 1000 new consultations annually, 15% (150/1000) women would present with CPP. Of these 26% (39/150) women would have underlying POD obliteration with complex endometriosis. With model 1 the cost of treating each complex case is \$A23,970, whereas for model (2) \$A21,203.

This means that there is a cost saving of \$A2767 per case or \$A107,913 annually.

Conclusion: If a general gynaecologist has access to expert ultrasound in the diagnosis of complex endometriosis, this results in significant cost savings to the public healthcare system.

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Unexpected Severe Endometriosis at Laparoscopy

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Study Objective: Were there clinical or radiological signs suggestive of suspected severe endometriosis pre-operatively?

Design: Retrospective study.

Setting: Endometriosis centre in the United Kingdom.

Patients: 16 patients with severe endometriosis that were not suspected pre-operatively.

Intervention: There were 37 patients who had surgical treatment for stage 4 endometriosis in our unit from January 2015 to March 2016. Out of this 19 were suspected severe endometriosis who had appropriate work-up pre-operatively. Rest of the 16 cases were looked at to see if we could have diagnosed them pre-operatively.

Measurements and Main Results: 16 patients had an unexpected diagnosis of severe endometriosis at surgery.

4 were totally unexpected having surgery for other reasons like menorrhagia etc.

4 were recurrent endometriosis with h/o previous surgery for mild/moderate endometriosis.

5 had endometriomas (unilateral/bilateral) on Trans vaginal ultrasound scan. 4 had a normal ultrasound scan but all had positive examination signs (tenderness) on bimanual exam.

2 patients declined VE.

Conclusion: The suspicion for severe endometriosis should be high in cases with endometriomas esp bilateral lesions and those with h/o previous endometriosis. They should receive appropriate pre-operative imaging including MRI so that patients can be adequately counselled by the multi-disciplinary team and surgery planned including allocation of adequate operating time.

Virtual Posters – Hysteroscopy, Endometrial Ablation and Sterilization

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Long-Term Clinical Outcomes of Thermal Balloon Endometrial Ablation (Thermablate EAS) with and without Concomitant Use of Levonorgestrel Intra-Uterine System in Women with Heavy Menstrual Bleeding: A Pilot Study



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Study Objective: The LNG-IUS is an effective treatment of heavy menstrual bleeding (HMB) in up to 70% of women. The Thermablate balloon endometrial ablation (TBEA) system is comparable to all other non-hysteroscopic devices in treating HMB in up to 70% of women. In the present study, we hypothesized that combining the TBEA and LNG-IUS will increase clinical outcomes in over 70% of women.

Design: Prospective comparison of two cohorts of women with HMB. Inclusion of LNG-IUS to TBEA was patient driven.

Setting: University-affiliated hospital.

Patients: After REB approval and informed consent, 87 women with HMB, normal office endometrial biopsy and sonographically normal uterine cavity participated in the study; (TBEA, n=44 and TBEA+LNG-IUS, n=43).

Intervention: TBEA and LNG-IUS placement took place in an operating room under general anesthesia. Hysteroscopy was performed pre- and post-TBEA and the LNG-IUS was placed immediately thereafter. Patients were assessed at 3, 6, 12 months and annually thereafter up to 5 years. Clinical outcomes included menstrual reduction (amenorrhea/hypomenorrhea), patient satisfaction and re-intervention.

Measurements and Main Results: The age, BMI, parity and uterine sounding were equal in both groups. At a median follow up of 36 months (12-60), amenorrhea and re-intervention rates were 29.5% (13/44) v 60.5% (26/43, p< 0.001), and 29.5% (13/44) v 7.0% (3/43, p< 0.001) in the TBEA vs TBEA+LNG-IUS groups, respectively, with corresponding patient satisfaction of 61.5% (27/44) v 86.1% (37/43). There were 2 hysterectomies in the TBEA group for pain and bleeding. Adenomyosis was found in both and fibroids in one. One patient in the TBEA group required OCP while repeat resectoscopic endometrial resection was performed in all other failures and adenomyosis was found in 40% of specimens.

Conclusion: The concomitant use of LNG-IUS immediately after TBEA significantly increases amenorrhea and patient satisfaction rates and decreases requirement for re-intervention compared with TBEA alone.

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Surgical Treatment Patterns for Women with Newly Diagnosed Uterine Fibroids: Trends from 2010-2014



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Study Objective: To describe surgical treatment patterns among women with newly diagnosed uterine fibroids from 2010-2014.

Design: A retrospective analysis using US administrative claims from 2010-2014.

Patients: Women age 30 and older with a new diagnosis of uterine fibroid (ICD-9 code:218.x) between 2010 and 2014 and at least 12 months of continuous medical and pharmacy enrollment in the Truven Health MarketScan Commercial and Medicare Supplemental Databases.

Measurements and Main Results: The use of specific diagnostic and treatment procedures and pharmacotherapy were evaluated in the 12-month period following diagnosis. Women with a diagnosis of gynecologic cancer or a procedure code for a uterus >250g were excluded. Of 973,107 women with a uterine fibroid diagnosis, 292,318 represent eligible incident cases. Overall, 33.1% of women meeting the inclusion criteria underwent a surgical procedure within one year of a new fibroid diagnosis, decreasing steadily from 36.4% in 2010 to 29.5% in 2014. The largest decrease occurred for hysterectomy where 21.9% of women underwent hysterectomy in the year following diagnosis, with higher rates in 2010 (24.0%) than 2014 (19.3%). Hysterectomy represented a similar proportion of all surgical interventions throughout the study period (mean 66.0%).

Yearly rates of hysteroscopic myomectomy in women newly diagnosed with fibroids were relatively stable (range 4.8%-5.4%), yet hysteroscopic myomectomy accounted for a larger proportion of surgical procedures in 2014 (11.2%) than 2010 (7.1%). The prevalence of curettage mirrored the observed surgical trend, decreasing slightly from 4.1% in 2010 to 3.0% in 2014. Uterine artery embolization was uncommon throughout the study period (<1% each year). Pharmacotherapy interventions, including intrauterine devices (IUD), increased slightly from 11.0% in 2010 to 12.9% in 2014.

Conclusion: From 2010 to 2014, rates of surgical intervention within 12 months of a new diagnosis of uterine fibroids decreased. During the same time, minimally invasive procedures, like hysteroscopic myomectomy, became more prevalent.

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Diagnostic Hysteroscopy in Asymptomatic Postmenopausal Women with Sonographically Abnormal Endometrial Findings



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Study Objective: Endometrial cancer is one of the most common gynecological malignancies, and patients usually present with vaginal bleeding, But 10-20% of patients have no symptoms. We evaluated asymptomatic postmenopausal women with sonographically abnormal endometrial findings by diagnostic hysteroscopic exam, and we compares hysteroscopic and pathologic diagnosis.

Design: A Retrospective analysis.

Setting: Korea Cancer center in Seoul and Busan, Korea.

Patients: During the period between January 2015 and March 2016, a retrospective analysis was performed including 167 cases of women who were preoperatively diagnosed with a sonographically thickened endometrium, while asymptomatic.

Intervention: The patients underwent hysteroscopic exam (4.5mm Storz hysteroscope) and dilatation and curettage of uterus (D&C) under local or general anesthesia, in addition to transvaginal sonography. Demographic, clinical and pathological outcomes were reported.

Measurements and Main Results: Total of 167 patients were enrolled. The median age of the woman was 59 (range 47-79) years. Average endometrial thickness measured by ultrasound was 9.2 mm +/- 5.2 mm. On hysteroscopy review, 85 (50.9%) patients were reported as polyp, 21 (12.6%) as myoma and 14 (8.4%) as hyperplasia.

Table 2. Comparison between endometrial thickness and hysteroscopic findings

	Hysteroscopic findings						Total
	Normal EM	Polyp	Myoma	Atrophy	Hyperplasia	Others	
≤4mm	10	16	3	4	3	2	38
5-10mm	14	55	9	10	4	3	95
11-15mm	3	10	4	1	5	0	23
16-20mm	0	2	4	0	2	0	8
>20mm	0	2	1	0	0	0	3
Total (%)	27 (16.2)	85 (50.9)	21 (12.6)	15 (9.0)	14 (8.4)	5 (3.0)	167

Endometrial biopsies were performed on 140 patients (83.8%). Histopathological analysis showed that 67 (47.9%) patients presented polyp, 36 (25.7%) as normal endometrium, 25 (17.9%) as myoma, and 8 (5.7%) as atrophic endometrium. Simple hyperplasia was found in one patient with thickened endometrium but neither endometrial carcinoma nor complex hyperplasia was found.

Table 3. Results from diagnostic hysteroscopic findings compared with the histopathological findings

	Histopathologic diagnosis						Total
	Normal EM	Polyp	Myoma	Atrophy	Hyperplasia	others	
Normal EM	11	0	0	2	0	0	13
Polyp	12	63	5	3	0	1	84
Myoma	0	4	19	0	0	0	23
Hyperplasia	6	0	0	0	1	0	7
Other	3	0	1	1	0	2	7
Total (%)	36 (25.7)	67 (47.9)	25 (17.9)	8 (5.7)	1 (0.7)	3 (2.1)	140

In our data, the sensitivity, specificity and positive and negative predictive values for polyp, myoma and hyperplasia were relatively high, except of PPV for hyperplasia.

Table 4. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of diagnostic hysteroscopy in comparison with the histopathologic diagnosis

	Sensitivity(%)	Specificity(%)	PPV(%)	NPV(%)
Normal EM	30.5	98.1	84.6	80.3
Polyp	94.0	79.8	75.0	92.9
Myoma	76.0	96.5	82.6	94.9
Atrophy	25.0	97.0	33.3	95.5
Hyperplasia	100	95.7	14.3	99.2

Conclusion: Our results showed that the risk of endometrial carcinoma or pathologic lesion in asymptomatic postmenopausal women with endometrial thickness is low. Moreover, not only ultrasonography is effective screening tool, but also hysteroscopy is valuable diagnostic tool for malignancy, hyperplasia and other benign lesions. More larger series is required to confirm this finding.

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Ectopic Pregnancy in Previous Caesarean Scar, Management with Methotrexate and Hysteroscopy



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Study Objective: To present a possible management of scar ectopic pregnancy.

Design: Case report.

Setting: University Hospital.

Patients: N/A

Intervention: N/A

Measurements and Main Results: A 26-year-old woman had come for routine antenatal check up after 7.1 weeks of amenorrhea and positive urine pregnancy test. She was otherwise asymptomatic. She had history of 2 previous caesarean sections.

Transvaginal sonography revealed empty uterine cavity and empty cervical canal with a gestational sac in anterior myometrium of lower uterine segment. The gestational sac had a fetal pole and yolk sac within, showing fetal cardiac activity and having average gestational age of 5 weeks 6 days. Blood exam for HCG 2664.2 mUI/ml.

MRI pelvis was performed and the study confirmed a gestational sac implanted within the anterior myometrium of the lower uterine segment in the region of the scar of previous cesarean section.

Treatment with intramuscular methotrexate is started.

Levels of HCG start lowering down until getting negative.

Follow up transvaginal sonography revealed persistence of empty yolk sac.

Hysteroscopy is performed to remove the empty yolk sac an IUD (intrauterine device) is placed in the same procedure. She tolerated the procedure well and post procedure follow up ultrasound examinations showed no complications.

Conclusion: Intramural pregnancy with implantation in a previous caesarean section scar is probably the rarest location for ectopic pregnancy. The incidence of such cases seems to be on the rise. This may reflect both the increasing number of caesarean sections being performed and the more widespread use of the trans- vaginal scan that allows earlier detection of such pregnancies. The diagnosis is usually made on ultrasonography and can be confirmed by magnetic resonance imaging (MRI) or during laparoscopy and/or laparotomy.

Although expectant management has been attempted in some cases, currently available data support termination of such a pregnancy once the correct diagnosis is made.

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Decreasing Postoperative Pain Following Endometrial Ablation



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Study Objective: We sought to determine if paracervical injection of local anesthesia decreases postoperative pain in women undergoing endometrial ablation under general anesthesia.

Design: Retrospective cohort study.

Setting: Academic affiliated community hospital.

Patients: Women undergoing second-generation endometrial ablation for benign indications under general anesthesia.

Intervention: Patients underwent Radiofrequency Ablation (RFA), Hydrothermal Ablation (HTA), or Uterine Balloon Ablation performed by general obstetrician gynecologists, general gynecologists, or minimally invasive gynecologists between August 2015 and October 2015.

Measurements and Main Results: 124 women were identified as having had an endometrial ablation at a single institution. Device distribution was as follows: 93 RFA (75%), 26 HTA (21%), and 5 uterine balloon ablations (4%). 82 women (66%) received a paracervical block following completion of the ablation at the discretion of the surgeon. Primary outcome was postoperative pain at 1 hour assessed using a validated 10-point visual analog scale (VAS). Secondary outcomes included immediate postoperative pain, postoperative pain at discharge, and amount of postoperative narcotics required. There was no statistically significant difference between women who received a paracervical block compared to those that did not with respect to immediate postoperative pain (median=0 versus 0, $p=0.551$) and postoperative pain at 1 hour (median=2 versus 3, $p=0.238$). However, there was a statistically significant difference in pain at discharge between the two groups (median=2 versus 2.5, $p=0.034$). Mean amount of postoperative morphine required was 6.25 mg for women with no paracervical block versus 4.57 mg for women receiving a paracervical block ($p=0.13$).

Table 1

Variable	Mean	95% Confidence Interval
Age at procedure	42.6	41.6 - 43.6
BMI	30	28.6 - 31.4
Race		
White	70.1%	
African American	25%	
Asian	1.6%	
Other	3.2%	
Insurance		
Private	52.4%	

Conclusion: Postoperative pain at discharge is lower among women who receive a paracervical block following endometrial ablation under general anesthesia. No other differences in pain or use of narcotics were noted.

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Long-Term Reproductive Outcomes After Hysteroscopic Metroplasty Technique Using Miniaturized Instruments in Partial and Complete Septate Uterus



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Study Objective: Evaluate the long term reproductive outcomes in patients with partial and complete septate uterus treated by Hysteroscopic metroplasty using miniaturized instruments.

Design: Prospective observational.

The Main Reproductive outcomes in patients with partial and complete septum after hysteroscopic metroplasty

Inclusion criteria	Pregnancy	Abortion rate	Term delivery rate	Live birth rate	Mode of delivery CS	Mode of delivery VD
GROUP A1 (n=66)	39/66 (59%)	4/39 (10%)	31/39 (80%)	31/39 (80%)	14/31 (45%)	17/31 (55%)
GROUP A2 (n=20)	14/20 (70%)	2/14 (14%)	10/14 (71%)	10/14 (71%)	6/10 (60%)	4/10 (40%)
GROUP B1 (n=7)	4/7 (57%)	0/4 (0%)	4/4 (100%)	4/4 (100%)	3/4 (75%)	1/4 (25%)
GROUP B2 (n=0)	0/0	-	-	-	-	-
Total (n=93)	57/93 (61%)	6/57 (10%)	45/57 (79%)	45/57 (79%)	23/45 (51%)	22/45 (49%)

GROUP A1=Partial septum and primary infertility; GROUP A2=Partial septum and repeated early abortions; GROUP B1=Complete septum and primary infertility; GROUP B2=Complete septum and repeated early abortions ; CS= Caesarean section; VG= Vaginal Delivery

Setting: 93 women with uterine septum diagnosed with hysteroscopy and 3D-transvaginal ultrasound (3D-TVS): 86 with a partial, class U2a according to ESHRE/ESGE classification, (GROUP A) and with primary infertility after exclusion of other infertility factors (GROUP A1), repeated early miscarriages (more than 2) (GROUP A2); 7 women with a complete uterine septum, class U2b, (GROUP B) divided in two groups: primary infertility (GROUP B1), repeated early miscarriages (GROUP B2).

Patients: University of Federico II, Naples.

Intervention: Outpatient hysteroscopic metroplasty was performed under conscious sedation using a 5mm hysteroscope with vaginoscopic approach and miniaturized 5Fr instruments: bipolar electrode for the removal of 3/4 of the septum, scissors to refine the base of the septum and a graduated intrauterine palpator to measure the portion of the removed septum. An antiadhesive gel was applied to avoid post-operative adhesions. 3D TVS and second-look hysteroscopy were used to identify and resect the residual septum.

Measurements and Main Results: The technique was successful in all cases without any significant complication. After a mean follow-up of 24 months, in which the patients tried to conceive naturally or throughout assisted methods, an overall clinical pregnancy rate of 61% (n=57/93) was detected with a 79% (n=45/57) of living birth rate. In table 1 the main reproductive outcomes are reported for each group.

Conclusion: Outpatient hysteroscopic metroplasty with miniaturized instruments significantly increases clinical pregnancy rates in patients with partial and complete septate uterus, leading to an important number of term delivery and live birth rate. Surgical correction of Mullerian anomalies could induce a uterine remodelling involving not only macroscopic (morphology and vascularization), but also microscopic (endometrial receptivity) changes. For this reason, studies evaluating changes of endometrial receptivity after hysteroscopic metroplasty are ongoing in our University.

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Reproductive Outcome After Hysteroscopic Correction of Subtle Uterine Septum or Arcuate Uterine Anomaly in Patients with Recurrent Pregnancy Loss (RPL)



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Study Objective: To evaluate the reproductive outcome after hysteroscopic correction of subtle uterine septum in patients with unexplained RPL alone and those with additional Antiphospholipid syndrome (APS).

Design: Retrospective study.

Setting: Teaching Hospital.

Patients: This study included 88 patients with RPL who were found to have subtle incomplete uterine septum or arcuate uterine anomaly on diagnostic hysteroscopy in the period between 1992-2014. Seventy patients were diagnosed as having unexplained RPL (group 1) while 18 patients had APS (group 2). Patients in group 2 were also treated with baby aspirin and low molecular weight Heparin (Lovenox) was added once became pregnant. We compared the reproductive outcome after hysteroscopic metroplasty in both groups. Follow up was up to 3 years.

Intervention: Hysteroscopic correction of subtle uterine septum in all patients.

Measurements and Main Results: Incomplete uterine septum (Class Vb) was present in 41 patients (46.6%) and 47 patients (53.4%) had arcuate uterine anomaly (Class VI) by ASRM classification. There was no significant difference in female age (32.7+4.2 vs 32.4+4.8), day 3 serum FSH (6.6 +2.6 vs 5.3+2.1), day 3 serum LH (5.1+2.5 vs 5.5+5.3), serum TSH (2.2+1.6 vs 2.3+2.5), serum prolactin (11.9+8.3 vs 13.4+13.4), incidence of endometriosis (36.4% vs 58.8%), > 4 miscarriages (28.6% vs 22.2%) or use of tobacco (18.8% vs 22.2%) between group 1 and group 2 respectively. There was no significant difference in the pregnancy rate (72.9% vs 66.7%), miscarriage rate (12.5% vs 16.7%) and delivery rate (60.0% vs 50.0%) during the first pregnancy between group 1 and group 2 respectively. There was no significant difference in the best outcome delivery rate (60.0% vs 61.1%) between group 1 and group 2 respectively.

Conclusion: Excellent reproductive outcome can be achieved after hysteroscopic correction of subtle uterine septum in patients with unexplained RPL and those with additional APS.

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Is Efficacy of Endometrial Resection Depending on Energy?



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Study Objective: To compare efficacy and safety of bipolar versus monopolar endometrial resection for women with heavy menstrual bleeding.

Design: Randomized single-center prospective non-inferiority trial.

Setting: Gynecologic unit of a teaching hospital.

Patients: Women with heavy menstrual bleeding defined by a Pictorial Blood Loss Assessment Chart (PBAC) score >150.

Intervention: Hysteroscopic endometrial resection using bipolar or monopolar energy.

Measurements and Main Results: There were no significant differences between groups for demographics and pre-operative assessment.

Main outcome led to conclusion that after 12 months, PBAC score were comparable whatever the group. Rate of PBAC score less than 150 was 77.4% in the bipolar group and 73.1% in the monopolar group ($p=0.17$). There were also no significant difference in PBAC scores at 12 months (111.3 +/- 199.6 monopolar group versus 65.1 +/- 96.0 bipolar group, $p = 0.37$).

A second procedure was required for 11.5% of patients in the monopolar group ($n = 3$) and 9.7% in the bipolar group ($n = 3$). No intraoperative complications were reported.

Conclusion: Hysteroscopic endometrial resection using bipolar energy was not inferior to a monopolar technique in regards to efficacy.

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The Result Comparison from Curettage and Hysteroscopy About Uterine Bleeding in Postmenopausal Women



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Study Objective: The aim of this study was to evaluate the diagnostic accuracy of dilatation and curettage compared with hysteroscopic biopsy under anesthesia in a day surgery unit in the evaluation of endometrial pathology in postmenopausal women with abnormal uterine bleeding.

Design: A prospective observational study conducted with 112 consecutive postmenopausal women. Biopsy by dilatation and curettage was immediately followed by hysteroscopic biopsy and the histologic results were compared.

Setting: Busan, Korea.

Tertiary Hospital-University hospital.

Patients: From Mar. 2006 to Oct. 2015, postmenopausal women who complain abnormal uterine bleeding were prospectively enrolled. Menopause was defined as no menstruation during more than 12 months. All the women were examined by pelvic ultrasound for evaluation of endometrial thickness, nodular lesion, and other uterine abnormalities. Women with hormone therapy, menopausal duration less than 12 months, hematologic disorder which can result abnormal bleeding and abnormal Pap test were excluded.

Intervention: A prospective observational study conducted with 112 consecutive postmenopausal women. Biopsy by dilatation and curettage was immediately followed by hysteroscopic biopsy and the histologic results were compared.

Measurements and Main Results: By curettage, although performed under anesthesia, 3/3 (100%) cases of endometrial hyperplasia were reported as normal proliferative endometrium. There were two endometrial cancers (1.8%) and one case was missed as normal endometrium by curettage. Among endometrial polyps, only 3/39 (7.7%) cases were diagnosed by curettage.

Conclusion: In postmenopausal women with abnormal uterine bleeding, biopsy by curettage may be not reliable for evaluation of endometrial pathology.

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Limitations of Radiological Screening Tests in Detection of Subtle Incomplete Septum or Arcuate Uterine Anomaly in Patients with Recurrent Pregnancy Loss (RPL)



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Study Objective: In 50% of patients with RPL the etiology is unexplained. There is limited data on the association of subtle uterine septum and RPL and on the best method for detecting such anomalies. The aim of this study is to evaluate the accuracy of

hysterosalpingogram (HSG), trans-vaginal 2D ultrasound (TV 2D US), and TV 3D US in detecting subtle uterine anomaly in patients with RPL.

Design: Retrospective study.

Setting: Teaching hospital.

Patients: The study included 120 consecutive patients with RPL who were found to have incomplete uterine septum ($n=62$, 51.7%) or arcuate anomaly ($n=58$, 48.3%) on diagnostic hysteroscopy (DHS) between 1992-2014. Seventy five patients underwent HSG (62.5%); 109 patients underwent TV 2 D US (90.8%); 70 patients underwent TV 3 D US (58.3%); 79 patients underwent saline infusion hysterosonogram (SIH) with TV 3 D US (65.8%) before DHS.

Intervention: DHS was performed on all patients.

Measurements and Main Results: The diagnosis of subtle uterine septum or arcuate uterine anomaly was made on HSG in only 41 patients (54.7%). When TV 2 D US was used the diagnosis was made in 52 patients (47.7%). TV 3 D US was accurate in making the diagnosis in 42 patients (60.0%), while when TV 3 D US with SIH was used the diagnosis was correct in 49 patients (62.0%). When both HSG and TV 2D US were used ($n=68$) the diagnosis was correct in 46 (67.6%). When both TV 3D US with or without SIH were used ($n=62$) the diagnosis was correct in 48 (77.4%).

Conclusion: None of the radiological screening tests used in this study, alone or in combination, are accurate enough in detecting such anomalies in patients with RPL. Our study suggests that some patients with unexplained RPL may in fact have subtle uterine anomaly. DHS is the only gold standard for the diagnosis of such anomalies.

623

Caesarean Scar Defect: Prevalence, Performance of Sonography and Interobserver Reproducibility



Capras P, Guyot A, Fernandez H. Bicetre Hospital, Le Kremlin Bicêtre, France

Study Objective: Caesarean scar defect is a recently describe entity. Aims of the study is to evaluate rate of cesarean scar defect and to evaluate performance of sonography compared to hysterosonography and to evaluate inter-observer reproducibility.

Design: A prospective evaluation of uterine caesarean scar was conducted in a randomized trial to evaluate interest of uterine double layer suture compared to single layer.

Setting: Gynecologic unit of a teaching hospital.

Patients: Women who had a cesarean section.

Intervention: Endovaginal sonography was performed blind by two different sonographers 6 months after caesarean section. A hysterosonography was also performed the same day. Definition for caesarean scar defect was a depth more than 1.5mm.

Measurements and Main Results: One hundred three consecutive women were included. Mean age was 30.22 years [IC95% : 29.15-31.29]. Mean parity was 1.36 [IC95% : 1.20-1.52]. Mean caesarean term was 39.88 weeks [39.62-40.15]. Sixty six per cent of C-section were performed during labor and cervical dilatation was less than 3 for 22% of women, between 3 and 8 for 59% and more than 8 for 19%. Mean operative time was 38.8min [IC95%: 37.2-40.4].

A defect was visualised in hysterosonography in 40 women out of 95 (42.10%). Compared to hysterosonography, sonography has a sensitivity of 82% and a specificity of 80% for the diagnosis of caesarean scar defect. Interobserver reproducibility for sonography was good ($\kappa = 0.63$).

Mean depth of the defect was not significantly different between observers (4.68mm [4.32-5.04] versus 4.53mm [4.08-4.98], $p=0.52$) such as mean width (2.69mm [2.18-3.21] versus 2.75mm [2.28-3.22], $p=0.79$). Only the mean residual myometrium was significantly different for observers (5.11mm [4.62-5.60] versus 5.62mm [5.13-6.11], $p=0.03$).

Conclusion: Caesarean scar defect is frequent at 6 months after C-section. Sonography is a good exam for the diagnosis of caesarean scar defect with both high sensitivity and specificity compared to hysterosonography. Interobserver reproducibility is good.

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Rate of Pregnancy After Hysteroscopic Management of Synechiae

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Study Objective: To evaluate rate of pregnancy after hysteroscopic management of intrauterine synechiae.

Design: Retrospective study.

Setting: Gynecologic unit of a teaching hospital.

Patients: Women in reproductive age with intrauterine synechiae.

Intervention: Operative hysteroscopy to section intra-uterine synechiae. Office hysteroscopy 6 weeks later.

Measurements and Main Results: 202 women had a synechiae section under hysteroscopy in day care surgery from 2009 to 2014. 112 women tried to get pregnant after surgery. Mean age was 34 [32.8-35.6]. Synechiae were type 1 synechiae in 4% of case, type 2 in 20%, type 3 in 25%, type 4 in 25% and isthmic synechiae in 26%.

A one time procedure was observed for 80% of women, a two time procedure was required for 7.6% and more than two time for 12.4%.

The pregnancy rate was 52% (58 out of 112) with a rate of first trimester pregnancy loss of 37%.

Term birth was obtained for 45 pregnancies.

Placentation anomalies were observed in 8.6% of cases.

Conclusion: A 52% pregnancy rate can be obtained after hysteroscopic section of intra-uterine adhesions. A high rate of placentation anomalies is also found.

625

Minitouch Endometrial Ablation: The Walsall Manor Experience

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Study Objective: Ambulatory gynaecology is rapidly evolving. The Minitouch endometrial ablation epitomises this evolution. Presently there is scarce data on its efficacy. Our objective is to describe the outcomes of patients who underwent Minitouch ablation, specifically the effect on menstruation and patient acceptability.

Design: Retrospective review.

Setting: Outpatient gynaecology clinic of Walsall Manor Hospital.

Patients: Patients who underwent Minitouch ablation for heavy menstrual bleeding (HMB) between 1st March 2015 and 1st February 2016 (n=27).

Intervention: Patients took two forms of simple analgesia pre-operatively and received pre-ablation local anaesthetic infiltration in to the endometrium. Ablation was performed by the same consultant gynaecologist (JP) in our hospital's outpatient clinic. Procedure time was 60-90 seconds depending on cavity size. All patients were offered Mirena coil insertion post-ablation. In March 2016, patients were followed-up through a semi-structured telephone interview, conducted by NG and WPS to reduce response bias.

Measurements and Main Results: Median age of patients was 46 years, with a median parity of 2. Median uterine cavity length measured 5.5cm. Response rate for follow-up was 81% (22/27). 59% (13/22) reported amenorrhoea 1-12 months post-procedure. An additional 32% (7/22) reported hypomenorrhoea. Only 1 patient reported any post-procedure complications (infection). 82% (18/22) consented to the Mirena, of which 78% (14/18) were satisfied with it. Despite 64% (14/22) describing Minitouch as "painful", 91% (20/22) of responders would recommend it to family and friends.

Conclusion: With an overwhelmingly positive response to treatment, we demonstrate the effectiveness of Minitouch and its acceptability to patients. Further research is required comparing the outcome of Minitouch with and without the Mirena, but this preliminary data suggests the two treatment modalities combined provide a good outcome.

626

Minitouch Endometrial Ablation Performed as an Out-Patient (Office) Procedure in a UK District General Hospital

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Study Objective: Endometrial ablation is a safe and effective treatment for heavy menstrual bleeding with established NICE guidelines. It can be performed with a combination of oral/parenteral/local anaesthetic in selected patients, thus avoiding the risks associated with general anaesthetic. We present our experience with over 50 Minitouch procedures regarding ease of use, use of local anaesthesia, patient acceptability, complications, patient satisfaction and outcomes.

Design: Retrospective review.

Setting: Nurse led outpatient clinic in Arrowse Park Hospital, a district general hospital in United Kingdom.

Patients: Patients treated with Minitouch procedures.

Intervention: Minitouch procedures performed since 2014.

Measurements and Main Results: Data from the first 44 cases is available. 39/44 of the cases were performed by a nurse hysteroscopist (GS), 2/44 cases by a consultant (MA) and 3/44 cases by a community hospital doctor. The patients' average age was 44.1 years, parity 2.2 and sounding length 8.9 cm. The procedure was easy to perform. Treatment time was short and cervix dilatation was not needed in any patient. Local anaesthesia was administered in 13/44 cases in patients with tender cervix. There were no complications, other than two patients who were given antibiotics for suspected infection. Patient satisfaction was high. Initial results show a success rate exceeding 80%. Latest available results will be presented at the meeting.

Conclusion: Minitouch is a flexible device requiring no dilatation. The procedure is easy to use, safe, acceptable to patients and has positive outcomes. It is well-suited for use in a nurse led outpatient clinic.

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Outpatient Hysteroscopy; See and Treat Approach

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Study Objective: To review the use of non-electrosurgical instruments, (with or without local anaesthesia) in the management of endometrial polyps incidentally found during outpatient hysteroscopy. In addition, to assess the success of see and treat hysteroscopy with the use of a patient evaluation questionnaire.

Design: Prospective observational study.

Setting: Outpatient postmenopausal bleeding one-stop clinic at a District General Hospital.

Patients: Postmenopausal women referred to outpatient postmenopausal bleeding clinic with an endometrial polyp diagnosed at hysteroscopy were offered inclusion into the study.

Intervention: Women diagnosed with a polyp were offered immediate hysteroscopic excision using hysteroscopic scissors and forceps (with or without local anaesthesia).

Measurements and Main Results: Data is being collected prospectively. Completeness of the procedure, pain score, patient's overall satisfaction and 'friends and family' test are all parameters measured. As this study is currently on going further data will be presented.

Until the present time, 15 women diagnosed with an endometrial polyp underwent resection using hysteroscopic scissors and forceps.

In 80% of cases resection was complete; 20% required resection under general/regional anaesthesia.

The average pain score was between 2 and 4.

Recommendation of the procedure to family and friends reached 100% in women whom resection was complete.

Conclusion: Outpatient hysteroscopic removal of endometrial polyps is a safe and feasible method with a short learning curve for the operator. Outpatient see and treat hysteroscopy is cost-effective, avoids delay in diagnosis and treatment, but also appears highly acceptable to the women who undergo this procedure.

628

Obstetric Outcome after Hysteroscopic Septum Resection in Patients with Uterine Septa of Various Sizes Undergoing In Vitro Fertilization



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Study Objective: Resection of larger uterine septa does improve obstetric performance but whether smaller septa need resection and their impact on obstetric outcome in women undergoing In vitro fertilization is not clear. We wanted to evaluate the role of septal resection of septa of various sizes in obstetric performance.

Design: This is a retrospective cohort study.

Setting: This study was conducted at a tertiary care teaching hospital of Northern India.

Patients: Data was collected from the medical record department from the year 2007 to 2012 (n=107). The patients were categorized on the basis of extent of uterine septum into four groups: a) Subsepta (<1/3rd), b) Septum >1/3 to 1/2, c) Septum >1/2 to whole uterine cervix, d) Septum traversing whole of uterine cavity and cervix.

Intervention: Out of these 107 patients, 74 could be contacted telephonically. The obstetric performance after hysteroscopic septum resection was noted in each group.

Measurements and Main Results: Primary infertility was seen in 63.64%, 55.26%, 52.94% and 84.61% in <1/3rd, >1/3 to 1/2, >1/2 and complete septa respectively. months in <1/3rd, >1/3 to 1/2, >1/2 and complete septa respectively. Significant improvement in infertility was seen in all septal subgroup i.e. 1/3 to 1/2, >1/2 and complete septa (p=0.046, 0.032 and 0.05 respectively) patients except in subsepta (<1/3rd uterine cavity) after septum resection. Abortions were significantly reduced (p=0.048) in third subgroup (i.e. septum > 1/2 to upto internal os) after hysteroscopic septum resection. Take home baby rate was 33% in subsepta and around 50% in the remaining subgroups of septa.

Conclusion: Septal resection improves obstetric performance in patients with uterine septa of various sizes. Whether septal resection improves obstetric performance in patients with subsepta or very small septa, is controversial. Larger studies addressing this issue, need to be planned.

629

Minitouch Endometrial Ablation in an Office Setting without Anaesthesia: 4-Year Experience



Tas B. ZNA Stuivenberg, Antwerpen, Belgium

Study Objective: Review my experience of Minitouch procedures performed in an office setting over the past four years.

Design: Presentation of retrospective data.

Setting: Consulting office in ZNA Stuivenberg.

Patients: 63 women with metrorrhagia/menorrhagia and no desire for fertility treated via Minitouch over 4 years.

Intervention: A solo operator performed the procedures in a consulting office. No pre-treatment, anaesthesia or cervical dilatation was employed. 400mg oral Ibuprofen, to be taken one hour pre-operatively, was prescribed. Cavity was assessed via transvaginal ultrasonography.

Measurements and Main Results: All 63 (100%) patients tolerated the procedure. Energy delivery was 60 to 90 seconds. Follow-up data is available from 59 patients from follow-up visits at 3 to 50 months. 53 (90%) patients were very satisfied, with vast majority reporting amenorrhea or spotting.

There were no intra-procedural complications. 4 (7%) patients had a subsequent hysterectomy and were found to have adenomyosis. 1 (2%) patient underwent a subsequent TCRE procedure. She became pregnant one year later and had an uneventful pregnancy and delivery. 1 (2%)

patient began menstruating after being amenorrhoeic for two years. After resection of a 2 cm submucosal fibroid and second Minitouch Procedure, she is again in amenorrhoea.

Intra-procedure pain scores were 4 to 9 (mean 5.8) on a 10-point scale. The patients were discharged immediately after the procedure. One patient returned within hours due to pain and cramps. She was given intravenous pain relief, admitted for observation and discharged the next day.

Conclusion: Minitouch can be performed without anaesthesia in an office setting. Safety and efficacy outcomes at up to 4 years are very satisfactory.

630

HER vs HEM: A Comparative Analysis of Pathology from Hysteroscopic Endometrial Resection (HER) versus Hysteroscopic Endometrial Morcellation (HEM)



Procedures

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Study Objective: To compare the variations in pathology diagnosed on hysteroscopic endometrial resection (HER) and hysteroscopic endometrial morcellation (HEM) procedures for the evaluation of abnormal uterine bleeding (AUB) and post-menopausal bleeding (PMB).

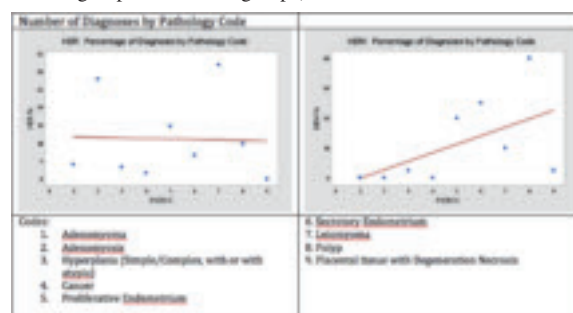
Design: A retrospective chart review.

Setting: Mohawk Valley Health System, a community based teaching hospital in central New York.

Patients: 88 women who underwent hysteroscopic surgery between Jan 2013 - March 2015 for the evaluation for AUB or PMB with either endometrial resection or endometrial morcellation procedure.

Intervention: HER procedure was performed with Monopolar resectoscope and HEM procedure was performed with MyoSure.

Measurements and Main Results: The most common findings in the HER procedure group were leiomyoma (31.97 %), adenomyosis (27.87 %) and proliferative endometrium (PE) (14.75 %). With HEM procedure, polyp (40.0 %), secretory endometrium (SE) (25.0 %) and proliferative endometrium (20.0 %) were the most common findings. There were four cases of hyperplasia and two cases of endometrial adenocarcinoma diagnosed with HER procedure versus one case of hyperplasia detected with the HEM procedure (combined value of 4.92% vs 2.5 %). The percentage of adenomyosis and adenomyoma diagnosis were also higher in the HER group versus HEM group (combined value of 31.97 % vs 0.0%).



Conclusion: Although both procedures reveal significant pathology, HEM is less sensitive than HER at detecting pathology such as adenomyosis, adenomyoma, hyperplasia and adenocarcinoma.

631

Accuracy of Three-Dimensional Saline Infusion Sonohysterography (3D-SIS) for Evaluation of Uterine Cavity Abnormalities in Infertility Patients



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Study Objective: To determine the accuracy of 3D-SIS for evaluation of the uterine cavity in infertile patients and analyze the distribution of different pathologies.

Design: Retrospective clinical study comparing hysteroscopy findings with 3D-SIS.

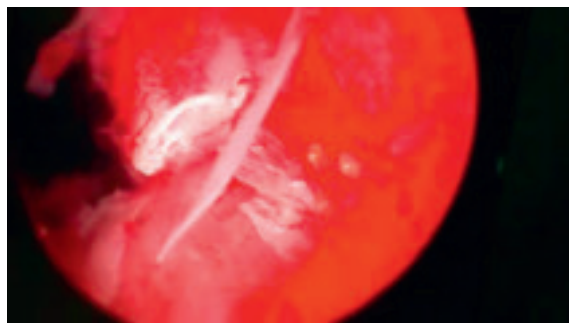
Setting: Single satellite center of a private infertility clinic.

Patients: From January to December 2015 we performed 109 operative hysteroscopies in patients with abnormal 3D-SIS. We routinely perform 3D-SIS as a screening procedure prior to infertility treatment.

Intervention: Hysteroscopic findings were retrospectively compared to findings at 3D-SIS. All 3D-SIS were performed by the same operator using a Voluson-E6 ultrasound and a RIC 5-9 probe (GE, Austria). Hysteroscopies were performed by the same operator with a 3.8 mm or 5 mm hysteroscope and hysteroscopic scissors/grasper; a 7 mm resectoscope was used for fibroids (Wolf, Germany).

Measurements and Main Results: All patients with abnormal 3D-SIS had an abnormal hysteroscopy. At hysteroscopy 87 patients (80%) had more than one diagnosis while only 36 patients (33%) had more than one diagnosis at SIS. Hysteroscopic diagnosis was: polyps/polypoid endometrium (n=94), intrauterine adhesions (n=30), fundal fibrosis (n=24), uterine malformations (including arcuate uterus, partial and complete septum and unicornuate uterus) (n=48), myomas (n=6), retained products of conception (n=4) and chronic endometritis (n=23). Chronic endometritis was always associated with polypoid endometrium both at hysteroscopy and at SIS. Of 22 cases with a single diagnosis at hysteroscopy, 20 had a correct diagnosis at SIS (91%). Overall, in 5% of cases (n=6) the sonohysterographic diagnosis was different than the hysteroscopic diagnosis and in 64% (n=70) there were additional findings at hysteroscopy.

Conclusion: 3D-SIS is a minimally invasive screening procedure which correlates well with hysteroscopy with high positive predictive value. 3D-SIS is most accurate when only 1 pathology is present.



contraceptive device, 5(16.6%) had septate uterus, 3(10%) had ashermann's syndrome. Out of 30 women, 17(56.7%) conceived after initial treatment within 6 months. 6(20%) more women conceived within one year. Only 1(3.3%) woman with endometritis ossificans conceived and that too after 20 months of treatment. 1(3.3%) out of 3 woman with ashermann's syndrome also conceived within 1 year. 6(20%) women did not conceive at the end of study.

Conclusion: Hysteroscopy was done to diagnose uterine pathology and intervene as and when amenable. In most of the cases, diagnosis was done with concurrent intervention, resulting into a 80% pregnancy rate of which 56.7% conceived within first 6 months, thereby establishing hysteroscopy as gold standard for such cases. Fertility resumes early if the offending cause is removed. Study also highlights the increased incidence of retained fetal bones in developing countries which depicts an important social issue that female foeticide is on the rise which was corroborated with history of the patient.

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Hysteroscopy: Role in Management of Secondary Infertility with Uterine Pathology



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Study Objective: To evaluate hysteroscopy as a tool to find out the cause of secondary infertility and to treat them.

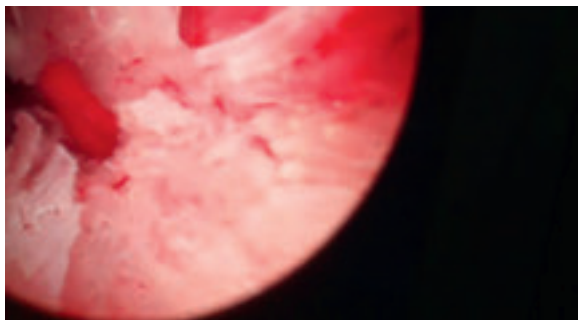
Design: Prospective interventional study with follow up till conception or maximum upto 2 years.

Setting: Tertiary health care center with expertise level of care.

Patients: 30 women with secondary infertility in which ultrasound revealed intra uterine pathology were enrolled in the study.

Intervention: Diagnostic hysteroscopy followed by hysteroscopic removal of the pathology if any, was done.

Measurements and Main Results: Out of 30 women, 10 (33%) had intrauterine fetal bones, 1 (3.3%) had twig of plant, 4 (13.3%) had polyp, 4 (13.3%) had endometritis ossificans, 3 (10%) had misplaced intrauterine



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Minitouch: Evaluation of This Innovative Office-Based Endometrial Ablation Technique, and Patient Perception and Acceptability



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Study Objective: To describe the procedure; patient perception and discomfort; initial outcomes. This micro technique delivers microwave energy via an induction loop placed in the uterine cavity. The device diameter (3.5mm) and is such that cervical dilatation is not required. In addition the procedure is of rapid duration (60 seconds).

Design: Prospective observational study using patient, physician and nursing staff evaluation questionnaires. All women were provided with written and verbal information prior to choice of procedure and were aware that this was an innovative approach without long-term follow up data.

Setting: University Hospital Gynaecology Outpatient Department.

Patients: All pre and peri-menopausal women with subjective evidence of menorrhagia who are not requiring further fertility. Women with larger cavities were included however following manufacturer advice they required two applications of 60 and 30 seconds.

Intervention: Independent evaluation of acceptability by patient questionnaire; interviews with service providers and users; initial assessment of pain scores during and post procedure and evaluation of symptom resolution with reference to reported change in menstrual blood loss and pain.

Measurements and Main Results: Despite the fact that there was no long term follow up data women chose the mini-touch procedure in preference to other out patient (office) endometrial ablation techniques currently available. Preliminary findings indicate a high acceptability and efficiency of this procedure in the office setting

with minimal pain. Short-term impact on symptoms, are above those anticipated for global endometrial ablation devices. Ease of use has been reported by the clinical team, and intra-procedure pain scores were acceptable.

Conclusion: This new device represents the dawn of a third generation in endometrial ablation technology not only in terms of miniaturisation but also ease of use and patient acceptability. This represents a step change in comparison with currently available technology but clearly final validation of this device will require longer term follow up than the short term data currently available.

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Study on Uterine Anomalies in Patients with Abortion

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Study Objective: To explore the relationship between the time of abortion and congenital and acquired uterine anomalies.

Design: Methods In our study 185 patients underwent diagnostic hysteroscopy following abortion. The frequency of uterine anomalies diagnosed by hysteroscopy were compared among the patients with miscarriages for once, twice, and three times or more.

Measurements and Main Results: Diagnostic hysteroscopy revealed anomalies uterine cavity in 79.9% (148/185) of the patients, congenital uterine anomalies in 52.4% (97/185), acquired uterine pathologies in 21.1% (39/185). The incidence of incomplete uterine septum (29.7%, 55/185) and uterine adhesion (11.9%, 22/185) were highest in congenital or acquired uterine anomalies, respectively. Among the patients with miscarriage for once (7.4%, 5/68), twice (14.1%, 11/78) and three times or more (15.4%, 6/39). The detection rates of normal uterine cavity, congenital abnormalities, acquired uterine and congenital and acquired pathologies were 27.9% (19/68), 51.5% (35/68), 17.6% (12/68) and 2.9% (2/68); 17.9% (14/78), 51.3% (40/78), 24.3% (19/78) and 6.4% (5/78), 10.3% (4/39), 56.4% (22/39), 20.5% (8/39) and 12.8% (5/39), respectively. We did not find any statistically significant difference between the number of miscarriages and diagnostic hysteroscopy findings.

Conclusion: Hysteroscopy is a simple and efficient tool in the early diagnosis of congenital and acquired uterine anomalies. Diagnostic hysteroscopy can be performed after the first miscarriage in order to early diagnose and treat congenital and acquired uterine pathologies.

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Efficacy of Minitouch Endometrial Ablation in the Treatment of Heavy Menstrual Bleeding (HMB) and Its Suitability for Ambulatory Care

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Study Objective: The aim was to evaluate the efficacy of Minitouch endometrial ablation in the treatment of HMB and its suitability without anaesthesia in ambulatory care.

Design: Retrospective observational study. Follow-up over a time period of 3-16 months.

Setting: Outpatient gynaecology clinic /gynaecology theatre in an NHS Foundation Trust.

Patients: 32 menorrhagia patients underwent Minitouch treatment between July 2014 and December 2015, 29 of which were in an ambulatory gynaecology clinic and 3 of which were under general anaesthetic.

Intervention: N/A.

Measurements and Main Results: Patients undergoing Minitouch in an ambulatory setting were asked to take oral analgesics (NSAIDs and/or paracetamol) 1-2 hours pre-procedure. 4 patients took no analgesia. Patients were asked for their pain scores using a 10 point Visual Analog Scale.

Of these 29 patients, average intra-procedure pain score, 6.8, was comparable to average dysmenorrhoea pain score, 6.1. Average

immediate post-procedure pain score was 3.5, which reduced at discharge to 2.3. Average time to discharge was 8 minutes.

Average intra-procedure pain score was 6.6 for patients who took pre-procedure analgesia. It was 7.9 among those who took no analgesia.

Follow up data was collected from 26 patients. 21 patients (81%) described lighter periods, spotting or no bleeding. 5 patients (19%) reported no change, 1 of who proceeded to repeat Minitouch treatment and described lighter periods at follow-up.

Total procedure time, including recovery, was less than 35 minutes for the 29 procedures done in ambulatory care. There were no adverse events.

Conclusion: Follow up data demonstrates that Minitouch is effective in the treatment of HMB and a tolerable treatment with low pain scores and short time to discharge, making it suitable for ambulatory care. This will increase women's choice of treatment for HMB and reduce the need for surgical intervention.

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The Rapid Learning Curve of Office Operative Hysteroscopy: A Single Surgeon Succeeding by Doing

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Study Objective: Primarily to illustrate the learning process of office diagnostic and operative hysteroscopy performed by a relatively inexperienced single operator. Secondly, to describe the reasons of failure of the technique and to study the relationship between various clinical factors and the outcome of the procedure.

Design: Retrospective cohort study (Canadian Task Force classification II-2).

Setting: Hysteroscopy outpatient clinic at a tertiary referral center.

Patients: 445 consecutive cases of women who underwent office operative or diagnostic hysteroscopy.

Intervention: Procedures were performed using narrow caliber hysteroscopes. The uterine cavity was distended with normal saline. The vaginoscopic approach was used in all cases. Procedures were classified as diagnostic or operative and successful or failed by reviewing the medical charts retrospectively.

Measurements and Main Results: Groups of failure and success were compared for various demographic and clinical factors. The Surgeon's learning process was studied by calculating success rates in four equal consecutive patient groups.

Total success rate was 73.4%. Success rates of operative and diagnostic hysteroscopies were 72.6% and 76.1%; respectively.

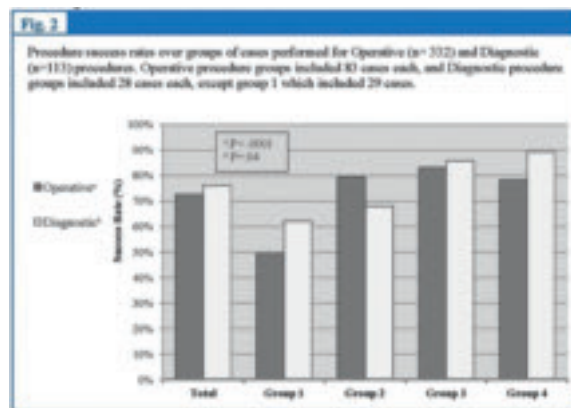


Fig. 2. Procedure success rates over groups of cases performed for Operative (n= 332) and Diagnostic (n=113) procedures. Operative procedure groups included 83 cases each, and Diagnostic procedure groups included 28 cases each, except group 1 which included 29 cases.

Polyps were found in 72.3% of the cases in the operative group, followed by multiple findings (>2) in 10% of the cases, and myomas in 6%. No difference was found in age, menopausal status, parity and outcome of prior pipelle endometrial sampling or prior hysteroscopy between groups of successful and failed procedures. A significant improvement in the success rate of the operative technique was observed relatively quickly, and close to maximal success rate was reached after the first 83 consecutive cases. Improvement in the diagnostic procedure was more gradual.

Conclusion: The relatively rapid acquisition of basic operative hysteroscopy skills is an attainable goal. Office hysteroscopy should be the first-line procedure based on the clinical factors we examined.

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The AEGEA Vapor System for Endometrial Ablation: Results from a Prospective, Multicenter, Pivotal Clinical Trial



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Study Objective: To evaluate the safety and effectiveness of the AEGEA Vapor System for the treatment of heavy menstrual bleeding.

Design: Prospective, multicenter, single-arm, open label, Phase III Clinical Trial. Follow-up assessments were conducted at 24 hours, 2 weeks, 3, 6, and 12 months after the endometrial ablation procedure.

Setting: Private practice, outpatient and hospital settings at 15 sites in the U.S., Canada, Mexico and the Netherlands.

Patients: 155 premenopausal women aged 30 to 50 years with heavy menstrual bleeding as determined by a Pictorial Blood Loss Assessment (Higham) score ≥ 150 . Preoperative evaluation included ultrasound, sonohysterography or hysteroscopy, and endometrial biopsy. Screening inclusion allowed treatment of up to 12 cm uterine sound lengths, uterine septa up to 1/3 of the cavity length, and non-obstructing myomata measured by ultrasound up to 4 cm in diameter.

Intervention: Endometrial ablation (120 second treatment time) was performed under varying anesthesia regimens using the AEGEA Vapor System from September 2014 to May 2015.

Measurements and Main Results: The primary effectiveness endpoint was reduction of menstrual blood loss to a PBLAC score ≤ 75 . Secondary effectiveness endpoints included quality of life, patient satisfaction and the need for surgical or medical intervention to treat abnormal bleeding at any time within the first 12 months after treatment. All adverse events, including device and procedure related events, were recorded.

Conclusion: At the time of this abstract submission, data collection is still ongoing for this clinical trial. Full results of this Pivotal Clinical Trial will be presented at the 2016 AAGL Global Conference as outlined above.

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Healthcare Costs Associated with Surgical Interventions for Uterine Fibroids



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Study Objective: To describe the medical costs associated with surgical interventions for uterine fibroids.

Design: Retrospective analysis using US administrative claims from 2010-2015.

Patients: Women 30 years and older with a diagnosis of uterine fibroid (ICD-9 code:218.x) undergoing these surgical Interventions: hysterectomy, hysteroscopic myomectomy, or uterine artery embolization (UAE) with at least 12 months of continuous enrollment pre- and post-index in the Truven Health MarketScan Commercial and Medicare Supplemental Databases.

Measurements and Main Results: Direct medical costs and re-intervention rates were calculated in the 12-month post-index period. Women with a diagnosis of gynecologic cancer, prior surgical procedure for fibroid, or procedure for a uterus >250g during the study period were excluded.

The study population consisted of 86,767 women who received hysterectomy, hysteroscopic myomectomy or UFE. The mean age at index was slightly lower for UAE patients (44.5) than hysteroscopic myomectomy (46.4) or hysterectomy (47.0). The majority (83.5%) underwent hysterectomy; while 12.2% received hysteroscopic myomectomy and 4.4% received UAE. During the follow-up period, repeat procedures occurred in 3.9% of myomectomy and 1.8% of UAE patients, while re-intervention with hysterectomy occurred in 5.5% of myomectomy and 3.1% of UAE patients.

Total healthcare costs within 30 days and one year of the index procedure were higher for hysterectomy (30 day: \$15,105, one-year: \$22,285) and UAE (30 day: \$14,335, one-year: \$21,445) compared to myomectomy (30 day: \$8,087, one-year: \$16,907). Total GYN-related healthcare costs were also higher for hysterectomy (30 day: \$13,703, one-year: \$14,662) and UAE (30 day: \$11,237, one-year: \$13,540) compared to myomectomy (30 day: \$6,114, one-year: \$9,492).

Conclusion: One-year direct healthcare costs associated with surgical interventions for uterine fibroids were lowest along the hysteroscopic myomectomy group compared to hysterectomy or UAE. The relatively low utilization of hysteroscopic myomectomy compared to hysterectomy suggests an opportunity to reduce healthcare costs by increasing the utilization of hysteroscopic myomectomy for appropriately selected patients.

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Hysteroscopic Management of Cesarean Scar Defect



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Study Objective: Cesarean scar defect is a recently describe pathology that can led to postmenstrual bleeding, pain and infertility. One of the treatment of cesarean scar defect is operative hysteroscopy. First published results of operative hysteroscopy in this indication show good and promising results but it's difficult to know the rate of women managed by operative hysteroscopy.

Objective is to evaluate the success rate of hysteroscopic management for cesarean scar defect.

Design: Retrospective study.

Setting: Gynecologic unit of a teaching hospital.

Patients: Women with a symptomatic cesarean scar defect managed by operative hysteroscopy between january 2011 and october 2015.

Intervention: Management of a symptomatic C section scar defect.

Measurements and Main Results: Fifty five women with a symptomatic cesarean scar defect were managed during the study period. Out of these 55 women, 5 were initially managed vaginally (n=4) or laparoscopically (n=1).

For the 50 remaining women, hysteroscopic management was decided. In 4 cases, vaginal surgery was required during the same procedure (for two women) or later (for two women).

Mean age of the 50 women initially managed by hysteroscopy was 36 years old [34.16-37.84]. A single previous C-section was retrieved in 59% of women. One of them had a previous cesarean scar pregnancy.

Symptoms were postmenstrual bleeding for 57% of women, pain for 33% and infertility for 22%.

After hysteroscopic management, 15 out of the 26 women (63%) with postmenstrual bleeding had a regression of them ; 12 out of the 15 women (80%) with pain had a regression and 6 women out of the 10 (60%) with infertility had a pregnancy after X months. Four were spontaneous pregnancies while 2 were after reproductive therapy.

Conclusion: Hysteroscopic management of cesarean scar defect is a minimally invasive treatment with a high level of success.

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Hysteroscopic Polypectomy on the Day of Egg Retrieval, 5 Days Prior to Embryo Transfer: A Case Report



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Study Objective: To investigate the use of minimally invasive operative hysteroscopy on the day of egg retrieval with subsequent embryo transfer 5 days later.

Design: Case report.

Setting: Private infertility center.

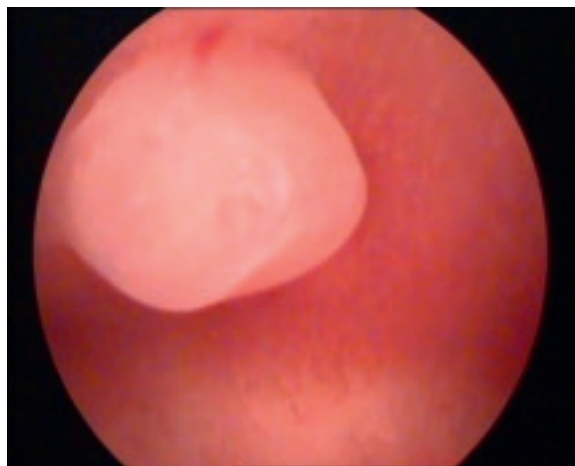
Patients: A 35 year old woman with premature ovarian failure was referred to our center for oocyte donation. Sonohysterography was suggestive of endometrial polyp. Hysteroscopy was performed by her gynecologist, but the polyp was considered too small to warrant polypectomy. After endometrial preparation with estradiol valerate, she was seen again at our center on the day of the donor's egg retrieval.

Intervention: Ultrasound was performed using a Voluson E8 (GE, Austria) with a RIC-9-5 transvaginal probe revealing an endometrial thickness of 9 mm and a 5 mm hyperechogenic structure suggestive of polyp. The couple was counseled regarding the possible impact of the polyp on implantation and all therapeutic options were discussed: immediate hysteroscopic polypectomy with subsequent transfer at blastocyst stage versus cryopreservation of all embryos and delayed transfer versus no intervention and subsequent blastocyst transfer. The couple chose the first option.



Measurements and Main Results: Hysteroscopy confirmed the presence of an 8 mm polyp located next to the right tubal ostium. Polypectomy using a polyp grasper through a 3.8mm hysteroscope (Wolf, Germany) was performed. Postoperatively, the patient reported no discomfort and vaginal bleeding was minimal. As expected, transvaginal ultrasound performed 2 hours post-hysteroscopy showed the presence of intracavitary fluid. The following day, 24 hours post-hysteroscopy there was no bleeding and a transvaginal ultrasound revealed a 9 mm trilaminar endometrium. Five days later two blastocysts were transferred under ultrasound guidance. A twin gestation resulted and two healthy babies were delivered by cesarean section at 36 weeks without complications.

Conclusion: Minimally invasive hysteroscopy may be a valid option for patients who unexpectedly present with endometrial polyp during stimulation and does not appear to negatively affect implantation.



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Oblique Vaginal Septum Syndrome (OVSS), an Unclassified Mullerian Anomaly in a 22-year old Nulligravid Presenting with Severe Dysmenorrhea and a Paravaginal Bulge: A Case Report



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Study Objective: To report the clinical presentation, evaluation, and management of oblique vaginal septum syndrome (OVSS) consisting of complete uterine septum, double cervix and obstructed hemivagina.

Design: Case Report.

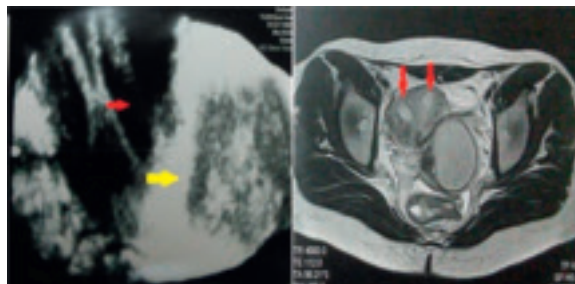
Setting: Tertiary hospital.

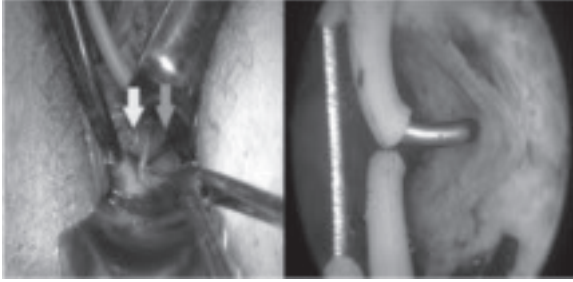
Patients: A 22-year old nulligravid with severe dysmenorrhea and a palpable 6x4 cm cystic mass at the upper 2/3 of the left vaginal wall.

Intervention: 3D ultrasound and MRI showed normal uterus with no midline sagittal groove and a septum dividing the uterine cavity and cervix into two. A cystic mass from the left cervix extended into the left vagina indicating an obstructed hemivagina with hematocolpos.

Ipsilateral renal agenesis was absent. The preoperative diagnosis was OVSS, the non-classic HWWs variant. The procedure was incision and complete removal of the bulging vaginal septum and transcervical resection of uterine septum under laparoscopic and ultrasound control.

Measurements and Main Results: Diagnostic hysteroscopy indicated a left paravaginal bulge, single cervix and complete uterine septum. Incision and complete removal of vaginal septum was done medially from the right cervix down to the lower edge of the oblique septum using monopolar electrode draining old blood, thus visualizing the left cervix. Transcervical resection of the uterine septum was done in the right hemicavity using bipolar Collins knife electrode from the fundus to the internal cervical os. On transrectal ultrasound, the fundal thickness was .8 cm. The uterine fundus, ovaries and fallopian tubes were normal on laparoscopy with a single uterine cavity on transillumination.





Conclusion: OVSS should be highly suspected in younger patients with severe dysmenorrhea and paravaginal bulge. Early diagnosis, careful physical examination, appropriate imaging tests and effective surgical approach should be made. The basic treatment is incision with complete removal of the oblique vaginal septum. Hysteroscopic resection of the uterine septum with concomitant ultrasound and laparoscopy will be helpful.

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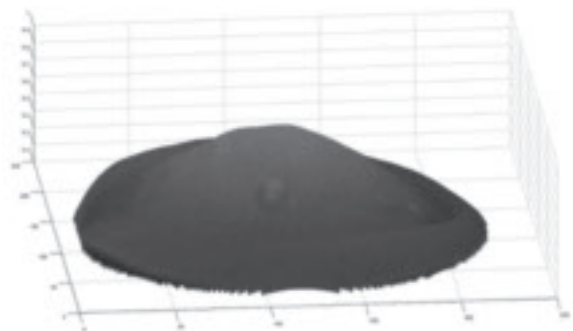
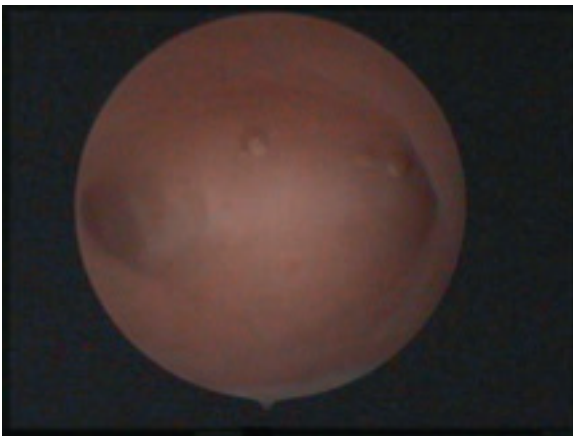
New Software for Valuation of Uterine Septum

Marziali M,¹ Pedone M,² Vicario R.³ ¹Gynecology and Obstetrics, Policlinico Universitario Tor Vergata, Roma, Italy; ²Matematics, La Sapienza, Roma, Italy; ³Gynecology, Clinica Paideia, Roma, Italy



Study Objective: This is the new concept for valuation of uterine cavity.

Design: After a diagnostic isteroscopy we take a picture of uterine cavity through the OUI.



Setting: The picture is digitalizes by the new software and you can misure the exact lenght of uterine septum. Then you can decide immediately the dept of the incision.

Patients: We analyze 10 patients. All patients performed 3D ultrasound and then we comparise ultrasound with the new software.

Intervention:

Measurements and Main Results:

Conclusion: The result is that there is no difference between 3D ultrasound and the new software. The advantage of is new software is that you can evaluate the exact dept of the incision during metroplastic surgery.

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Cost Analysis of In-Office versus Hospital

Hysteroscopy



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Study Objective: To provide a cost versus income analysis of performing hysteroscopy in a physician's office as compared to hysteroscopy done in a hospital setting.

Design: Retrospective review of costs and income from January 2015 to December 2015, related to performing hysteroscopy procedures in the office as compared with those done in a hospital.

Setting: Gynecology-only, single practitioner's office and one community-based hospital.

Patients: Twenty-nine women had in-office hysteroscopy with endometrial biopsy. Twenty-eight had hysteroscopy with dilation and curettage in the hospital.

Intervention: A gynecology-only, single practitioner performed hysteroscopies in her office and also at one of the local, community-based hospitals where she performs hysteroscopies.

Measurements and Main Results: Cost analysis of hospital costs per operating room (O.R.) encounter included supplies, capital equipment costs-per-use fees, personnel costs, anesthesia fees, and O.R. usage fees. Average total cost to the hospital per encounter was \$3,023.

Cost analysis of office hysteroscopy included office supplies, surgical trays, capital equipment, and office labor cost. Average cost of in-office hysteroscopy with endometrial biopsy was \$70 per procedure, including supplies and medical assistance.

Average health insurance charges were \$2,600 for in-office versus \$14,631 billed if done in the hospital. Taking into account only commercial health insurance coverage, the mean reimbursement rate for the surgeon was \$585 for in-office hysteroscopy, versus \$380 if the procedure was done in the hospital.

Conclusion: In view of the rising cost of health care, performing hysteroscopies in-office versus in-hospital provides major cost-saving advantages overall. Performing the procedure in the office is more cost-effective and convenient, as well as provides a more comfortable and less intensive environment for the patient.

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The Pathologic Profile of the Patients Who Underwent Hysteroscopy



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Study Objective: To analysis the pathology of the patients who underwent hysteroscopy.

Design: Medical data were reviewed retrospectively from 1999 to 2016. And the pathologic reports were analyzed.

Setting: Every operation were done by one surgeon, and age and pathologic reports were used.

Patients: 136 patient underwent hysteroscopy for 16 years. The ages of patients were between 23 and 74 years old (mean=49).

Intervention: Hysteroscopy was done under the position of lithotomy.

Measurements and Main Results: Among 136 patients, 49 patients (36%) had endometrial polyp, 38 (28%) had leiomyoma, 2-37 (27%) had normal. There were 1 patients with hyperplasia without atypia, 2 with hyperplasia with atypia, and 1 patient with endometrioid adenocarcinoma.

Conclusion: Among patients who underwent hysteroscopy, two thirds had endometrial polyp or leiomyoma. But 3 percents of patients had hyperplasia or cancer. Therefore, pathologic report should be very important.

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Availability of Hysteroscopy-Guided Resection of Endometrial Polyp



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Study Objective: Endometrial polyp is a common disease that is often found in adult women. When malignancy is not pointed out pathologically in specimens of the blind endometrial aspiration biopsy or curettage biopsy and obvious lesion that needs to be treated is not observed by transvaginal ultrasonography, observation for periods depending on each case is usually indicated. To confirm the adequacy of such a management, we investigated past cases in which hysteroscopy-guided resection of endometrial polyp and pathological investigation in our hospital are underwent.

Design: Retrospective case series.

Setting: Toho University Omori Medical Center, Tokyo, Japan. Single hospital study.

Patients: Forty patients who were diagnosed with endometrial polyp by transvaginal ultrasonography and undergone blind endometrial aspiration biopsy or curettage biopsy with no malignancy between 2006 to 2015. As for the cases after 2008, Dienogest was administered to each patient as preoperative treatment.

Intervention: Undergoing hysteroscopy-guided resection of endometrial polyp and pathological investigation.

Measurements and Main Results: In all of the 48 cases, hysteroscopy were performed. Most of the specimens extracted in those operations were verified to be endometrial polyp, seven cases were diagnosed differently from blind aspiration biopsy as preceding examination. Four cases were finally diagnosed as endometrioid adenocarcinoma, two cases were atypical endometrial hyperplasia and 1 case was atypical polypoid adenomyoma.

Conclusion: This series of cases indicates that blind aspiration biopsy is not always accurate. When vaginal bleeding is recognized or endometrium is seen thick or abnormally ultrasonography to suspect malignancy, it is strongly recommended to perform hysteroscopy-guided resection of endometrial polyp.

Virtual Posters – Laparoscopic Surgeries

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Postoperative Pain After Total Laparoscopic Hysterectomy: A Comparison of Transumbilical Single-Port Access and Conventional Three-Port Laparoscopic Surgery



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Study Objective: To compare postoperative pain between single-port access total laparoscopic hysterectomy (SPA-TLH) using a trans-umbilical

single-port system and conventional multi (three)-port access total laparoscopic hysterectomy (MPA-TLH).

Design: Randomized controlled trial.

Setting: University-based hospital.

Patients: 60 women who underwent SPA-TLH and MPA-TLH for benign gynecologic diseases between March 2014 and January 2015.

Intervention: Patients were randomly assigned to undergo SPA-TLH (n=30) or MPA-TLH (n=30). After surgery, postoperative pain was assessed at 30 minutes and 1, 12, 24, and 48 hours.

Measurements and Main Results: Operative outcomes and postoperative pain assessed by the visual analog scale, bolus requirement of intravenous patient-controlled analgesia, and additional analgesic use. The two study groups did not differ in terms of patient demographics or surgical outcome. There were no differences in pain score between the two groups. The SPA-TLH group had statistically significantly more intravenous analgesia requests during the 12-24 hours after surgery (2.17 ± 3.05 vs. 0.79 ± 1.99 ; $p=0.047$), more 24-48 postoperative analgesics (0.21 ± 0.41 vs. 0.03 ± 0.19 ; $p=0.045$), and more total additional analgesics (0.97 ± 0.94 vs. 0.45 ± 0.87 ; $p=0.034$).

Conclusion: SPA-TLH was feasible compared with MPA-TLH. Although there is no difference in pain based on VAS, the SPA-TLH group requires more analgesia to give the same postoperative pain control.

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Trends of Minimally Invasive Hysterectomy for Benign Gynecologic Disease: A Multicenter Analysis Using the National Surgical Quality Improvement Program Data



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Study Objective: To evaluate the trends of minimally invasive surgical approach in hysterectomy for benign gynecologic disease over time (2005-2011).

Design: Patients were divided into 3 approaches: abdominal, laparoscopic and vaginal. Patient characteristics and outcomes were compared between these groups. Multivariable logistic regression models were used.

Setting: Women who underwent hysterectomy performed for benign indications in the 2005-2011 NSQIP database.

Patients: 36,670 women were included. 12901 (35%), 15594 (43%), 8175 (22%) had abdominal, laparoscopic and vaginal hysterectomies.

Intervention: None.

Measurements and Main Results: The proportion of abdominal and vaginal hysterectomies dropped 49% to 31% and 36% to 20% respectively from 2006 to 2011 ($p<0.001$). The proportion of laparoscopic hysterectomy increased from 2006 to 2011 (15% to 49%) ($p<0.001$). Obese patients (BMI ≥ 40) were more likely to have abdominal hysterectomy (44% vs. 35%) and less likely to undergo vaginal hysterectomy (14% vs. 22%) ($P<0.001$). Elderly (≥ 70) were less likely to have abdominal 25% vs. 36%, laparoscopic (22% vs. 46%) but more likely to have vaginal hysterectomy (53% vs. 18%) ($p<0.001$). Laparoscopic hysterectomy was associated with longer operative time ($p<0.001$). Abdominal hysterectomy was associated with longer hospital stay (3 vs. 1.2 vs. 1.6 days, $p<0.001$) and higher complication rate (12.5% vs. 7% vs. 7%, $p<0.001$). In multivariable analysis, abdominal hysterectomy was associated with more postoperative complications (OR 1.9, $p<0.001$) and vaginal hysterectomy (OR 1.2, 95% CI 1.1-1.3, $p<0.001$) than laparoscopic hysterectomy. Abdominal hysterectomy was associated with longer hospital stays (OR 1.6, $p<0.001$).

Conclusion: In this large population based study, a trend toward increase use of laparoscopy was noticed on the expense of

abdominal and vaginal approaches. Obese patients were more likely to have open approach. Abdominal approach was associated with longer hospital stay and higher risk of postoperative complications. Efforts should be directed toward use of minimally invasive approach in patients undergoing hysterectomy for benign indications.

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The New Operation Technique for Uterine Prolapse: Vaginally Assisted Laparoscopic Sacrohysteropexy (VALSH)



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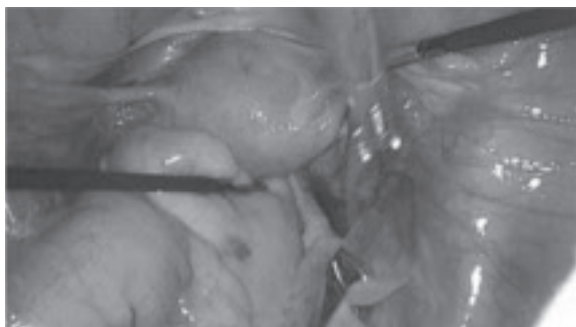
Study Objective: Laparoscopic uterine suspension techniques with its advantages of better visualization of pelvic anatomy, shorter hospitalization, favorable postoperative outcomes seem promising. The aim of this paper was to describe the new surgical technique and report the safety and feasibility of vaginally-assisted laparoscopic sacrohysteropexy (VALSH).

Design: Prospective data analyses.

Setting: Obstetrics and Gynaecology Department of Tertiary Referral Center.

Patients: Thirty three women with stage III or more uterine prolapse.

Intervention: The operation had three sections; laparoscopic- vaginal-laparoscopic parts. Firstly, three laparoscopic ports were placed; 10 mm umbilical, two/three 5 mm ports. The peritoneum over the sacral promontory was incised. A small 5 cm tunnel was made by underneath the peritoneum from the sacral promontory downward to the cervix. Then, mesh placed to the tunnel without fixing. Secondly, vaginal part of the surgery was performed. A semicircular vaginal incision was done at the posterior cervicovaginal junction. An ovarian pexer was placed to tunnel with blunt dissection from vaginal part toward to the promontory. At the same time, the direction of the instrument was visualized by laparoscopy. The mesh pulled downward within the tunnel with the aid of an instrument.



The mesh sutured at the posterior wall of cervix without opening Douglas peritoneum.

Finally, The uterus pushed up to the maximum to obtain required uterine suspension and mesh was tacked to the anterior longitudinal ligament at the sacral promontory.

Measurements and Main Results: Patients were followed up at 12 months after surgery for mesh related complications and improvements of symptoms. There were significant differences between the pre and postoperative values of POP-Q parameters which were favorable in latter ($P < 0.001$), total vaginal length was preserved after surgery ($P > 0.05$).

Conclusion: Vaginally assisted laparoscopic sacrohysteropexy was a safe, minimally invasive procedure in uterine prolapse, with

Table I. Patient demographics

N = 33	Mean (range)
Age	46.5 (25-68)
Parity	2.9 (1-6)
Stage III	N= 7 (21%)
Stage IV	N= 26 (79%)

Table II. Comparison of Pre- and Post-Operative POP-Q Parameters with Hgb Levels

	Pre-op mean \pm SD	Posto-op mean \pm SD	P Value (t-test)
Hgb	12.2 \pm 1.3	11.8 \pm 1.1	>0.05
Point Aa	2.0 \pm 0.6	-2.3 \pm 0.4	<0.001
Point Ba	3.6 \pm 1.8	-2.2 \pm 1.6	<0.001
Point C	3.2 \pm 2.8	-6.8 \pm 0.9	<0.001
Point gh	3.9 \pm 0.6	1.9 \pm 0.1	<0.001
Point pb	1.6 \pm 0.7	2.8 \pm 0.8	<0.001
Point tvl	7.3 \pm 0.7	7.4 \pm 2.9	>0.05
Point Ap	1.6 \pm 1.27	-2.1 \pm 0.5	<0.001
Point Bp	2.4 \pm 1.7	-2.3 \pm 0.7	<0.001
Point D	1.5 \pm 2.1	-7.3 \pm 1	<0.001

Hgb: Hemoglobin

favorable anatomical, functional at 12 months of postoperative period.

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Comparison of Vaginal Cuff Dehiscence After Total Laparoscopic Hysterectomy and Total Abdominal Hysterectomy



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Study Objective: The purposes of this study were to estimate and compare the incidence of vaginal cuff dehiscence (VCD) between after total laparoscopic hysterectomy (TLH) and total abdominal hysterectomy (TAH), and to describe patient's characteristics associated with VCD.

Design: In a retrospective study, the medical records of all women who underwent TLH and TAH for both benign and malignant disease between 2006 and 2015 were reviewed at Chonnam National University Hwasun Hospital. The incidence of VCD was determined in relation to the following factors: patient's age, indication for hysterectomy, route of hysterectomy, extent of hysterectomy (either simple or radical hysterectomy), and vaginal closure device.

Measurements and Main Results: Among 1286 women had TLH (n=858) and TAH (n=428), 6 (0.47%) cases of VCD were identified. The median age at time of VCD was 43 years, and the median time from hysterectomy to VCD was 10 weeks. Women who underwent TLH and TAH experienced 5 (0.58%) and 1 (0.23%) cases of VCD, respectively. TLH was associated with a higher incidence of VCD, compared with TAH (0.58% compared with 0.23%, $P<0.05$). Within TLH group (n=858), patients who underwent laparoscopic vaginal closure with V-loc (Covidien) as a closure device having a longer absorption time (180 days) had a lower rate of VCD than with Vicryl (Ethicon) having a short absorption time (30-60 days) (1 of 245 [0.41%] compared with 5 of 613 [0.82%], $P<0.05$). There was no significant difference in the incidence of VCD according to patient's age, surgical indication, or extent of surgery.

Conclusion: TLH may be associated with an increased risk of VCD compared with TAH. The use of a closure device having a longer absorption time appears to reduce the risk of VCD after TLH.

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Gynecologic Subspecialty Instrument Trays: A Target for Cost-Savings



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Study Objective: The climbing cost of healthcare in the United States has prompted many hospitals to investigate reducing operational expenses. The operating room represents one of the most expensive aspects of patient care. Data from our institution has shown that approximately 80% of instruments in specialty gynecology trays go unused, yet they must still be processed and repackaged. The average cost of processing each instrument at our institution was estimated to be \$3.19. (VanMeter. AJOG. April 2016. S461-2). We sought to determine the cost-savings of reducing the number of surgical instruments in commonly used gynecologic specialty instrument trays.

Design: Cost analysis.

Setting: Academic medical center.

Patients: N/A.

Intervention: Surgeon review of five commonly used instrument trays by the Female Pelvic Medicine and Reconstructive Surgery (FPMRS) and Minimally Invasive Surgery (MIS) divisions.

Measurements and Main Results: FPMRS and MIS surgeons reached consensus on instruments that could safely be removed from five commonly used surgical trays. Fifty-six instruments were removed from these trays, which represent a total decrease of 19% with a single review. The cost savings for one turnover of these five trays ranges from \$6.39 to \$95.70 at our institution. This can be extrapolated to a total cost savings of \$149,630 per year by multiplying the number of times each pan was used in the prior 52 weeks.

Conclusion: Emphasis on cost effective healthcare is pushing surgeons and hospitals to reduce cost without affecting the quality of patient care. Our analysis shows that reducing the number of unused surgical instruments in specialty gynecology trays can be an effective strategy to decrease cost. This can be achieved using a group consensus model. Instrument reduction in our operative trays and similar reductions across other specialties can lead to significant cost savings for our institution.

Cost reduction of surgical trays

Pans	No. pans owned by hospital	No. instruments in pan	No. Instruments removed	Decrease in cost each turnover (\$)	No. times tray used in 52 weeks	Annual cost decrease (\$)
Vaginal pan 1	7	91	2	6.38	513	3,273
Vaginal pan 2	11	54	11	35.09	1,124	39,441
Gyn laparoscopy instrument pan	9	69	30	95.70	644	61,631
Gyn minimally invasive instrument pan	10	76	13	41.47	702	29,112
Pelvic support tray	6	77	13	41.47	390	16,173
Totals		367	69			\$149,630

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Surgical Outcomes of Minimally Invasive and Abdominal Hysterectomy for Benign Indications by Operative Time: An Analysis of the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP)



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Study Objective: To elucidate whether there is an ORT at which outcomes for MIS hysterectomy become inferior to laparotomy.

Design: Retrospective cohort (Canadian Task Force classification II-2).

Setting: Data from ACS NSQIP.

Patients: Women undergoing hysterectomy for benign indications from 2005 to 2014 were identified by CPT code.

Intervention: Hysterectomy cases were stratified by approach and 90 minute intervals. Outcomes were analyzed by ORT and approach.

Measurements and Main Results: At total of 56,825 hysterectomies were identified, of which 31,583 (55.6%) were MIS, and 25,242 (44.4%) were abdominal. Longer ORT was associated with perioperative morbidity, regardless of approach. Older age, African American race, higher body mass index, lower pre-operative hematocrit, specimen weight >250 grams, removal of the cervix, concomitant procedures, and an MIS approach were associated with greater ORT. Despite longer ORT for MIS, morbidity was greater for abdominal procedures (13.5% vs 6.0%, $p < .0001$). Women undergoing MIS were more likely to be Caucasian, were slightly younger, had a lower BMI, had a higher hematocrit, and were less likely to have comorbid conditions. In a multivariate logistic regression analysis, an MIS approach was protective against complications until cases reached >270 minutes, at which point the odds of complications increased compared to open cases <90 minutes (OR 1.55 (95% CI 1.20-2.02)). Of MIS hysterectomies, 97% were completed in <270 minutes.

Conclusion: ORT was predictive of complications for both MIS and abdominal hysterectomy. After adjusting for confounders, MIS procedures had superior outcomes up to 4.5 hours. Only 3% of MIS hysterectomies were >4.5 hours in duration. An MIS approach should be offered for most patients undergoing benign hysterectomy and preparation to increase surgical efficiency should be prioritized for any approach.

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Risks Associated with Previous Caesarean Section in Laparoscopic, Abdominal and Vaginal Hysterectomy



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Study Objective: To determinate the risk of intraoperative surgical complications associated to previous caesarean section (PCS) in patients undergoing hysterectomy and compare the frequency of intraoperative complications between abdominal, vaginal and laparoscopic route in patients with PCS.

Design: Retrospective cohort study.

Setting: Two tertiary private hospitals, associated with Universidad de los Andes, Santiago, Chile.

Patients: All hysterectomies performed in Hospital Parroquial de San Bernardo and Clinica Davila between January 1st, 2011 and June 1st, 2015 were included in the study (N=1640 hysterectomies). We excluded 555 cases because of lacking information regarding: parity history (82%), operative time (13,8%), surgical protocol (3,2%), length of hospitalization (1%).

Intervention: N/A.

Measurements and Main Results: 1085 hysterectomies were included. Patients with none, one, or two or more PCS were 57,8%, 18,9%, 23,3% respectively. Hysterectomies were performed Abdominally (AH) in 45,6%, Vaginally (VH) in 33,3% and by Laparoscopy (LH) in 21,1%.

The frequency of intraoperative surgical complications was 2,1% (22 cases), (1,3% bladder, 0,5% ureteric, 0,2% intestinal and 0,1% vascular injury).

The risk of overall intraoperative surgical complications was not increased by PCS. [OR:2,0(0,85-4,75) $p=0,13$], neither was conversion in LH or VH [OR:0,73(0,9-1,78) $p=0,13$]. Operative time was similar between groups. (PCS 84,3min. No PCS 85,3min. $p=0,61$).

PCS has an increased length of hospitalization (3,13 vs 2,91 days. $p=0,014$) and an elevated risk of intraoperative bladder injury [OR:3,47(1,08-11,1) $p=0,03$].

In patients with PCS, the frequency of urinary injury (bladder or ureter) stratified by route of hysterectomy was 0,92%(1/109) 2,8%(4/99), and 4,04% (7/250) in LH, VH and AH respectively. In this subgroup of patients, LH was associated with a nonsignificant risk reduction of urinary injury compared with AH [OR:0,32(0,39-2,65) $p=0,44$] and VH [OR:0,22(0,024-2,0) $p=0,19$].

Conclusion: PCS in patients undergoing hysterectomy is associated with increased risk of bladder injury and longer hospitalization. LH is associated with a low, non significant risk of intraoperative injury in patients with PCS compared with AH and VH.

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Perioperative Blood Loss and Transfusion Risk Factors During Abdominal Myomectomy



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Study Objective: The goal of this study was to describe the extent of surgical blood loss, red blood cell transfusion rates and factors associated with both in a retrospective cohort of women who underwent myomectomy at a tertiary care centre. Furthermore, we aimed to identify perioperative blood conservation measures utilized by surgeons in this cohort.

Design: Retrospective cohort study.

Setting: Tertiary care centre.

Patients: Patients undergoing all open, laparoscopic and robotic myomectomies over a three-year period from January 2011 to December 2013.

Intervention: None.

Measurements and Main Results: Patient characteristics, clinical presentation, fibroid characteristics, intraoperative events and postoperative course were evaluated. 252 myomectomy cases demonstrated perioperative transfusion proportions of 21.9% for laparotomies, 4.4% for laparoscopic cases and 7.8% for robotic cases. Overall transfusion proportion was 17.5%. Mean volume of transfusion was 2.9 ± 1.4 units of packed red blood cells. Mean preoperative hemoglobin was 111 ± 17.5 g/L and 125 ± 12.1 g/L for transfused and non-transfused patients, respectively. Estimated blood loss was reported by the surgeon and anesthesiologist in 91.3% and 79.1% of cases, respectively. There is no standardization of approach to blood conservation at this centre. Preoperative blood conservation measures utilized included GnRH agonist, ulipristal acetate, hormonal contraception, erythropoietin, venofer and tranexamic acid. Intraoperative blood conservation measures included vasopressin intramyometrial injection, misoprostol and tourniquet use.

Conclusion: Patients who underwent open myomectomy had the greatest proportion of transfusion. Overall proportion of those transfused at our institution were comparable to previous studies from other centres. Several measures to reduce perioperative blood loss were described, however no consistent approach was utilized. With the knowledge gained from this cohort, we plan to develop a standardized perioperative blood

conservation algorithm for patients undergoing myomectomy, in an effort to minimize perioperative morbidity.

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Ulipristal Acetate versus Triptorelin Prior to Laparoscopic Myomectomy: Prospective Study



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Study Objective: To compare the outcomes of patients who underwent laparoscopic myomectomy after 3-month treatment with ulipristal acetate (UPA) or leuprolide acetate (LPA).

Design: Prospective non-randomized assessor-blind study.

Setting: University hospital.

Patients: Pre-menopausal women undergoing laparoscopic excision of a maximum of two FIGO type 3, 4, 5, 6 or 2-5 myomas (largest diameter between 5 and 12 cm), other type 3, 4, 5, 6 myomas with largest diameter < 2 cm and type 7 myomas of any size.

Intervention: Patients received three months of UPA orally (5 mg once daily; UPA group) or one leuprolide acetate 11.25 mg injection (LPA group). Laparoscopic myomectomy was performed within 1 month after the completion of treatment. Based on a power calculation, it was estimated that 27 subjects would be needed in each group. Data were analyzed accordingly to intention-to-treat.

Measurements and Main Results: There was no significant difference in the intraoperative blood loss (difference between the hemoglobin level on the day before surgery and 3 hours after myomectomy, primary outcome) between the two groups. The total operative time, the time required to enucleate the myoma, the time required to suture the uterine wall defects, the difficulty of leiomyoma enucleation (assessed by the surgeons on a 100 mm VAS scale), the incidence of intraoperative and postoperative complications were similar in the two groups (secondary outcomes). Both treatments increased hemoglobin levels; LPA caused a greater decrease in myoma volume compared with UPA ($p < 0.05$); UPA caused fewer adverse effects than LPA ($p < 0.01$); patients' satisfaction with the hormonal treatment was higher in the UPA group ($p < 0.001$; tertiary outcomes). At 6-month follow-up recurrence/persistence of myomas and improvement of quality of life were similar in the two groups (quaternary outcomes).

Conclusion: LPA and UPA have similar usefulness prior to laparoscopic myomectomy but the patients better tolerate the administration of UPA.

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Mature Cystic Teratoma Is a Good Indication for LESS Approach: Initial Experience of an Internal Organ Retractor (IOR) Device or Barbed Suture for LESS Cystectomy



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Study Objective: This study is to investigate surgical outcomes of LESS cystectomy for mature cystic teratoma(MCT) and to describe our experiences of using novel intracorporeal retractor; the Internal Organ Retractor (IOR; Aesculap AG, Tuttlingen, Germany) or retraction by barbed suture such as V-Loc TM(Covidien, Mansfield, MA).

Design: Retrospective study.

Setting: Academic affiliated tertiary medical center.

Patients: We retrospectively reviewed electronic medical record data. A single surgeon performed 97 cases of LESS cystectomy for MCT between

September 2010 and December 2013. IOR or V-Loc TM were used for ovarian capsule retraction. LESS cystectomies without retraction devices were performed for 76 patients (Group A), and IOR or V-Loc TM were used for 21 patients (Group B). We compared patients' basal characteristics, perioperative outcomes and compared Group A with Group B for perioperative outcomes.

Intervention: LESS cystectomy for mature cystic teratoma(MCT)with; the Internal Organ Retractor or retraction by barbed suture such as V-Loc TM.

Measurements and Main Results: LESS cystectomies were successfully performed in all 97 patients without additional. The mean age and BMI of patients were 30.44 ± 6.9 years and 21.4 ± 3.3 kg/m², respectively. The mean age and BMI were similar in both groups. The mean tumor size was 6.7 ± 3.6 cm in total population, and the mean tumor size in Group B has a trend to larger than Group A (8.0 ± 3.9 cm vs 6.4 ± 3.4 cm, $p=0.103$). The mean operative time in Group B was comparable to Group A (98.3 ± 35.2 min vs 86.1 ± 34.8 min, $p = 0.167$). The mean EBL was similar in both groups. (59.5 ± 35.4 ml; in Group B, 64.7 ± 55.8 ml; in Group A, $p=0.606$).

Conclusion: LESS cystectomy is very feasible procedure to operate mature cystic teratoma. LESS Cystectomies could be performed successfully in larger size cystic teratoma without additional port of using intracorporeal retractor.

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The Impact of Higher Surgical Volume on the Adoption of Minimally Invasive Hysterectomy in Medicare Patients in the U.S.



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Study Objective: To evaluate the impact of higher surgical volume on adoption of minimally invasive approach for hysterectomy.

Design: This is a retrospective analysis of Medicare claims data from 2012-2014. Patients undergoing open or Minimally Invasive Surgery (MIS) hysterectomy were identified by ICD-9 and CPT codes. MIS procedures include: Laparoscopic supracervical hysterectomy (LSH), Laparoscopic total abdominal hysterectomy (TLH), Laparoscopically assisted vaginal hysterectomy (LAVH), Other and unspecified vaginal hysterectomy (VH), Laparoscopic radical hysterectomy (LRH), Laparoscopic radical vaginal hysterectomy (LRVH). Descriptive analytics were performed to identify proportion of hysterectomies performed using MIS. Statistical significance was defined by p-value ≤ 0.05 .

Setting: N/A.

Patients: A total of 55,562, 53,460 and 53,049 patients were included in the analysis for 2012, 2013 and 2014, respectively.

Intervention: N/A.

Measurements and Main Results: In 2014, 2,864 hospitals performed hysterectomies on Medicare patients. 2,367 hospitals performed 30 or fewer procedures. The top 20% (high volume) and bottom 20% (low volume) of hospitals by volume of hysterectomies in each year were analyzed. In 2014, the 573 high volume hospitals performed 36,093 hysterectomies with 24,619 (69.1%) using MIS. The 573 low volume hospitals performed 770 hysterectomies with 383 (48.8%) using MIS ($p < .0001$).

At the high volume hospitals, the MIS rate increased from 65.9% to 69.1% from 2012-2014 ($p=.0025$). At high volume hospitals in the Midwest, the MIS rate increased from 65.5% to 70.4% ($p=.0166$) and in the South from 66.7% to 70.3 ($p=.0393$). In the Northeast and the West changes in MIS rates were not statistically significant.

At the low volume hospitals, changes in the MIS rates were not statistically significant.

Conclusion: MIS adoption during hysterectomy is significantly increased at high volume hospitals compared to low volume centers. The increased adoption rate for MIS hysterectomy was significant at high volume hospitals in the Midwest and the South regions.

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Single-Site Laparoscopic Radical Hysterectomy: Earlier and Further Space Development with Ligaments In Situ



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Study Objective: To describe laparoscopic single site radical hysterectomy plus pelvic lymph node dissection in stage IB1 cervical cancer patients.

Design: Retrospective.

Setting: Academic affiliated tertiary medical center.

Patients: Stage IB1 cervical cancer patients.

Intervention: Laparoscopic single site radical hysterectomy plus pelvic lymph node dissection; With the open Hasson technique, a 2.5-cm vertical incision was made, and a wound retractor and a surgical glove with sheaths inserted into 3 fingers were used. We used a rigid 0-degree, 5-mm laparoscope and articulating instruments. Following paravesical space development and uterine artery/ureter identification, the ureter was then freed from the posterior leaf of the broad ligament down to the level where it entered the ureteral tunnel with roticulated scissor, then displaced laterally from the rectal pillar. Both posterior leaf of the broad ligaments were sutured and approximated to be retracted. Round ligament and anterior peritoneum also were in situ during this procedure. Vesicocervical space was developed using sharp dissection. The uterine artery was transected at its origin from the hypogastric artery. Following complete unroofing of the ureter, the rectovaginal space was developed. The uterosacral ligaments, cardinal ligaments, and portion of paracolpos were then divided, and the uterus was completely mobilized. Uterus was then transected and removed vaginally under direct visualization around the cervix to assure adequate margins. And then, en bloc transperitoneal pelvic lymphadenectomy was performed. External and common iliac lymph nodes were removed from vessel surfaces by blunt or sharp dissection. The obturator fossa was entered and obturator lymph nodes were removed. Lastly, the vaginal vault was closed vaginally.

Measurements and Main Results: We used our expertise with LESS and, in the procedure, as much space development was performed before resection of the ligaments. Oncologic clearance was comparable to that in conventional laparoscopic radical hysterectomy.

Conclusion: Single site radical hysterectomy plus pelvic lymphadenectomy is technically feasible and safe in gynecologic malignancies.

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Surgical Training for Ovarian Non-Excisional Laparoscopic Laser Surgery: Fiber CO₂ laser and Free-Beam CO₂ Laser Compared



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Study Objective: To define the efficacy of laparoscopic box trainer for ovarian non-excisional laser surgery and to define the learning curve needed for surgical basic skills comparing Fiber CO₂ laser versus Free-beam CO₂ laser.

Design: Ten residents in Obstetrics and Gynaecology attended repeated laparoscopic box trainer sessions using Lumenis AcuPulse Duo laser over a two-month period.

Setting: San Raffaele Scientific Institute.

Patients: Residents were tested on five different incision/ablation surgical tasks (accuracy on edges of shape, accuracy within the shape, eye-hand coordination, homogeneity in speed, homogeneity in tissue depth) on a 3x3cm area on a bull testicle using both free-beam CO₂ laser and fiber CO₂ laser. A single evaluator timed and graded (1-5) all tasks. Overall grading was expressed as the mean grading obtained on the five different tasks. Results were compared by means of Paired T-test.

Intervention: Residents have practiced with Lumenis AcuPulse Duo laser and were evaluated at different time points (Evaluation 1 through 6).

Measurements and Main Results: Baseline (Evaluation 1) skills were similar between Fiber and Free-beam CO₂ laser (Mean grading 3.1 ± 0.7 vs 3.0 ± 0.8 respectively, Mean ± SD, ns). With both fiber and free-beam CO₂ laser, residents showed a significant improve in surgical tasks between evaluation 1 and evaluation 6 (Mean grading 3.1 vs 4.5 for Fiber, p= 0.01 and 3.0 vs 4.2 for Free beam, p= 0.01). At the end of training (Evaluation 6), skills were better with Fiber CO₂ laser than with Free-beam CO₂ laser (Mean grading 4.5 ± 0.5 vs 4.2 ± 0.6, Mean ± SD, p=0.03).

Conclusion: One of the limiting factor of adopting CO₂ laser in laparoscopic surgery is the lack of confidence and expertise of surgeons with little laser experience. This study validates the efficacy of laparoscopic box training sessions and suggests faster learning and superior ease of use of Fiber compared to Free-beam Laser.

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Tendencies of Surgical Route in Patients Undergoing Hysterectomy: Single Institution Study



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Study Objective: The main objective of this study is to determine the incidence and tendency throughout the years in patients undergoing hysterectomy by its different surgical approaches: abdominal, vaginal or laparoscopic.

Design: A retrospective analysis of consecutive patients who underwent hysterectomy between 2007 and 2015 was performed; Patients were categorized by surgical approach and by year.

Setting: A single institution conformed by two private hospitals belonging to a same healthcare system in northeastern Mexico.

Patients: Patients included in the study were those in which a hysterectomy was performed during the time allotted, non-regarding surgical route.

Intervention: A complete medical record, both physical and electronic, survey was performed in all patients.

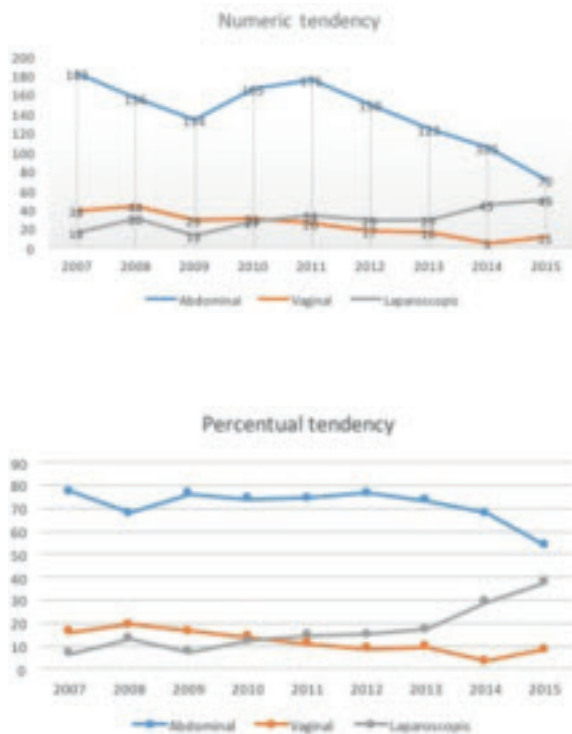
Measurements and Main Results: A total 1749 hysterectomies were performed in the time studied; a total 1260 patients were intervened abdominally, 217 vaginally and 272 with a laparoscopic approach. The annual division by surgical route, as its corresponding percentage can be seen in Table 1

The analysis of the numerical and percentual tendencies show a tendency of reduction in the abdominal route and an increment in the laparoscopic route. Vaginal hysterectomy maintains itself numerically and percentually throughout the years in question.

Conclusion: Although, the abdominal route for hysterectomy is still the most common surgical approach for the procedure, a clear downward tendency in this route can be seen throughout the years in question. On the other hand, the laparoscopic route showed an constant and clear upward tendency both in numerical and percentual terms as a surgical route. It is clear, that laparoscopic total hysterectomy, with the associated

Table 1. Surgical Route for Hysterectomy

	Abdominal		Vaginal		Laparoscopic		Total
	Total	%	Total	%	Total	%	
2007	182	77.12	38	16.1	16	6.78	236
2008	156	67.83	44	19.13	30	13.04	230
2009	134	76.14	29	16.48	13	7.39	176
2010	165	73.99	31	13.9	27	12.11	223
2011	175	74.47	26	11.06	34	14.47	235
2012	150	76.53	17	8.67	29	14.8	196
2013	123	73.21	16	9.52	29	17.26	168
2014	105	67.74	5	3.23	45	29.03	155
2015	70	53.85	11	8.46	49	37.69	130
Total	1260		217		272		1749



benefits of minimally invasive surgery has become throughout the years a more viable, popular and indicated surgical route for patients in our centers.

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Postoperative Urinary Retention Decreases with Backfill of Urinary Bladder in the Operating Room

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Study Objective: To determine if backfill of the urinary bladder prior to removal of indwelling catheter in the OR decreases the post-operative urinary retention rate and decreases the post operative recovery time in women undergoing same day discharge gynecologic surgery.

Design: Prospective Randomized Controlled Trial.

Setting: Tertiary Teaching Hospital

Patients: All women undergoing gynecologic surgery requiring urinary catheterization in the operating room and who had plans for same day discharge were eligible to be included in the study. 180 women have been recruited into this study so far.

Intervention: Women who consented to be part of the study were assigned either to have 200 ml of normal saline introduced into the bladder prior to removal of the urinary catheter at the conclusion of the study or to have the catheter removed without backfill. Nurses in recovery were blinded to the treatment arm the study subjects were under.

Measurements and Main Results: 19/180 (10.6%) of subjects had difficulty voiding after the surgery. Using Chi-square analysis, significantly more patients in the no backfill arm reported difficulty with voiding (14 patients) compared to the backfill arm (5 patients; $p = 0.025$). Average time in recovery was 209 minutes for those who did not have back fill and 172 minutes for those with backfill and this difference was statistically significant. ($P = 0.044$).

Conclusion: Backfilling the bladder with 200 ml of normal saline, in women undergoing same day discharge gynecologic surgery requiring urinary catheterization with indwelling catheter, significantly decreases the incidence of postoperative urinary retention and significantly decreases the length of stay in postoperative recovery unit.

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Laparoscopic Cornuostomy for the Removal of Essure Microinserts

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Study Objective: The Essure procedure, FDA approved in 2002, is a permanent, non-hormonal birth control method performed hysteroscopically. However, persistent pelvic pain leading to microinsert removal has been estimated at 0.16% of cases in a large retrospective study. Our objective is to illustrate a laparoscopic cornuostomy for the removal of Essure microinserts.

Design: Case report (video).

Setting: Community hospital.

Patients: A 38-year-old patient G3P2012 who underwent a hysteroscopic sterilization using Essure microinserts presents 4 months postoperatively with left-sided pelvic pain since the insertion of the Essure devices. Imaging revealed a right-sided microinsert in situ and a misplaced left-sided microinsert found in a more proximal position.

Intervention: The patient underwent laparoscopic removal of bilateral microinserts with bilateral cornuostomies and salpingectomies as demonstrated in the video.

Measurements and Main Results: Understanding the composition of the Essure device is essential for removing it entirely. The Essure microinsert is composed of two metallic coils. The outer coil extends beyond the inner coil proximally and ends with a small rectangular platinum band. The removal procedure is started with a salpingectomy using the Harmonic device. If the coil breaks when applying traction, the intramural portion should be retrieved and a cornuostomy is then necessary. The interstitial fallopian tube should be adequately followed into the cornua. The defect created is closed using V-loc suture. Our patient had an uncomplicated surgery and was discharged home the same day. Postoperatively, the left sided pain resolved.

Conclusion: Removal of Essure microinserts can be performed with laparoscopic linear salpingostomy, or salpingectomy. However, a cornual resection of the proximal fallopian tube may be required in some cases as illustrated here.

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Correlation Between Prior Pelvic Surgery and the Occurrence of Severe Complications or Conversion to Laparotomy in Patients Undergoing Single-Incision Laparoscopic Surgery for Adnexal Mass Approach

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Study Objective: To evaluate possible correlation between prior pelvic surgery and the occurrence of severe complications or conversion to laparotomy in patients undergoing single-incision laparoscopic surgery for adnexal mass approach (SILS).

Design: This is a retrospective study that recruited 117 patients who underwent SILS for the approach of adnexal masses.

Setting: As serious complications we included cases with need for conversion to laparotomy, severe infections, visceral injuries and incisional hernias.

Patients: The patients were subdivided into 2 groups: group 1- patients with previous pelvic surgical approach (n = 64); group 2 -patients with no prior surgical approach (n = 53).

Intervention: Single incision laparoscopic surgery for the approach of adnexal masses.

Measurements and Main Results: From the total of 64 patients with no history of prior pelvic surgery, five (8%) presented some sort of serious complication or had the procedure converted to laparotomy. In the Group of patients with a history of prior pelvic approach, eleven (20%) had the same outcome. We have identified a statistical difference in complications rates between the two groups ($p = 0.043$).

Conclusion: A history of prior pelvic surgery is correlated with serious surgical complications or the need for conversion to laparotomy in patients submitted to SILS.

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Vaginal Laparoscopic Bilateral Salpingo-Oophorectomy



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Study Objective: To compare outcomes of Laparoscopic Bilateral salpingo-oophorectomy of Vaginal approach vs traditional abdominal approach.

Design: Introduction: Minimal invasive surgery is becoming the standard of care for many benign and even malignant gynecologic diseases. Despite multiple studies showing vaginal hysterectomy with the lowest surgical complication rates vaginal hysterectomy numbers are declining. The main inferiority of vaginal hysterectomy has been the inability to evaluate the abdominal cavity and difficulty removing the adnexal structure.

Laparoscopy through vaginal (colpotomy) approach is a good alternative to abdominal laparoscopy that provides the ability to evaluate the abdominal cavity and an easy and safe approach to remove the adnexal structures and also the ability to perform salpingectomies as needed, with better cosmetic results.

Setting: We reviewed 12 cases of vaginal laparoscopic bilateral salpingo-oophorectomy and compared them to the standard laparoscopic approach.

Patients: 12 cases of vaginal laparoscopic bilateral salpingo-oophorectomy were compared with cases of standard Laparoscopic hysterectomy with bilateral salpingo-oophorectomy via abdominal approach with surgeries with same indications.

Intervention: We compared Estimated Blood loss, operating time, hospital stay with standard laparoscopy. Statistical analysis was used to compare the variables with standard laparoscopic approach for similar indications for surgery. Patients were stratified based on age, number of previous surgeries and body mass index.

Measurements and Main Results: No difference was seen between EBL, Hospital stay and operating time with vaginal approach. In multigravida patients with obesity, the operating time was significantly shorter.

Conclusion: Vaginal laparoscopy is a good approach for removing ovaries with no abdominal incisions and might be a better alternative in multigravida, obese patients.

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Same Day Discharge Following Total Laparoscopic Hysterectomy: A Prospective Trial



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Study Objective: To determine if same day discharge after total laparoscopic hysterectomy is feasible, associated with comparable rates of readmission to patients admitted overnight and acceptable to patients.

Design: Prospective cohort study of patients undergoing laparoscopic hysterectomies during a 12 month period. Charts were evaluated for presentation to the emergency room or readmission within the UPMC hospital system.

Setting: Tertiary-care, academic hospitals

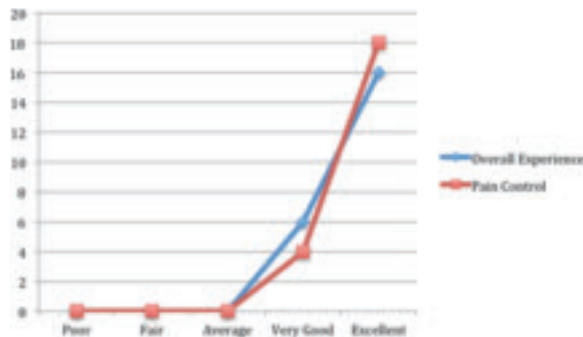
Patients: During a 12 month period from July 2014 to June 2015, 653 patients underwent total laparoscopic hysterectomies; 248 patients were discharged on the day of hysterectomy while 405 were admitted overnight.

Intervention: Patients were either discharged on the day of their laparoscopic hysterectomy or admitted for overnight observation if they had serious underlying health problems, if pain was not well controlled or for patient/surgeon preference.

Measurements and Main Results: During the thirty day period following hysterectomy there were two readmissions (0.8%) within the same day discharge cohort of 248 patients. Of the 405 patients discharged following an overnight stay, 18 patients were readmitted (4.4%). One of the likely

causes for this underlying difference between the two groups of patients is that healthier patients are more likely to be discharged on the day of surgery, while those with medical co-morbidities or pain that caused them to be admitted overnight may re-present for related reasons.

Feedback was solicited at the postoperative visit from 22 patients who had same day discharges. Findings were overwhelmingly positive with all patients responding that the management of their pain was either very good (n=4) or excellent (n=18)



Overall experience on day of surgery was rated as very good (n=6) or excellent (n=16). All 22 patients in this group responded that they would recommend this to a friend or family member.

Conclusion: Same day discharge is a safe and acceptable option for patients undergoing laparoscopic hysterectomies.

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Prevention of Lymphatic Complications After Laparoscopic Pelvic Lymphadenectomy for Gynecologic Malignancies



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Study Objective: Pelvic lymphadenectomy (PLA) is essential for staging and treatment of different gynecologic malignancies as cervical, endometrial, or ovarian cancers. However, PLA can induce lymphatic complications as pelvic lymphoceles or lymphedemas in a considerable percentage of patients. The proper strategy to reduce lymphatic complications has not established yet.

Design: Laparoscopic PLA was performed in 276 patients with cervical, endometrial, and ovarian cancer at the Department of Gynecology at Chonnam National University Hwasun hospital between 2010 and 2015. Standard technique with an application of Tisseel (Baxter) was used in 115 patients (group A). Only standard technique was performed on 161 patients (group B). Lymphoceles or lymphedemas were detected during follow-up by physical exam and imaging study (sonography, computed tomographic imaging, or magnetic resonance imaging).

Measurements and Main Results: Laparoscopic PLA was performed in 108 patients with cervical, 144 with endometrial, and 24 with ovarian cancer, respectively. In group B (n=161), only pelvic drainage was placed after PLA, whereas in group A (n=115), PLA areas were coated with 2 or 4 mL Tisseel with placing drains. Totally, lymphoceles were detected in 77 of 276 patients (27.9%) and lymphedemas were found in 51 patients (18.5%). Lymphoceles developed in 23 patients (20.0%) in group A and 54 (33.5%) in group B, with statistical difference ($p=0.027$). The incidence of lymphedemas in group A and B was statistically no difference ($p=0.76$). Lymphedemas developed in 22 patients (19.1%) in group A and 29 (18.0%) in group B, respectively. In the subgroup of patients with different gynecologic malignancies, no difference in the incidence of lymphatic complications was observed.

Conclusion: The results of this study show that the application of Tisseel to PLA areas after laparoscopic PLA may reduce postoperative lymphatic complications, especially, lymphoceles.

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The Usefulness of Mini-Laparoscopic Cystectomy for Small Endometrioma in Adolescent Women



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Study Objective: This study was done to evaluate the usefulness of mini-laparoscopic cystectomy for treatment for small endometrioma in adolescence.

Design: The prospective, randomized study.

Setting: Tertiary Hospital. University Hospital.

Patients: 54 adolescence patients with for small endometrioma of lesser than 2 cm diameter.

Intervention: The mini-laparoscopic cystectomy with 3 mm telescope and 3 mm instruments was performed in 18 patients (Group A), and conventional laparoscopic cystectomy with 10 mm telescope and 5 mm instruments was performed in 20 patients (Group B). The Anesthesia of laparoscopy was general anesthesia in all 38 cases. The operating time, average operating room costs, average ancillary department costs, instrument and supply costs, and length of hospital stay were compared. Postoperative pain score of each patient was estimated by visual analog scale (VAS). The recurrence was observed for 2 years. .

Measurements and Main Results: The procedures were performed satisfactorily in all patients of both groups without any difficulty. However in 8 patients (44.4%) of Group A, skillful doctor was necessary due to weak illumination of scope. There was no significant difference in operating time, average operating room costs, average ancillary department costs, instrument and supply costs, or length of hospital stay. Postoperative pain was significantly lesser in Group A than B and patients requiring analgesia were lesser in Group A than B. The satisfaction of operation scar was higher in Group A than B . There was no postoperative complication and no recurrence of cyst for 2 years in both groups.

Conclusion: The success rate of mini-laparoscopic cystectomy of cyst wall does not differ from conventional laparoscopy, but acceptability and satisfaction of patients are more and postoperative pain is lesser. Therefore mini-laparoscopy seems to be better than conventional laparoscopy for the management of adolescence patients with small endometrioma of lesser than 2 cm diameter.

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Twelve Month Follow-Up of a First-In-Human (FIH), Randomized, Controlled, Subject- and Reviewer-Blinded Study of a Degradable Hydrogel Adhesion Barrier Spray (Actamax™ Adhesion Barrier) Applied to All Sites of Surgical Trauma Following Gynecologic Laparoscopic Surgery



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Study Objective: Obtain long-term data on continued recovery and health following hydrogel application after gynecologic laparoscopic surgery (GLS).

Design: Structured phone interviews 12 months following second-look laparoscopy (SLL) to assess post-operative adhesions in a FIH, prospective, randomized, controlled, subject and reviewer-blinded study.

Setting: Tertiary referral centres for complex laparoscopy.

Patients: Data from FIH study suggested application of a hydrogel adhesion barrier following GLS was safe and effective in reducing adhesions,

particularly following myomectomy. Hydrogel-treated subjects showed a mean reduction in Adhesion Score of 41% compared with surgery only controls. 47 of 78 women in FIH study consented to long-term follow-up. Of these, 28 had been randomized to spraying hydrogel over all areas of surgical trauma at the conclusion of initial laparoscopic surgery, and 19 had been randomized to surgery alone. Surgeries included myomectomy, adhesiolysis, endometriosis treatment and/or ovarian cystectomy.

Intervention: No investigational product administered following SLL or during the follow-up phase.

Measurements and Main Results: Percentage of subjects reporting one or more adverse events was not different between groups. There were no instances within either group of any adverse, unexpected or serious adverse device effects. No adverse event was assessed as related to study treatment. For most endpoints long-term outcomes were not different between hydrogel-treated and surgery controls. Of note, when pre-study symptoms were assessed as a group, hydrogel-treated subjects experienced a lower recurrence: 11/28 (39.3%) vs. 14/19 (73.7%) surgery only, $p=0.036$. Intriguingly, hydrogel-treated subjects had a higher probability of pregnancy 8/28 (28.6%) vs. surgery alone 1/19 (5.2%).

Conclusion: Efficacy outcomes from FIH study showed the hydrogel adhesion barrier was effective in reducing adhesions. Long term follow-up to 12 months after SLL showed no difference in safety when hydrogel-treated was compared to surgery controls. Long term follow-up results are suggestive of reduced symptomatology and increased pregnancy. Further investigation with a larger population is needed to confirm the findings.

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Aussie Solutions to Uterine and Camera Assistants



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Study Objective: Investigate the ability to replace human pelvic and camera assistants with an affordable and easy-to-use mechanical alternative.

Design: Over 1000 cases of laparoscopic surgery performed using a mechanical uterine positioner and camera holder that did not require electrical or hydraulic power.

Setting: Laparoscopic procedures performed in private hospitals in Australia.

Patients: Over 1000 patients undergoing laparoscopic procedures in city and country hospitals.

Intervention: Laparoscopic procedures including TLH, chromotubation, endometriosis, pelvic repair.

Measurements and Main Results: This study used a mechanical system modelled on a human arm and operating on precision tensioning without external power or hydraulics. The positioning systems were used to hold uterine manipulators, probes and laparoscopic cameras. Surgeons and surgical assistants moved the system to the required positions, and the system held the devices in place. Precise and immediate movements were able to be initiated without needing to unlock and lock the system. Procedures were able to proceed smoothly without fatigue or communication issues between surgeons and assistants.

Conclusion: From a surgical perspective, the stability of the pelvic platform and laparoscopic image compared favourably with that provided by human assistants. This study, while not undertaken from a hospital and legal perspective, suggests a means of reducing the risk of workplace injury, fatigue and boredom for human assistants without incurring higher costs for institutions. Observations were that reusable models of the positioners (supplied non-sterile for reprocessing) would be most appropriate for larger institutions that perform a lot of laparoscopic surgery, while smaller facilities that only perform laparoscopic surgery infrequently would work best with robust but cheaper single use models (supplied sterile for disposal/recycling). Across the world, concerns are being raised about having non-physicians holding and moving surgical instruments. Mechanical assistants are suggested as an easier and more economical solution than having extra physicians present at surgery to act as assistants.

669

Ovarian Remnants: A Retrospective Evaluation of Surgical Management



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Study Objective: To report on patient characteristics, surgical findings, pathology, and recurrence of ovarian remnants.

Design: Retrospective case series.

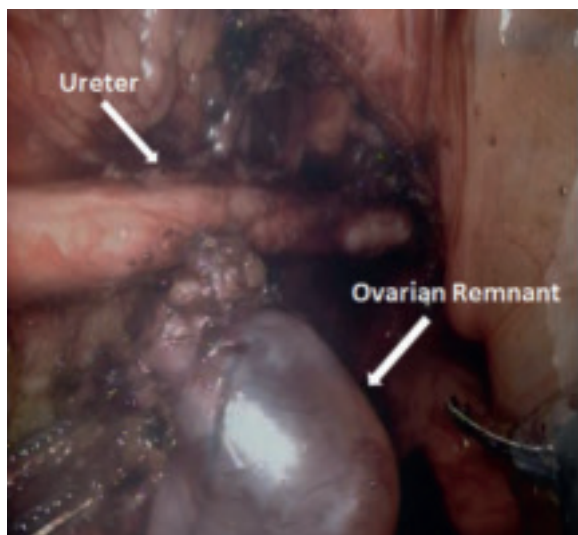
Setting: Academic tertiary care hospital.

Patients: Seventeen patients were identified between January 2005 and December 2015 with ovarian remnant syndrome using a diagnosis code search at one institution. All patients underwent surgical excision with pathology confirming ovarian tissue.

Intervention: Surgical excision of the ovarian remnant. Three recurrences were treated with non-surgical alternatives.

Measurements and Main Results: All patients had a history of endometriosis and multiple previous surgeries. The average number of laparotomies, laparoscopies, and cesarean sections was 1.29 (range, 0-3), 2.47 (range, 0-6), and 0.59 (range, 0-3), respectively. Ten patients (58.8%) had a prior bilateral salpingoophorectomy. Seven patients (41.2%) had a prior unilateral salpingoophorectomy. Five patients (29.4%) had one prior excision and two patients (11.8%) had two prior excisions of their ovarian remnant. Sixteen patients (94.1%) had an adnexal mass or cystic structure on imaging.

Fifteen excisions were performed laparoscopically. Two were planned laparotomies. Eleven ovarian remnants (64.7%) were on the left side of the pelvis, five (29.4%) were on the right, and one (5.9%) was attached to the omentum. All but one case included dissection of the retroperitoneal space. There were no intraoperative complications such as bowel or genitourinary injuries. All cases had pathologically confirmed ovarian tissue.



Post-operatively, three patients had recurrent disease requiring intervention. Treatments included medical suppression with leuprolide, ovarian artery embolization, and radiation. All patients had decrease in size of their adnexal mass and improvement in pain.

Conclusion: Surgical expertise, often utilizing minimally invasive techniques, allows for the dissection needed to remove ovarian remnants. Despite this, recurrence is still possible. In select patients, medical or other procedural treatments may be appropriate alternatives or adjuncts to treatment.

Table 1. Patient characteristics

	Mean	Range
Age (years)	37.94	30-54
BMI (kg/m ²)	32.79	20.25-41.10
Number of Cesarean Sections	0.59	0-3
Time to presentation (months)	33.23	5-132
	N=17(%)	
Prior history of BSO	10 (58.8)	
Treated by:		
Laparotomy	3 (17.6)	
Laparoscopy	5 (29.4)	
Laparotomy & Laparoscopy	2 (11.8)	
Prior history of USO	7 (41.2)	
Treated by:		
Laparotomy	3 (17.6)	
Laparoscopy	4 (23.5)	

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Thinner Patients Suffer More Post-Laparoscopy Pain



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Study Objective: The aim of this study was to confirm the hypothesis, derived from our clinical observation, that thinner patients suffer more pain after laparoscopic surgery.

Design: Retrospective cohort study.

Setting: Academic affiliated tertiary hospital.

Patients: Inclusion criteria: patients undergoing gynecologic laparoscopic surgery. Exclusion criteria: surgical complications: fever, massive bleeding, wound infection, age under 18 years, chronic pain treatment, endometriosis and pregnancy.

Intervention: Laparoscopic procedures included (unilateral/bilateral): salpingectomy, oophorectomy, salpingo-oophorectomy, cystectomy, myomectomy, hysterectomy and salpingectomy with/without oophorectomy, and with/without lymph node sampling, ovarian wedge resection (for fertility preservation) and diagnostic laparoscopy.

Measurements and Main Results: The average age was 40.4 years, average BMI 25.2 kg/m². Median age for BMI categories (<25, 25-30, >30) was 35.4, 45.1, 45.2 respectively. BMI category dispersion within the cohort: BMI<25 included 52 patients (50.5%), BMI 25-30 included 31 patients (30.1%) and 20 patients (19.4%) had BMI > 30. Maximal Pain Score is the highest reported NRS (Numerical Rating Scale) score (a validated pain scale) reported during the post-surgical admission period. When comparing extreme groups of BMI <20 vs >30, and maximal pain score cutoff 5 (5 or less vs above 5) there was a significant inverse relation (p=0.01). When applying linear regression analysis for maximal pain score cutoff 5, for BMI categories, age, surgery type – BMI categories alone showed significance (p=0.04), while age and surgery did not. The total number of medical interventions for pain control and time of discharge from surgery among the BMI categories showed no significant difference.

Conclusion: There is an inverse relation between BMI and post laparoscopy pain. Future studies are needed to characterize the increased pain among thinner patients (visceral, parietal or referred) potentially revealing the pathophysiology of this difference and improving our understanding of post laparoscopy pain. Randomized prospective studies should be conducted to examine new post laparoscopic pain treatment strategies.

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Comprehensive Approach to the Diagnosis, Surgical Correction and Rehabilitation of Patients with Uterovaginal Anomalies in Combination with Endometriosis



Kristina F, Makiyan Z, Adamyan L, Stepanian A. Federal State Institution, Research Center for Obstetrics, Gynecology, and Perinatology named after V.I. Kulakov, Moscow, Russian Federation

Study Objective: To optimize the results of surgical correction and rehabilitation of patients with congenital uterovaginal anomalies with concomitant endometriosis.

Design: Prospective cohort study.

Setting: Federal State Institution, Research Center for Obstetrics, Gynecology, and Perinatology, Moscow, Russia.

Patients: Between the years 2013 to 2015 we operated on 198 patients with congenital uterovaginal anomalies who were divided into two groups: group 1: 105 patients with concomitant external genital endometriosis; group 2: 93 patients without endometriosis.

Intervention: Surgical treatment of uterovaginal anomalies was performed according to the anatomical type of malformation, clinical manifestations, and reproductive outcomes. In cases with concomitant endometriosis we performed excision and coagulation of endometriotic lesions, cystectomy for ovarian endometrioma, and adhesiolysis.

Measurements and Main Results: Indications for surgical treatment were: pain in 17.2%, primary infertility in 41.5%, secondary infertility in 18.6%, and recurrent miscarriage in 26.2% of cases. The external genital endometriosis was observed in 53% of patients, with no significant differences between women with non-obstructive anomalies and with obstruction of menstrual outflow ($p = 0.6488$). Pelvic peritoneal endometriotic lesions were visualized in 20% of patients with aplasia of the uterus and vagina with or without functional rudimentary horns.

Conclusion: Comprehensive treatment, including correction of the anatomic type of malformation, with incision and coagulation of endometriotic lesions, followed by the hormonal therapy in the postoperative period, facilitated pregnancy in 60% of patients. No affirmative explanation of high incidence of endometriotic lesions in patients with uterovaginal anomalies has been found so far.

672

Identifying Factors Associated with Prolonged Length of Stay after Laparoscopic or Robotic Hysterectomy



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Study Objective: To determine the factors associated with prolonged hospitalization (>1 midnight) in patients undergoing benign laparoscopic or robotic-assisted total hysterectomy.

Design: Retrospective chart review.

Setting: University hospital.

Patients: Two hundred and ninety women undergoing laparoscopic and robotic-assisted minimally invasive hysterectomy for benign conditions from May 15, 2009 to December 31, 2014.

Intervention: Factors for unsuccessful discharge compared between patients who stayed one night in the hospital vs. greater than or equal to two nights were assessed using univariate and bivariate analysis as well as logistic regression models.

Measurements and Main Results: All patients were initially scheduled for extended stay, equivalent to one-midnight stay in the hospital postoperatively with a goal of discharge within 23 hours of surgery. One hundred eight-eight (64.8.1%) were successfully discharged after one or fewer midnights in the hospital, and 102 (35.2%) were discharged after a stay of greater than or equal to two midnights. Unsuccessful discharge within one midnight or less was associated with advanced age in years (51.7 vs 47.2, $P=0.002$), longer mean operative time in minutes (218.2 vs 179.1, $P=0.0026$), greater intraoperative blood loss (11 vs 7, $P=0.004$), and the presence of an intraoperative complication (10 vs 4, $P=0.004$).

Characteristics of patients with and without prolonged hospital stay

Characteristic	Hospital stay ≤1 midnight (%) N=188	Hospital stay >2 midnights (%) N=102	P
Age (y)	47.2 (11.1)	51.7 (11.7)	0.002
Procedural characteristics			
Laparoscopic hysterectomy	65 (34.5)	34 (32.6)	0.965
Robotic-assisted hysterectomy	123 (65.4)	68 (66.8)	
Comorbid pain disorders			
Yes	39 (20.7)	16 (15.7)	0.294
No	149 (79.2)	86 (84.3)	
Complications			
Yes	4 (2.1)	10 (9.8)	0.004
No	184 (97.9)	92 (90.2)	
Operative time (min) SD	179.1(105.5)	218.2 (103.1)	0.0026
Estimated blood loss			
Minimal	35 (19.0)	6 (6.0)	0.004
<100 ml	67 (36.4)	31 (31.0)	
100-300 ml	67 (36.4)	47 (47.0)	
301-499 ml	8 (4.4)	5 (5.0)	
>500 ml	7 (3.8)	11 (11.0)	
Late OR start after 3pm			
Yes	14 (7.5)	5 (4.9)	0.403
No	174 (92.6)	97 (95.1)	
OR end by 5pm			
Yes	163 (87.2)	83 (82.2)	0.252
No	24 (12.8)	18 (17.8)	

Data are mean + standard deviation or n (%) unless otherwise specified.

Later surgery end and start time, type of hysterectomy performed, preoperative opioid use, and the presence of comorbid pain disorders did not affect length of stay.

Conclusion: Extended stay following minimally invasive hysterectomy is a safe and feasible option for most benign gynecologic patients. Older age, prolonged operative time, greater intraoperative blood loss and the presence of an intraoperative complication were associated with prolonged hospital stay. If present, these may assist in postoperative counseling for expected length of hospital stay.

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Cervicovaginal Reconstruction in Patients with Congenital Malformation of Cervix Using Split Thickness Skin Graft or Acellular Porcine Small Intestinal Submucosa Graft: A Prospective, Comparative Single Center Study



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Study Objective: To compare is there any difference in cervicovaginal reconstruction in patients with congenital malformation of cervix and vagina using split thickness skin (STS) graft and acellular porcine small intestinal submucosa (SIS) graft.

Design: Prospective, observational, comparative study.

Setting: Academic affiliated tertiary hospital.

Patients: 26 women with malformation of the cervix and vagina diagnosed by physical examination and magnetic resonance imaging from January 2012 to October 2015 in the Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China.

Intervention: 15 women underwent cervicovaginal reconstruction using SIS graft and 11 women underwent cervicovaginal reconstruction using STS graft.

Measurements and Main Results: Clinical characteristics, perioperative data, resumption of menstruation, vaginal stenosis, length of neovagina, stricture of the cervix and body image postoperatively were assessed.

At the median follow-up of 21 (2–46) months, all patients except one of them relieved their abdominal pain and showed resumption of menstruation. There were no differences in baseline data between two groups. Duration of cyclic abdominal pain positively correlated with AFS score of endometriosis. Vaginal mould was worn for vaginal dilation postoperation for 18 months in SIS group and 3 months in STS group. The hospital stay post-surgery of STS group was a little longer than that of SIS group (10.5±2.1 days in SIS versus 12.6±3.1 days in STS group, $p=0.04$). The mean total cost was significantly higher in SIS group (\$5898±1060 in SIS versus \$3009±857 in STS group). The mean vaginal length in SIS group was significantly shorter than the STS group at 6 months post-operation (6.5±0.7cm in SIS versus 8.0±0.5cm in STS group). Also, the increase of vaginal length with the use of the STS technique is significantly longer (4.9±1.7 in SIS group versus 7.5±0.7 in STS group, $p=0.004$).

Conclusion: The SIS group reported significantly higher body image and cosmetic satisfaction at the expense of higher operation cost and longer time of vaginal mould wearing.

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A Comparison Between Barbed Suture and Synthetic Multifilament Suture for the Vaginal Cuff Closure in Total Laparoscopic Hysterectomy: A 4-Year Experience in a Community Hospital and a Private Clinic



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Study Objective: To determine if there is a difference in postoperative complications in total laparoscopic hysterectomies (TLH) using distinct types of sutures.

Design: Retrospective cohort study.

Setting: Community Hospital and a Private Clinic in Santiago, Chile

Patients: Women who underwent TLH between January 2011 and December 2015.

Intervention: TLH and closure of the vaginal cuff with barbed and synthetic multifilament suture.

Measurements and Main Results: We analyzed 244 patients excluding 27 of them who didn't have a proper postoperative following or didn't specify the suture type in the surgery protocol. We compared the number of postoperative complications within the first fifteen days and the association with the use of barbed and synthetic multifilament suture. From the total of 217 hysterectomies evaluated, 13 required conversion, mainly because adhesions were found. For the vaginal cuff closure a 28.82% (62) used barbed suture and 71.16% (153) used synthetic multifilament suture. There were 17 postoperative complications in the first fifteen days, 29.41% (5) between day 0 to 7 and 70.58% (12) between days 8 to 15. The 58.82% (10) came from the synthetic multifilament suture and 41.17% (7) from the barbed suture. The most prevalent complication was the vaginal cuff hematoma (4). Data was analyzed via Student T test; we found that there wasn't a statistical difference in the number of complications between groups ($p>0.05$).

Conclusion: There was no statistical difference in the amount of postoperative complications between both groups.

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Anatomic, Functional Outcomes of Vaginoplasty Using Acellular Porcine Small Intestinal Submucosa Graft or Laparoscopic Peritoneal Vaginoplasty: A Comparative Study



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Study Objective: To compare the anatomic, and functional outcomes in patients undergoing vaginoplasty by different graft, between tissue-engineered biomaterial mesh and peritoneum.

Design: Retrospective study.

Setting: University-based tertiary-care hospital.

Patients: Patients with Mayer-Rokitansky-Kuster-Hauser syndrome or cervicovaginal agenesis admitted to our hospital.

Intervention: Vaginoplasty by different graft, between tissue-engineered biomaterial mesh and peritoneum.

Measurements and Main Results: Anatomic success was defined by a vaginal length ≥ 8 cm and a width allowing the easy introduction of two fingers. Functional outcomes were assessed at the 12-month follow-up according to body image perception and FSFI questionnaires validated for the Chinese-speaking population.

Results: No severe intra-operative complications occurred. No graft-related infection, rejection, or detachment was recorded. The cost for tissue-engineered biomaterial graft was \$1,900 (yen12,000) per person. Postoperatively, granulomatous polyps occurred in 1/17 patients (5.9%) at the vaginal vault and were removed in an inpatient clinic. During a mean follow-up of 64.6 months, the anatomic success rate was 100%, and all of the patients were satisfied with their body image. Postoperatively, 17 patients were followed up for more than 1 year, and 8 (5 peritoneum group and 3 SIS group) of them were sexually active.

Conclusion: Vaginoplasty with tissue-engineered biomaterial graft is a safe, effective, minimally invasive cosmetic procedure that provides near normal sexual function for patients with vaginal aplasia.

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Spontaneous Unilateral Otorrhagia: An Unusual Sequela After Laparoscopy



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Study Objective: Otorrhagia although commonly associated with traumatic injury to the external ear canal, tympanic membrane or temporal bone has been reported in rare cases in patients undergoing laparoscopic procedures under general anesthesia. We report a case of spontaneous unilateral otorrhagia in a patient undergoing laparoscopy.

Patients: The patient is a 36 year-old female presenting with pelvic pain and endometriosis. Preoperatively the patient was Physical Status II requiring no medical clearance. The patient was overweight (BMI- 27.3), had no personal or family history of bleeding disorders and no ear injury. Her surgical history included a laparoscopic appendectomy and vaginal hysterectomy with no adverse events. The patient had cystoscopy with bilateral ureteral stent placement and laparoscopic excision of endometriosis lasting five hours under general anesthesia. The patient was in steep-Trendelenburg position (>30 degrees) with CO₂ insufflation 2 hours 49 minutes. There were no intraoperative issues or complications.



The patient's peak inspiratory pressures never exceeded 30 cm H₂O, blood pressure was stable throughout. On repositioning to supine, atraumatic spontaneous left ear otorrhagia was noted (Figure 1). Immediate otolaryngology consult revealed a visible blood clot in the external canal, no further active bleeding internally. The patient postoperatively maintained head elevation >30°, used ciprofloxacin drops, and had no otalgia, tinnitus, vertigo or hearing deficit. The patient had no other postoperative sequela.

Intervention:

Conclusion: This is the 6th documented case of spontaneous otorrhagia following abdominal insufflation for laparoscopy under general anesthesia. The possible etiology could be the steep Trendelenburg position together with pneumoperitoneum increasing intrathoracic and intracerebral venous congestion leading to raised pressures that lead to direct venous injury or transcapillary bleed. A return to the supine position increases venous return with turbulent flow that could lead to hemorrhage in an injured venous vessel.



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Placenta Percreta in 12.5 Week Gestation: Presenting with Acute Abdomen and Hemoperitoneum Diagnosed via Laparoscopy with Subsequent Hysterectomy of Gravid Uterus

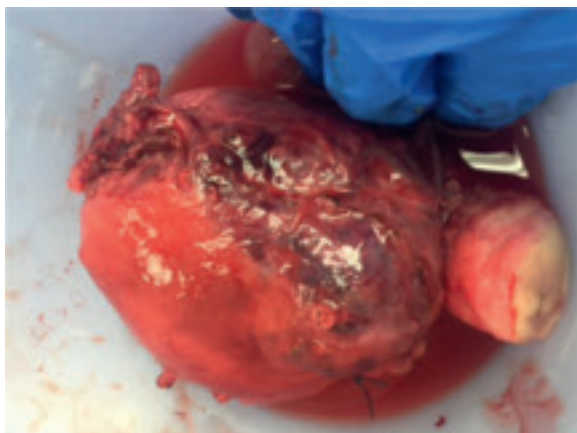


Shekarloo P, Hippolyte F, Katz A. *Obstetrics and Gynecology, Northwell Health, New Hyde Park, New York*

Study Objective: Placenta percreta is an abnormality of placental implantation in which the anchoring placental villi penetrate through myometrium into the uterine serosa or adjacent organs. With the increasing numbers of cesarean sections, so has the incidence of placenta accreta and percreta.[1] Only few cases of placenta percreta have been reported in second trimester. However, as clinicians we need to be aware of possible placental abnormalities in second trimester in patients who present to the ER with history of cesarean sections, acute abdomen and hemoperitoneum. If unsure of etiology a diagnostic laparoscopy should be performed and the possibility of hysterectomy should be discussed.

Design: Only a few cases of placenta percreta in second trimester have been reported. Most are incidentally found during dilation and curettage. Pont et al noted a case of placenta percreta in a 13 weeks gestation patient who presented with acute abdomen and hemoperitoneum who underwent emergent laparotomy with hysterectomy.[4]

Setting: This is a case of a patient who presented to the emergency room at 12 weeks 5 days gestation with history of three prior cesarean sections with acute abdomen and hemoperitoneum. Diagnostic laparoscopy revealed bulging placental tissue in the lower uterine segment concerning for placenta percreta. Hemostasis obtained and decision was made for further evaluation with MRI on the following day which confirmed placenta



percreta. Preoperative uterine artery embolization was performed, ureteral catheters were placed and she underwent a total abdominal hysterectomy with bilateral salpingectomy with a gravid uterus.

Conclusion: In this era of increasing cesarean sections, it is imperative that placental defects be recognized early in pregnancy. MRI should be obtained when sonogram is not diagnostic. Placenta accrete should be included in the differential diagnoses in patients with history of cesarean sections presenting with acute abdomen and hemoperitoneum. If unsure of etiology a diagnostic laparoscopy should be performed.

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Complete Bicornute Uterus Metroplasty Treated by Hysteroscopy Combined with Laparoscopy: 4 Cases Delivered Successfully



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Study Objective: To explore the feasibility of the metroplasty for complete bicornute uterus by hysteroscopy combined with laparoscopy.

Design: Retrospective study.

Setting: Teaching hospital.

Patients: Four patients undergoing recurrent abortion diagnosed complete bicornute uterus by gynecologists from hysteroscopic center between October 2006 and October 2011.

Intervention: Complete bicornute uterus metroplasty treated by hysteroscopy combined with laparoscopy, and finally 4 patients were successfully delivered 5 times.

Measurements and Main Results: Four patients were age from 20 to 41 years, with abortion in second trimester 1-3 times and early abortion 3 times, in which the time of abortion in second trimester was 17-27 weeks (mean 22.3 weeks). The operative time of 4 cases ranged from 1h15min to 3h5min (mean 2h15min). During the operation, amount of bleeding was 50-300ml (mean 152.5ml). No postoperative morbidity was reported. 1 case put IUD after operation and appeared intrauterine adhesions, treated by hysteroscopic, and kept effective contraception for one year. Another case vaginal cerclage failure at one time after the operation one year, treated by laparoscopic cervical cerclage. A total of 4 patients got pregnant 5 times after the operation the average time of one year and five month, and their gestation week was 34w+6-39w+1 (mean 37w+1). The time of first birth was after the operation two years and one-half month (range 1 year and 11 months – 2 years and 7 months). Five newborns weight 2300-3800g (mean weight 2985g).

Conclusion: Metroplasty by hysteroscopy combined with laparoscopy is a good alternative to complete bicornute uterus who wished to preserve fertility. However, it should be taken care on the change of the inner os of the cervix during pregnancy, which could significantly improve reproductive outcomes.

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Endometriosis in Laparoscopic Trocar Port Site Incision: A Retrospective Study and Literature Review



Jiang S, Sheng X, Li Q. Department of Gynecologic Oncology, Shandong Cancer Hospital affiliated to Shandong University, Jinan, Shandong, China

Study Objective: To review the clinical manifestations, imaging characteristics, histopathology and prognosis of those patients who had abdominal wall scar endometriosis, especially in laparoscopic trocar port site.

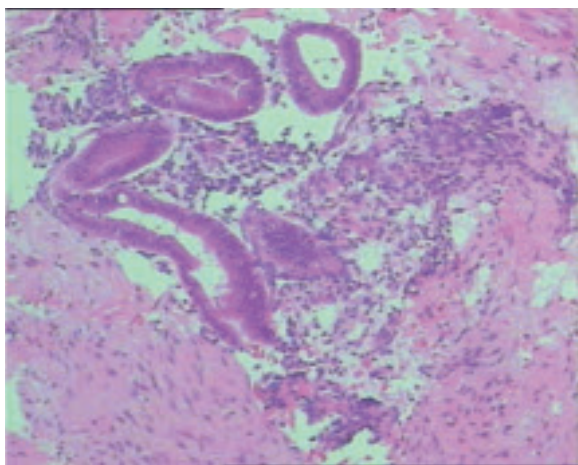
Design: A retrospective study and literature review.

Setting: Tertiary hospital of a University.

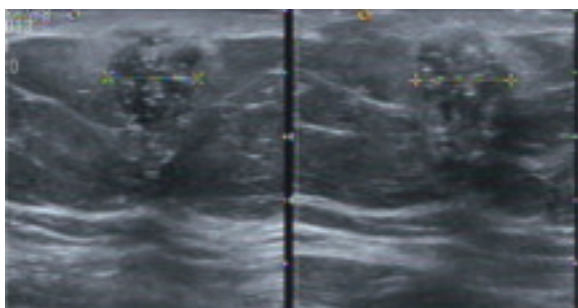
Patients: Patients suffering abdominal wall scar endometriosis from July 1, 2010 to June 30, 2015.

Intervention: We performed a retrospective review in our hospital surgery database from July 1, 2010 to June 30, 2015. The medical records were investigated in detail. We also thoroughly retrieved literature in Pubmed and other databases, focusing on endometriosis in laparoscopic trocar port site incision.

Measurements and Main Results: A total of 36 patients with abdominal wall scar endometriosis were identified. Two (2/36, 5.5%) of these were in trocar port site. The mean age was 31.58 ± 9.38 (Mean \pm 2SD). All patients (100%) had a gradually growing nodular mass in or adjacent to the incisional scar. The mean diameter was 3.8 ± 1.5 cm. 29 (80.55%, 29/36,) patients had pain, either cyclical (72.41%, 21/29) or noncyclical (27.59%, 8/29). All mass were totally resected along with the border of healthy tissue. A definitive diagnosis was achieved by histopathologic examination for all patients.



The follow up revealed all patients recovered uneventfully without recurrence to date. The incidence of cesarean section incisional scar endometriosis was 0.606% (34/5607). The incidence of endometriosis in laparoscopic trocar port site was 0.095% (2/2106). All patients (100%) underwent ultrasound with color Doppler imaging prior surgery. The masses were all hypoechoic, vascular and solid under ultrasound. Only 3



patients (8.33%, 3/36) showed vascular and cystic components giving an impression of endometriosis.

A total of 17 cases of endometriosis in trocar port site have been reported to date.

Conclusion: Endometriosis in laparoscopic trocar port site is extremely rare. But an awareness of this disease is necessary to guide preoperative evaluation and therapy appropriately.

Cases of Endometriosis in Laparoscopic Trocar Port Site

Year	Patient age	Previous laparoscopic Surgery	Interval Months	Trocar site
2012	20	Cyst excision	18	Umbilical
2011	34	Diagnostic	18	Left
2011	26	Diagnostic	6	Right
2011	21	Diagnostic	12	Right
2011	45	Supercervical hysterectomy	24	Suprapubic
2010	37	Appendectomy	8	Right
2010	30	Cyst excision	4	Right
2010	37	Diagnostic	–	Right
2009	24	Cyst excision	24	Suprapubic
2005	40	Cyst excision	24	Umbilical
2005	26	Cyst excision	24	Suprapubic
2005	37	Cholecystectomy	24	Right
2004	44	Mymectomy	84	Umbilical
1998	35	Diagnostic	11	Suprapubic
1996	32	Diagnostic	7	Umbilical
1995	23	Diagnostic	9	Umbilical
1990	37	Sterilization	12	Umbilical
Our case	42	Cyst excision	22	Left
Our case	42	Supercervical hysterectomy	48	Left

Mean age: 33.26 ± 15.53 year; Mean interval months: 21.05 ± 36.66 months; Six at umbilical, Six at right, four at suprapubic, three at left.

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Surgery Treatment of Cesarean Scar Pregnancy

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Study Objective: To evaluate the feasibility and safety of surgery treatment for cesarean scar pregnancy.

Design: Retrospective study.

Setting: Tertiary hospital of a University.

Patients: We examined the records of patients with primary discharge diagnosis of cesarean scar pregnancy in our hospital surgery database from January 2011 to December 2013.

Intervention: Surgery treatment.

Measurements and Main Results: Seven patients were identified. Three were treated successfully by laparoscopy. Two were by hysteroscopy. These endoscopic surgery lasted about one hour. One was treated initially by laparoscopy but had to convert to laparotomy due to huge blood loss of 2300ml. Another was treated initially by dilation and curettage but had to convert to laparotomy due to huge blood loss with Hgb decreased from 88g/L to 60g/L. Blood transfusion was applied for the both. The uterus was spared for all patients. Serum β -human chorionic gonadotropin dropped dramatically after surgery.

Conclusion: Endoscopic surgery for cesarean scar pregnancy is feasible, but not safe enough.

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Complications Associated with Prophylactic Uterosacral Ligament Suspension at Time of Total Laparoscopic Hysterectomy



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Study Objective: To examine complications associated with prophylactic uterosacral ligament suspension done at the time of total laparoscopic hysterectomy.

Design: Retrospective case series.

Setting: Academic affiliated county hospital.

Patients: Patients undergoing prophylactic uterosacral ligament suspension at the time of total laparoscopic hysterectomy by benign gynecologic faculty between July 2011 and September 2014.

Intervention: Prophylactic uterosacral ligament suspension was performed at time of total laparoscopic hysterectomy.

Measurements and Main Results: Between July 2011 and September 2014, 146 patients underwent uterosacral ligament suspension at the time of total laparoscopic hysterectomy at our academic affiliated county hospital. Estimated blood loss ranged from 5–600cc (mean 132.84cc) and of the complications analyzed, the most common was urinary tract infection (7.53%), followed by urinary retention and bladder injury (0.68%). Three patients (2.05%) struggled with post operative pain, and three (2.05%) required readmission for reasons that were unrelated to the uterosacral ligament suspension. No ureteral injuries occurred and no neuropathies were reported.

Conclusion: Uterosacral ligament suspension is a popularly used approach for correcting vaginal prolapse whose most common complications include urinary tract infections, ureteral injury and sensory nerve injury. In our case series, prophylactic uterosacral ligament suspension at the time of total laparoscopic hysterectomy showed to have no episodes of ureteral or sensory nerve injury, and a 7.53% incidence of post-operative urinary tract infection. Thus, prophylactic uterosacral ligament suspension performed at time of total laparoscopic hysterectomy appears to be a safe procedure associated with minimal complications.

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Is Age Related to Surgical Times in Patients Undergoing Laparoscopic Hysterectomy?



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Study Objective: The main objective of this study is to determine if a correlation exists between patient age and surgical time in women undergoing laparoscopic hysterectomies.

Design: A retrospective analysis of 229 patients who underwent laparoscopic hysterectomy between 2007 and 2015 in two hospitals belonging to the TECSalud healthcare system in northeastern Mexico was performed. Variables were expressed as means and standard deviations upon following a normal distribution by Anderson-Darling's normality test. Means, standard deviation and confidence intervals were calculated,

and Pearson's correlation test was used to calculate correlations between variables in question.

Setting: TECSalud healthcare system in northeastern Mexico.

Patients: 229 patients between 2007 and 2015.

Intervention: Laparoscopic hysterectomy.

Measurements and Main Results: Mean population characteristics were as follows: age 44 years (SD 0.52; CI 44.11–45.83), surgical time 146.3 min (SD 2.98; CI 141.37–151.23), BMI 27 (SD 0.41), uterine weight 169.27 grams (SD 7.07; 157.6–180.94) and transoperative bleeding 191 ml (SD 13.76; CI 168.07–213.5). Logistic regression analysis suggested a positive correlation between age and surgical time ($R^2=0.97$ $p=0.0013$).

Conclusion: Based on the data analyzed, evidence suggests a statistically significant positive correlation exists between patient age and surgical time in women undergoing laparoscopic hysterectomy. Although surgical time is highly dependent on surgeon skill and particularly the surgeon's own learning curve, and the benefits of minimally invasive surgery to women undergoing the procedure has long been proven, an increment in surgical times and its logistical and economical implications must be weighted-in at surgical planning in laparoscopic hysterectomies.

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Role of Laparoscopically-Assisted Operative Hysteroscopy in the Management of Type II Cesarean Scar Pregnancy



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Study Objective: To investigate the efficacy and safety of laparoscopically assisted operative hysteroscopy (LAOH) as first-line treatment in the management of deep implantation cesarean scar pregnancy (CSPII).

Design: Retrospective cohort study.

Setting: A university-based tertiary obstetrics and gynecology hospital.

Patients: From April 2010 to December 2015, a total of 131 patients diagnosed with CSPII and primarily treated in our hospital were included.

Intervention: Data were obtained from patient medical records and were compared among different treatment modalities.

Measurements and Main Results: Patients were divided into 4 groups: LAOH (Group L, n=25), uterine artery embolization (UAE) followed by LAOH (Group U+L, n=21), ultrasound-guided dilatation and curettage (D&C) (Group D, n=24), UAE followed by D&C (Group U+D, n=61). No difference was found in patients' age, gestational age, size of lesion and initial serum beta-human chorionic gonadotropin level. The operation time was longer and the success rate was higher in Group L and Group U+L as well, compared with that in Group D and Group U+D

Table 1. Clinical characteristics of patients with CSP II

Characteristics	LAOH (Group L: n=25)	UAE+LAOH (Group U+L: n=21)	D&C (Group D: n=24)	UAE+D&C (Group U+D: n=61)	P value (within groups)
Age (y)	36.52±1.19	33.86±1.00	35.71±1.21	33.51±0.64	0.069
Number of previous cesarean deliveries	1.20±0.82	1.00±0.00	1.13±0.07	1.20±0.05	0.155
Time since last cesarean delivery (y)	6.56±5.22	4.76±0.74	6.65±0.90	5.26±0.50	0.188
Gestational Age at Diagnosis(d)	51.36±2.66	56.10±4.08	50.91±2.43	51.53±1.43	0.509
Diameter of gestational sac (mm)	20.73±2.33	23.29±2.58	19.10±3.25	23.08±1.65	0.578
Thickness of anterior lower uterine segment myometrium (mm)	2.52±0.37	2.02±0.33	2.16±0.44	2.57±0.24	0.226
Operation time (min)	57.12±6.29	53.10±5.73	36.52±7.16	26.38±3.81	<0.001
Rate of conversions to laparotomy	0%	0%	8.33%	4.92%	0.405
Rate of perioperation complications	0%	0%	8.33%	4.92%	0.405
Rate of normalization of serum beta-hCG in 4 weeks	96%	100%	83.33%	91.80%	0.201
Success rate (%)	96%	100%	70.83%	81.97%	0.010

Table 2. Clinical characteristics of patients with CSP IIb

Characteristics	LAOH (Group L: n=15)	UAE+LAOH (Group U+L: n=15)	D&C (Group D:n=11)	UAE+D&C (Group U+D: n=34)	P value (within groups)
Age (y)	36.53 ± 1.70	34.07 ± 1.12	35.91 ± 1.81	34.00 ± 0.80	0.365
Number of previous cesarean deliveries	1.13 ± 0.09	1.00 ± 0.00	1.18 ± 0.12	1.21 ± 0.07	0.311
Time since last cesarean delivery (y)	6.80 ± 0.95	5.00 ± 0.93	5.32 ± 1.21	5.98 ± 0.74	0.631
Gestational Age at Diagnosis(d)	57.00 ± 3.45	59.87 ± 5.44	54.89 ± 3.55	52.71 ± 1.99	0.417
Diameter of gestational sac (mm)	24.05 ± 3.19	27.30 ± 2.86	30.05 ± 5.44	26.19 ± 2.46	0.733
Diameter of mass in scar (mm)	4.47 ± 0.38	4.17 ± 0.38	4.67 ± 0.67	3.83 ± 0.33	0.474
Thickness of anterior lower uterine segment myometrium (mm)	1.61 ± 0.24	1.23 ± 0.16	1.49 ± 0.21	1.69 ± 0.11	0.237
Operation time (min)	57.20 ± 7.45	59.67 ± 7.23	56.36 ± 12.34	32.21 ± 6.74	0.027
Rate of mass protruding into the bladder or the abdominal cavity	33.33%	33.33%	18.18%	23.53%	0.739
Rate of conversions to laparotomy	100.00%	100.00%	18.18%	8.82%	0.199
Rate of perioperation complications	13.33%	13.33%	36.36%	8.82%	0.011
Rate of normalization of serum beta-hCG in 4 weeks	100.00%	100.00%	63.64%	88.24%	0.012
Success rate (%)	100.00%	100.00%	36.36%	70.59%	<0.001

(57min, 96%; 53min, 100%; vs 36min, 71%; 26min, 82%. $P < 0.001$ and $P = 0.01$, respectively).

Perioperation complications: blood loss >500ml; bladder or urethra injury. Treatment Failure: unnormal decline in serum β -hCG; residue; secondary treatment, conversions to laparotomy; changing surgical procedures.

Interestingly, when the cohort was further divided into two layers according to the myometrial thickness (>3mm, CSP IIa; \leq 3mm, CSP IIb), the difference in success rate disappeared among groups in CSP IIa. However, in CSP IIb, lower rate of perioperation complication (blood transfusion or bladder injury) and higher success rate remained favored to Group L (n=15) (13.3%, 100%) and Group U+L (n=15) (13.3%, 100%) vs Group D (n=11) (36.4%, 36.4%) and Group U+D (n=34) (8.8%, 70.6%), $P=0.011$ and $P < 0.001$, respectively.

Conclusion: LAOH with or without UAE is a safe and efficient treatment for patients with CSP, especially when the zygote implants more deeply with a myometrial thickness \leq 3mm.

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Paratubal Borderline Malignancy in an Adolescent Female Treated with Laparo-Endoscopic Single-Site Surgery (LESS) and a Review of the Literature



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Study Objective: Borderline paratubal cysts (BPC) are extremely rare and little information was given about the appropriate surgical management and recurrence. We describe the case of a large BPC in a 17-year-old adolescent female treated with laparo-endoscopic single-site surgery (LESS), and review the literature.

Design: A case study and a review of the literature.

Setting: University Hospital.

Patients: A case and a review of 8 literatures.

Paratubal borderline tumors reported in the literature

Author	Year	Age	Presentation	Procedure	Gross finding	Pathology	Follow-up
Salamon	2005	45	Right adnexal mass	Laparoscopic right salpingo-oophorectomy	3-cm twisted paratubal cyst	Endometrioid borderline tumor	1 year, no recurrence
Seamon	2009	26	Pelvic pain, pelvic mass, torsion	Right salpingo-oophorectomy, partial omentectomy, appendectomy, pelvic-para-aortic lymphadenectomy	12-cm simple paratubal cyst	Serous borderline tumor	1 year, no recurrence
Kumbak	2010	39	Left adnexal mass in cesarean section	Cystectomy, omentectomy, appendectomy, pelvic-para-aortic lymphadenectomy	6-cm paratubal cyst	Serous borderline tumor	15 months, no recurrence
Shin	2010	27	Flank pain, right adnexal mass	Cystectomy, multiple peritoneal biopsies, peritoneal washing	16-cm paratubal cyst	Serous borderline tumor	20 months, no recurrence
Terek	2011	19	Pelvic pain, pelvic mass, torsion	Cystectomy and peritoneal washing	10-cm twisted left paratubal cyst	Serous borderline tumor	7 months, no recurrence
Im	2011	20	Complex right adnexal mass	Laparoscopic paratubal cyst enucleation	Complex right adnexal mass	Mucinous borderline tumor	NA
Kiseli	2012	17	Complex right adnexal mass	Cystectomy and right ovarian wedge resection	Complex 7-cm right adnexal mass	Serous borderline tumor	1 year, no recurrence
Alaoui	2012	38	Pelvic pain, pelvic mass, torsion	Hysterectomy, both salpingo-oophorectomy, omentectomy, peritoneal washing	10-cm twisted right paratubal cyst	Serous borderline tumor	1 year, no recurrence
Lee	2014	17	Huge right adnexal mass	LESS* salpingectomy and ovarian wedge resection	19-cm paratubal cyst	Serous borderline tumor	1 year, no recurrence

Intervention: A MEDLINE® search using the search terms “paratubal borderline tumor” revealed only 8 cases published in the literature.

Measurements and Main Results: A 17-year-old female was referred due to a large right adnexal cyst on pelvic sonogram. A CT scan showed a 19-cm-sized cystic lesion with enhancing papillary projection along the wall. LESS surgery confirmed a large cystic mass that originated from the right salpinx. Right salpingectomy and right ovarian wedge resection were performed. The result of the frozen section analysis and final pathologic review indicated that the cyst was a serous papillary-type borderline tumor in a paratubal cyst.

In the review of literatures, the mean age of patients upon diagnosis was 27.6±10.6 years old (range: from 17 to 45 years). The most common pathologic diagnosis was serous borderline tumor (77.8%). Most tumors occurred in reproductive-aged women. Four of nine cases presented with pelvic pain due to a twisted cyst, while the other cysts were asymptomatic. Three of nine women underwent laparoscopic surgery, and six patients had conservative surgery. All tumors were unilateral and the tumor size ranged from 3 to 19 cm in diameter. Most cases followed patients for more than 1 year, and no recurrence was reported.

Conclusion: To the best of our knowledge, this is the first case report of a BPC treated with LESS. We suggest that minimally invasive, fertility-preserving surgery should be considered as a standard treatment of borderline paratubal cysts if patients desire future fertility.

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A Comparison of Two- and Three-Port Laparoscopic Myomectomy



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Study Objective: 2 years ago, FDA announced its safety communication in respect to laparoscopic power morcellation used for hysterectomy or myomectomy in women with uterine fibroids that it poses a risk of spreading unsuspected cancerous tissue. In awareness of that recommendation, we aimed to evaluate the surgical outcomes of two-port laparoscopic myomectomy removing uterine fibroids within confined tissue-retrieval bag manually in comparison of conventional laparoscopic myomectomy undergoing power morcellation.

Design: Retrospective chart review study.

Setting: Tertiary teaching university hospital

Patients: We examined 300 women who underwent myomectomy for symptomatic uterine fibroids from January 2010 to December 2015.

Measurements and Main Results: 2 study group showed no statistically significant difference in terms of operation time including elapsed time for fibroid morcellation and major surgical complications.

Conclusion: We analyzed the feasibility and safety of two-port laparoscopic myomectomy without performing power morcellation in terms of surgical outcomes and operating times. It might be a safe treatment option for power morcellation having benefits of minimally invasive surgery at the same time.

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Is Mesh Erosion Following Laparoscopic Sacrocolpopexy Time-Dependent?



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Study Objective: To determine if mesh erosion rate from sacrocolpopexy increases with time.

Design: Retrospective study.

Setting: Tertiary care referral centre.

Patients: Patients who underwent laparoscopic sacrocolpopexy or sacrohysteropexy from 2006 to 2015.

Intervention: N/A.

Measurements and Main Results: Chart review was performed. A quality of life questionnaire was sent out and patients who did not respond were called. 290 patients were included in the study with a mean follow-up of

44 months (SD 40 months, range 0–140 months). Mean age was 59 years old and 66% of women had a previous hysterectomy. Mean BMI was 25.8 and the majority of patients (74.5%) presented with stage III prolapse. All procedures were performed laparoscopically with no conversion: 61% underwent sacrocolpopexy, 33% had sacrohysteropexy, and 6% had sacrocervicopexy (concurrent sub-total hysterectomy and sacrocolpopexy). Mean operative time was 113 minutes with a mean estimated blood loss of 80 mL. The most common complications were UTI (3.8%) and wound infection/cellulitis (3.8%). The incidence of major complications (Clavien-Dindo classification grade III or more) was 2.7% (5 bladder and 3 bowel injuries). Patient symptoms also improved significantly post-operatively: 99% for prolapse, 92.7% for urinary, 92.3% for bowel and 89.6% for sexual symptoms. Objective cure rate was 97.5% at one year and 92% at two years. Overall recurrence (subjective or objective) was 3.8% at one year and 9% at two years. Most common area of recurrence was the anterior compartment (73%), followed by apical (31%) and posterior (23%) compartments. Mesh erosion was 2.8% at one year, 4.5% at two years and 6.9% at 8 years.

Conclusion: Laparoscopic sacrocolpopexy is a safe and effective surgical treatment for level I pelvic organ prolapse, but may not be sufficient for anterior prolapse. Mesh erosion is time-dependent as our results highlights the erosion rate continues to increase with time.

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The Impact of Surgical Approach Upon Perioperative Outcomes in Patients Undergoing Myomectomy



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Study Objective: To determine the impact of surgical approach upon practice patterns and perioperative outcomes in patients undergoing myomectomy.

Design: Retrospective cohort study.

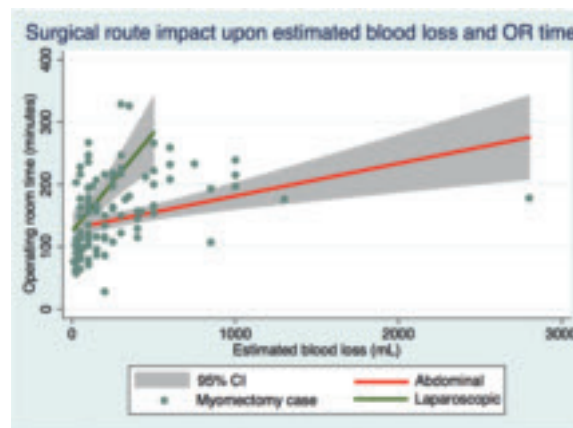
Setting: Single academic institution.

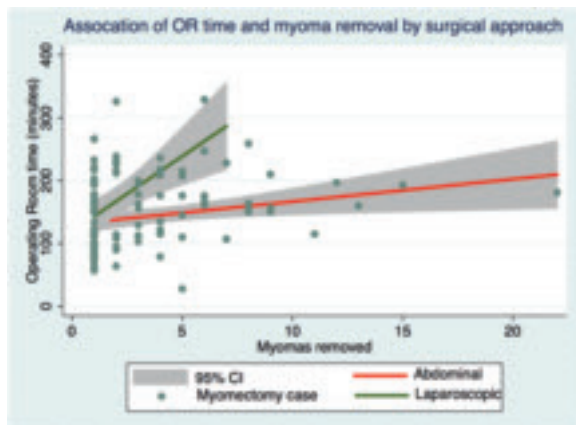
Patients: Patients undergoing myomectomy performed for benign indication from April, 2012 through October, 2015.

Intervention: Patient characteristics, surgical practice patterns, and outcomes were examined by surgical approach.

Measurements and Main Results: A total of 110 myomectomies were identified and eligible for inclusion (75 abdominal, 35 laparoscopic). Demographic features, preoperative characteristics, and workup were similar in both groups with the exception of statistically more patients presenting with bleeding symptoms in the abdominal versus laparoscopic group 78.7% vs 57.1% (p=0.02), respectively.

When comparing the abdominal to laparoscopic approach, there was a larger estimated blood loss (EBL) 307.7 vs 132.9 mL (p=0.01), lower rates of morcellation 22.7% vs 68.6% (p<0.001), more fibroids removed 3.9 vs 2.0 (p=0.005), and larger overall fibroid weight 505.1 vs 182.7g (p=0.02), respectively. There was no significant difference between operative time in abdominal versus laparoscopic approach 145.7 vs 166.5 minutes (p=0.10)





Patient characteristics by surgical approach

	Abdominal (n=75)	Laparoscopic (n=35)	p value
Age (years)	35.5	35.4	0.95
Body Mass Index (kg/m ²)	30.3	30.2	0.94
Race			
White	29 (38.7%)	21 (60.0%)	0.09
Black	43 (57.3%)	14 (40.0%)	
Asian	3 (4.0%)	0 (0%)	
Fibroid symptoms			
Bleeding related	59 (78.7%)	20 (57.1%)	0.02
Bulk related	51 (68.0%)	24 (68.6%)	0.95
Infertility related	11 (14.7%)	6 (17.1%)	0.74
Preoperative MRI	46 (61.3%)	16 (45.7%)	0.13
Endometrial biopsy	12 (16.0%)	5 (14.2%)	0.82

Linear regression was conducted demonstrating that compared with abdominal myomectomy, laparoscopic myomectomy operative time was more positively correlated with estimated blood loss and number of fibroids removed.

Conclusion: There is a significant trend towards lower overall blood loss and shorter hospital stay with laparoscopic myomectomy versus abdominal, though with fewer fibroids with lower mass removed in laparoscopic cases. There is a strong significant correlation with increased operative time per fibroid removed and increased blood loss per operating minute with a laparoscopic approach, suggesting that even with shorter hospital stays, an abdominal approach may be preferred in those undergoing myomectomy for larger and more numerous fibroids.

Surgical findings and outcomes of myomectomy by surgical approach

	Abdominal (n=75)	95% confidence interval	Laparoscopic (n=35)	95% confidence interval	p value
Surgical Outcomes					
Estimated Blood Loss (mL)	307.7	216.4 - 399.1	132.9	82.7 - 183.0	0.01
Morcellation performed*	22.7%		68.6%		<0.001
Fibroids removed	3.9	3.0 - 4.8	2.0	1.4 - 2.6	0.005
Total fibroid weight (g)	505.1	355.1 - 655.0	182.7	106.9 - 258.5	0.02
Operative time (minutes)	145.7	133.8 - 157.5	166.5	140.2 - 192.7	0.10
Postoperative Outcomes					
Length of stay (days)	2.7	2.5 - 2.9	1.7	1.5 - 2.0	<0.001
30 day representation**	8.0%		8.6%		0.92

*Includes any form of morcellation requiring creation of fibroid pieces, **ED or readmission

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Advantages of Performing the Anterior Colpotomy Prior to Ligating Uterine Vessels in a Teaching Institution



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Study Objective: The primary objective of this study is to show the effectiveness of performing an anterior colpotomy prior to cauterizing the uterine vessels as a way to avoid injury and improve proper tissue identification in a teaching institution.

Design: Retrospective cohort control study.

Setting: Academic teaching institution with resident participation

Patients: All patients who underwent a laparoscopic hysterectomy (TLH or LAVH) from 2011 to 2016.

Intervention: Patients received an anterior colpotomy prior to ligating the uterine arteries in the setting of a resident performing the hysterectomy.

Measurements and Main Results: (Preliminary) When performing the anterior colpotomy first, the incidence of bladder injury was reduced from 2.6% to 0.46%. There was an incidence of 1.3% ureteral injuries and no injuries were noted in the study group. Surgical operating time was reduced 31 minutes from 203 minutes to 172 minutes and blood loss was reduced from 263mL to 185mL. A resident survey is underway to determine their level of comfort identifying the anatomy and the level of the internal os when performing an anterior colpotomy first versus a standard approach.

Conclusion: From our experience, we have seen that not only does performing the anterior colpotomy help residents identify landmarks, but our preliminary data would suggest it helps reduce the risk of bladder and ureteral injury. With proper guidance, this step helps resident to better understand and visualize the surgical anatomy laparoscopically. Also, by completing all steps, including the colpotomy on each side, the operating time is decreased. Presumably, due to more liberal cauterization of the uterine vessels above the colpotomizer cup, as we are less concerned with thermal spread, the average blood loss is decreased.

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The Effect of Partial Bladder Filling on Post-Operative Time to Void in Minimally Invasive Gynecologic Procedures



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Study Objective: To compare the time needed to void postoperatively in patients whose bladder is partially backfilled with 150cc with subsequent Foley catheter removal compared to patients whose bladder is completely emptied with subsequent Foley catheter removal after laparoscopic or robotic hysterectomy or myomectomy.

Design: Double-blind randomized-controlled trial.

Setting: The George Washington University Hospital

Patients: Patients undergoing robotic or laparoscopic hysterectomy or myomectomy.

Intervention: Partial bladder back-filling of 150cc.

Measurements and Main Results: Demographic characteristics including age, patient's weight, prior surgical history, and medication history are being collected and will be analyzed with regression models to control for the effects of these characteristics on outcomes. Primary outcome will be the time to void after Foley catheter removal. Secondary outcomes will be length of PACU stay and PACU costs. Sample calculations based on total time required to void after Foley catheter removal assuming an alpha level of 0.05 and beta of 0.8 indicate that 36 patients are needed in each group to determine a difference of 20 minutes in voiding time. Up to 38 patients will be enrolled to take into account a 5% dropout rate. Recruitment started on March 20, 2016 and 7 patients have been recruited so far. Preliminary comparisons between time to void in PACU and total PACU stay time between partially filled and empty bladder are as follow: 197 minutes verses 265 minutes and 195 minutes verses 275 minutes respectively.

Conclusion: This trial has the potential to prove our hypothesis that partial bladder back-filling decreases time to void after minimally invasive benign gynecologic procedures and thus decreases PACU length of stay and cost.

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Patient Participation in a Prospective Database of Patients Undergoing Novasure Global Endometrial Ablation



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Study Objective: To prospectively collect information and develop a database of women undergoing global endometrial ablation (GEA) with the goal of analyzing the information at a later date to answer specific queries regarding effectiveness of this modality of treatment for menstrual disorders.

Design: Prospective Cohort Study.

Setting: Teaching Hospital.

Patients: All patients scheduled to undergo GEA are approached for enrollment into this study. Enrollment began in September 2014 and is expected to close in August 2017 with 300 subjects expected to be enrolled.

Intervention: The study team does not provide any Intervention. The study subjects' own physicians perform Novasure Global Endometrial Ablation.

Measurements and Main Results: In addition to baseline demographic information, each subject answers three validated questionnaires: Menorrhagia Impact Questionnaire, World Health Organization Quality of Life questionnaire and Sexual Satisfaction Survey with follow-up 6 months after procedure and yearly for a total of 3 years. A subgroup of subjects are given the opportunity to have an ultrasound performed at the study center to document presence or absence of adenomyosis.

To date 166 patients were scheduled to undergo Novasure Global Endometrial Ablation. 119 patients (71.7%) consented to take part in the study. 55 patients have completed their 6-month follow-up and 24 patients have completed the 12-month follow-up.

The recruitment in the subgroup with dysmenorrhea or enlarged uterus has been slow. Of the 103 eligible patients, only 11 were seen early enough before the surgery and also consented to have an ultrasound performed.

Conclusion: More than 70% of eligible patients have consented to be part of the study with high retention rate during follow-up. Enrollment into an additional arm of the study requiring a pelvic ultrasound examination is poor secondary to lack of adequate time and lack of enthusiasm to participate on the part of the study subjects.

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Devising of Surgery in Total Laparoscopic Hysterectomy More Than 500g Uterus



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Study Objective: Difficulty level of total laparoscopic hysterectomy (TLH) depends on dissection of the cardinal ligament. Difficulty to

appropriately approach the cardinal ligament due to the enlarged uterus can possibly result in extension of surgical duration and complications such as ureteral injury. In this study, we retrospectively compared the cases with difficulty to dissect the cardinal ligament between the TLH combined with preceding myomectomy and conventional TLH alone.

Design: Retrospective case series.

Setting: Toho University Omori Medical Center, Tokyo, Japan.

Patients: Among the cases that received TLH at our hospital from 2010 through 2015, 70 cases for enlarged uterus that weighed 500 g or greater were divided into 47 cases without myomectomy (Group A) and 23 cases with preceding myomectomy (Group B) for retrospective comparison.

Intervention: After confirming the course of the ureter, the lateral aspects of the uterus were unveiled by dissection of the ovarian ligament and round ligament, followed by coagulation hemostasis in the ascending branch of the uterine artery with the bipolar. When it was difficult to approach the cardinal ligament, myomectomy was performed enabling adequate approach, followed by total hysterectomy.

Measurements and Main Results: No statistically significant difference was observed in surgical duration between Groups A (111.2 minutes) and B (121.7 minutes). No significant difference was observed in volume of bleeding neither between Groups A (128.3 mL) and B (195.2 mL). The mean weight of the uterus removed from Group B (759.3 g) was significantly greater than that from Group A (642.3 g).

Conclusion: In TLH cases with difficulty to appropriately approach the cardinal ligament due to enlarged uterus, preceding myomectomy enabled TLH to dissect larger uterus with comparable surgical duration to the conventional surgery.

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Rethinking Direct Trocar Insertion for Laparoscopic



Entry: Lessons from Nine Litigated Cases

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Study Objective: To report circumstances and clinical and medicolegal outcomes of 9 litigated cases associated with direct trocar insertion (DTI) injuries to bowel (7 cases) and major vessel (2 cases).

Design: Case series from 1990 through 2015.

Setting: Hospital setting.

Patients: Nine injured patients during laparoscopic access.

Intervention: Retrospective review of records of litigated and concluded cases.

Measurements and Main Results: The average and (range) of age and BMI were 31 years (14 - 65) and 25 Kg/m² (20 - 35), respectively. Indications for laparoscopy included diagnostic (4), LAVH (3), pelvic mass (1), cholecystectomy (1). DTI was performed with 10 mm trocars (6 shielded, 3 unknown). One small bowel and one vascular injury was experienced by the same male surgeon. Injuries included small bowel (4), colon (3), major vessel (2). The vascular injuries to the IVC in one and external iliac artery in the other resulted in brain damage and near loss of limb, respectively. Litigation was favorable to the plaintiff in both cases. All bowel injuries declared with peritonitis within 3 post-operative days (5 on POD #1, 1 on #2, 1 on #3) but only 2 were acted upon immediately with favorable clinical and medicolegal outcomes. Delayed exploratory laparotomy (POD #2-9) resulted in significant adverse clinical outcomes (ileostomy/colostomy - 4, multiple surgeries -7, death - 1) and in all cases medicolegal outcomes were favorable to the Plaintiff.

Conclusion: During laparoscopic access, injuries to bowel and vessels from DTI may occur more frequently than other entry technique, are more catastrophic, result in significant adverse clinical outcomes and provoke higher litigation with unfavorable outcomes. More importantly, this study raises the question on the wisdom of present day use and future utilization of DTI for primary laparoscopic access.

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Recurrence of Symptoms After Hysterectomy in Patients with Adenomyosis



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Study Objective: To examine the rate of symptom recurrence (bleeding or pelvic pain) in women who underwent a total or supracervical hysterectomy with a confirmed histopathologic diagnosis of adenomyosis as compared to those without adenomyosis.

Design: Retrospective cohort study and follow-up survey.

Setting: Tertiary-care academic center, Boston MA USA.

Patients: The symptom resolution survey was mailed to all 1,580 who underwent laparoscopic total or supracervical hysterectomy for benign indications from 2008-2012 at Brigham & Women's Faulkner Hospital and Brigham & Women's Hospital.

Measurements and Main Results: 762 women responded to the survey (48%). Of these, 623 agreed to participate while 139 declined. Adenomyosis was identified on histopathologic evaluation of the uterus in 249/623 (40%) and was absent in the remaining patients. Women with adenomyosis were older, with mean age 48.8 years (SD 8.1) vs 47.1 years (SD 7.7), $P = .006$. Blood loss, uterine weight, OR time, type of hysterectomy (total vs supracervical), peri-operative complications and length of stay were similar between the two groups. Persistent bleeding post-procedure was noted in 10.7% of patients with adenomyosis and 11.5% of patients without adenomyosis ($P = .77$). Persistent pain post-procedure was noted in 16.2% of patients with adenomyosis and 27.1% of patients without adenomyosis ($P = .02$). Of note, pelvic pain/endometriosis as pre-operative indication was similar between patients with or without (24% vs 27.1%, $P = 0.48$) adenomyosis. Logistic regression analysis showed no difference in outcomes or persistence of symptoms between women who underwent total versus supracervical hysterectomy.

Conclusion: The rates of complications or persistence of symptoms are low in patients undergoing hysterectomy with a diagnosis of adenomyosis. Retaining the cervix does not appear to increase the risk of symptom persistence.

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Total Laparoscopic Hysterectomy with Endosutures Only



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Study Objective: This is a study to show the technique of total laparoscopic hysterectomy with endosuturing without using any energy source, as a safer and better endosurgical modality.

Design: Retrospective analysis of 241 cases of Total laparoscopic hysterectomies which were performed using this technique for indications ranging from severe endometriosis, large size myoma uteri, adenomyosis, myoma uteri with previous LSCS etc. performed from February 2013 to March 2016.

Setting: Tertiary care super speciality Hospital.

Patients: Two hundred and forty one women (ages 38-56) who presented with pelvic pain and abnormal uterine bleeding.

Intervention: Total laparoscopic hysterectomy with/without bilateral salpingo-oophorectomy was carried out using this technique. It involves the ligation of uterine bundle after creation of a window in the avascular triangle in the broad ligament, followed by ligating the ovarian and the round ligament or the infundibulo-pelvic ligament and the round ligament. After cutting of blood supply to the uterus the pedicles are cut and colpotomy carried out followed by suturing of the vault with anchoring sutures and strengthening of pedicles using hybrid sutures.

Measurements and Main Results: In all 241 patients, Total laparoscopic hysterectomy was carried out with endosuturing, without the usage of thermal energy and none were converted to laparotomy. The mean surgical duration was 82 minutes with mean blood loss of 90ml. No intra-

operative complications were observed. All patients were followed up to 6 weeks. During this period no direct complications were observed.

Conclusion: This technique for Total Laparoscopic Hysterectomy is a new approach and it offers the benefits of increased safety as it has no chances of thermal injury to the bowel and other adjoining structures without any significant increase in operating time and decreased postoperative pain scores.

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Percutaneous Total Laparoscopic Hysterectomy: Results from a 20 Case Single-Center Experience



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Study Objective: The aim of the present study was to investigate safety and feasibility of percutaneous approach in Hysterectomy. The evolution of MIS passed through reduction of surgical trauma while maintaining adequate efficacy and safety standards. Percutance™, recently introduced in this panorama, consists of a 2.8 mm shaft, percutaneously inserted in the peritoneal cavity, with a retrofitted interchangeable 5mm



Table 1. Baseline characteristics

Number of Patients	20
Age (Year), median (range)	50,5 (72-32)
BMI, median (range)	20 (18-37,9)
Menopause, n (%)	15 (75)
Nulliparous, n (%)	3 (15)
Previous Cesarean Section, n (%)	2 (10)
Previous Abdominal Surgery, n (%)	10 (50)
Indication for surgery, n (%)	
• Early Stage Endometrial Cancer	5 (25%)
• Endometrial Hyperplasia	2 (10%)
• RRS	2 (10%)
• In situ cervical cancer	1 (5%)
Fibromatosis	10 (50%)

The median age of 50.5 years (range 72-32) and a median BMI of 20 (range 18-37.9)

Surgical procedures consisted in Total extrafascial hysterectomy with bilateral salpingectomy (n=5, 25%) or bilateral salpingo-oophorectomy (n=13, 65%) and pelvic lymphadenectomy (2 patients, 15%) when indicated in early stage endometrial cancer staging. A median OT of 67.5 min (range 40-180) and a median EBL of 50 ml (range 50-100) as well as no conversions to standard laparoscopy or laparotomy were registered. Neither intraoperative nor postoperative complications occurred within 30 days after surgery. The median discharge time was 1 day (range 1-2)

Table 2. Perioperative outcomes

Operative Time (min), median (range)	67.5 (40-180)
EBL (ml), median (range)	50 (10-100)
Uterus weight (gr) median (range)	180 (30 – 1360)
Surgical Procedure time (min) median (range)	
• Hysterectomy + BS, n (%)	5 (25)
• Hysterectomy + BSO, n (%)	13 (65)
• Hysterectomy + BSO + pLND, n (%)	2 (10)
Vaginal cuff closure time (min), median (range)	8.5 (4.5-14)
Drainage positioning, n (%)	5 (25)
Conversion to Total Laparoscopy	0 (0)
Conversion to Laparotomy	0 (0)
Intraoperative complications	0 (0)
30-days complications	0 (0)
Discharge time (days), median (range)	2 (1-2)

operative tip: this peculiar technical solution combine needleoscopic micro-invasiveness and 5 mm operative performance.

Design: Prospective case series.

Setting: “Policlinico Gemelli” Foundation, Catholic University of the Sacred Heart of Rome.

Patients: Patients affected by benign or early malignant gynecological diseases, submitted to elective surgical treatment.

Intervention: Hybrid laparoscopic/percutaneous hysterectomy with bilateral salpingectomy/salpingo-oophorectomy and pelvic lymphadenectomy if required.

Measurements and Main Results: Between May 2015 and February 2016, 20 consecutive patients underwent total laparoscopic hysterectomy

Conclusion: Percutaneous approach could represent a safe and feasible option for hysterectomy. Good results in terms of operative time, cosmesis, postoperative pain, recovery and short hospitalization suggest a theoretical advantage respect to other ultra minimally invasive well known techniques



Despite this new tool could be considered a novel and fascinating frontier in the MIS world, further studies are needed to confirm this large preliminary experience.

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A Comparison of Surgical Length in Minimally Invasive Hysterectomy: Total Laparoscopic Hysterectomy vs. Vaginal Hysterectomy



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Study Objective: The main objective of this study is to determine if a statistically significant difference exists regarding surgical length between

patients undergoing minimally invasive hysterectomy, either total laparoscopic hysterectomy or vaginal hysterectomy.

Design: A retrospective analysis of consecutive patients who underwent hysterectomy between 2007 and 2015 was performed; Means, standard deviations and confidence intervals were calculated and a Student's t-test was performed to test differences between means.

Setting: Two private hospitals belonging to a same healthcare system in northeastern Mexico.

Patients: A total 394 patients underwent hysterectomy in the studied time, 165 patients were intervened vaginally and 229 with a laparoscopic route.

Intervention: A complete medical record, both physical and electronic, survey was performed in all patients.

Measurements and Main Results: Population characteristics were as follows for the laparoscopic group: age 44 years (SD=0.52), body mass index (BMI) 27 (SD=0.41), uterine weight 169.27 grams (SD=7.07). Population characteristics for the vaginal group were: age 53.1 years (SD=0.91), BMI 25.98 (SD=0.41), uterine weight 105.47 grams (SD=4.12). A statistically significant difference between mean age, BMI, and uterine weight of both groups was found. Regarding variables in study, a significantly higher surgical time (97.436 vs. 146.301; $p < 0.001$) was found in patients undergoing laparoscopic hysterectomy, compared to those undergoing vaginally.

Conclusion: Evidence suggests that patients undergoing vaginal hysterectomy presented with a statistically significant lower surgical time in comparison with patients who underwent laparoscopic hysterectomy. Nonetheless, patients intervened vaginally belonged to a different subset of the population, presenting at an older age, lower BMI and smaller uteri; it is interesting to note that uterine weight was significantly higher in patients who underwent laparoscopic hysterectomy, somehow contributing to the higher surgical times observed.

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A Comparison of In-Hospital Stay Length in Patients Undergoing Minimally Invasive Hysterectomy: Total Laparoscopic Hysterectomy vs. Vaginal Hysterectomy



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Study Objective: The main objective of this study is to determine if a statistically significant difference exists regarding in-hospital stay between patients undergoing minimally invasive hysterectomy, either total laparoscopic hysterectomy or vaginal hysterectomy.

Design: A retrospective analysis of consecutive patients who underwent hysterectomy between 2007 and 2015 was performed; Means, standard deviations and confidence intervals were calculated and a Student's t-test was performed to test differences between means.

Setting: Two private hospitals belonging to a same healthcare system in northeastern Mexico.

Patients: A total 394 patients underwent hysterectomy in the studied time, 165 patients were intervened vaginally and 229 with a laparoscopic route.

Intervention: A complete medical record, both physical and electronic, survey was performed in all patients.

Measurements and Main Results: Population characteristics were as follows for the laparoscopic group: age 44 years (SD=0.52), body mass index (BMI) 27 (SD=0.41), uterine weight 169.27 grams (SD=7.07). Population characteristics for the vaginal group were: age 53.1 years (SD=0.91), BMI 25.98 (SD=0.41), uterine weight 105.47 grams (SD=4.12). A statistically significant difference between mean age, BMI, and uterine weight of both groups was found. Laparoscopic hysterectomies had a significantly lower hospital-stay (3.285 vs. 2.616; $p < 0.001$).

Conclusion: Evidence suggests that patients undergoing laparoscopic hysterectomy presented with a statistically significant shorter in-hospital stay in comparison with patients who underwent vaginal hysterectomy. Nonetheless, patients intervened vaginally belonged to a different subset of the population, presenting at an older age, lower BMI and smaller uteri; correlations with these findings were not explored. Hysterectomy via laparoscopy presents itself as an ideal route for many patients, with proven benefits associated with minimally invasive surgery including a quicker return to daily activities and shorter in-hospital stay.

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Efficiency of Suture Training on the Outcomes of Laparoscopic Hysterectomy



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Study Objective: Evaluation of efficacy and feasibility of total laparoscopic hysterectomy in a University Hospital and the impact of oriented suture and dissection laparoscopic training on the final results and outcomes.

Design: Retrospective clinical trial.

Setting: All data were obtained at the Santa Casa Medical School

Patients: We selected 320 women submitted to total laparoscopic hysterectomy from 2008 to 2014, but 76 were excluded.

Intervention: The sample of patients was divided into three periods: 2008-2009: surgeries performed by senior doctors, 2010-2011: surgeries performed by 4th year residents not submitted to a specific dissection and laparoscopic suture in pelvic training, 2012-2014: surgeries performed by 4th year residents, who were submitted to specific continued dissection and laparoscopic suture training

Measurements and Main Results: The selected sample consisted of 244 women. Of all patients, 24 in the first period, 55 in the second period and 165 in third one. Descriptive analysis demonstrated that the patients had the same profile as to age, comorbidities, endometriosis, but there was difference in previous cesarian and abdominal surgeries

Conclusion: We observed that laparoscopic suture training applied to our 4th year residents together with standardization of the surgical steps of laparoscopic hysterectomy was effective in the reduction of the surgical time and preservation of the low rate of complications in our department.

Specific pelvic training

Week	Training once a week (4 hours)
First	Romeo's gladiator rule without knot
Second	Romeo's gladiator rule with knot
Third	The needle and its orientation
Fourth	The cross verification maneuver plus deep and superficial suture (stair)
Fifth	Single stitches with knot (number and resistance)
Sixth	Vaginal vault: continue suture (L→R / R→L) and X stitches
Seventh	Miomectomy stitches and Invaginating suture

7 weeks with right hand, 7 weeks with central hand and 7 weeks with left hand

Population characteristics

	2008-2009	2010-2011	2012-2014	
Age (medium)	45,54	44,25	46,55	p>0,05*
Comorbidities	12/24 (50%)	31/55 (56%)	91/165 (55%)	p=0,86**
Endometriosis	3/24 (12,5%)	11/55 (20%)	30/165 (18%)	p=0,72**
Previous Cesaria	9/24 (37,5%)	18/55 (32%)	90/165 (54%)	p=0,02**
Previous Abdominal Surgery	11/24 (45%)	33/55 (60%)	115/165 (69%)	p=0,03**

The significance level accepted was 5% (p<0,05) * T-test ** X² test
The uterine volume was bigger in the first period than the second one (p=0,03), but there was no difference in the uterine volume between the first and the third periods (p=0,99).

Operating time of the last period (2012-2014) was shorter when compared to the second period (p=0,01).

The complication rate was 8% and we observed no difference when the periods were compared.

699

Racial Disparities in the Route of Hysterectomy in an Enhanced Access to Care System: A U.S. Military Analysis



Kern M, Jones-Cox C, Whitehurst S, Lockrow E, Brooks D, Walter Reed National Military Medical Center, Bethesda, Maryland

Study Objective: The purpose of this study was to examine the impact of race on the route of hysterectomy and the use of minimally invasive surgery in the military health system (MHS).

Design: Retrospective cohort.

Setting: The data were obtained from 95 Department of Defense facilities in the MHS, including Army, Navy and Air Force hospitals.

Patients: The study included active duty, retired, and dependent women at least 18 years of age who had a trans-vaginal hysterectomy (TVH), laparoscopic hysterectomy (LH), or total abdominal hysterectomy (TAH) between 2010-2015. A total of 16,998 patient encounters were analyzed. The sample comprised 64.6% White patients, 30.7% Black patients, and 4.7% Asian.

Intervention: N/A.

Measurements and Main Results: Overall, TAH and TVH prevalence have decreased, whereas LH prevalence has increased. Logistic regression confirmed these effects (all ps < .001), finding a yearly decrease in TAH (OR=.87/year) and TVH (OR=.92/year), and a yearly increase in LH (OR=1.22/year).

Despite these general trends, there remains a marked disparity in racial utilization of these various procedures. After controlling for age (OR=1.01/year, p < .001) and encounter year, TAH was less likely in White patients than Black patients (OR=.43, p<.0001) or Asian patients (OR=.428, p<.0001), but of equivalent likelihood in Black and Asian patients (OR=1.02, p=.98).

Conclusion: We examined the route of hysterectomy that had previously been found to co-vary with race and socioeconomic status in a civilian population, to explore whether these variables continued to influence surgery rates in an enhanced access to care system. Race continued to play a strong role on the rates of these surgical procedures, with Whites having fewer invasive procedures than Blacks or Asians. Considering these findings within the US military health system, the route of hysterectomy may be due to other factors such as uterine size or obesity rather than race or socioeconomic status.

700

Spontaneous Uterine Rupture with Previous Laparoscopic Myomectomy Uterine Scar in



Primigravida: Two Cases Report and Literature Review

Wang Y, Yin L. Peking University First Hospital, Beijing, China

Study Objective: Uterine rupture (UR) is a rare and life threatening condition for both the mother and her fetus. Laparoscopic myomectomy is widely used in recent years and it is a common risk factor for UR in addition to Cesarean section. Our objective is to provide reference in similar situation by analyzing and summarizing the risk factors of UR after laparoscopic myomectomy.

Measurements and Main Results: Methods: Retrospectively analyzed two cases of uterine rupture in primigravida with prior laparoscopic myomectomy scar from Jan. 2010 to Dec. 2015 in Peking University First Hospital, summarizing the risk factors of UR after laparoscopic myomectomy and review of the literature.

Results: In both cases, the patients were presented with single intramural myoma located in posterior uterine body. The 5 cm myoma entered the uterine cavity while the 6 cm one did not. The muscular layers were reconstructed using routine two-layered sutures in both cases. One patient had contracepted for 15 months postoperatively and the other patient had less than 6 months of contraception after surgery. Both of the two cases of UR occurred in late pregnancy and got timely diagnosis and treatment, and achieved satisfactory maternal and fetal outcomes.

Conclusion: With the proficiency of laparoscopic skill, the incidence of uterine rupture may be gradually reduced. For infertile women with fibroids, a comprehensive assessment is necessary before surgery, including the location and size of uterine fibroid, operation types and corresponding benefits and complications. Incisions should be strictly sutured and try to avoid coagulation intraoperatively. Once uterine rupture occurred, early diagnosis and prompt treatment is very important to achieve favorable maternal and fetal outcome.

701

Outpatient Hysterectomy in the Ambulatory Surgery Center: A Decade Later, and Still Not Mainstream



Rosenfield RB. Pearl Women's Center, Portland, Oregon

Study Objective: We will present a decade of work in our freestanding ambulatory surgical center with a focus on case volume to date, patient demographics, surgical time, complication rates, and time until same day discharge for over 1000 consecutive laparoscopic hysterectomies performed in our Portland Oregon based institution.

The emphasis of the presentation is a feasibility analysis crossing deeply into our current healthcare system, the need for stewardship in cost effective surgery in growing capitated and narrow network markets.

Design: Retrospective case series over 10 years currently over 1200 consecutive cases.

Setting: Urban free standing ambulatory surgical center private practice consistent surgical team

Patients: 1200 + patients retrospective analysis.

Intervention: Laparoscopic Hysterectomy with same day discharge within 6 hours of surgical completion.

Measurements and Main Results: Age BMI

surgical approach
complication rates
time of surgery
time until discharge

(this data will be calibrated as we have presented in several past meetings, up to date for the Congress).

Conclusion: Outpatient Hysterectomy in an ASC is a feasible and safe, cost effective solution for patient, proven by a decade of cases, and over 1000 patients.

702

Comparison of Surgical Outcomes and Learning Curves for LaparoEndoscopic Single Site (LESS) Total Hysterectomy and Ovarian Cystectomy



Park HT, Kim T, Jang HY, Lee SH, Lee JH. Department of Obstetrics and Gynecology, Korea University College of Medicine, Seoul, Korea

Study Objective: This study describes a surgeon's experience with LESS surgery and compared surgical outcomes and learning curves in major gynecological operations of total hysterectomy (LESS-H) and ovarian cystectomy (LESS-C).

Design: This is a retrospective cohort study.

Setting: University Hospital.

Patients: A total of 276 cases (158 of LESS-H and 118 of LESS-C) was included.

Intervention: Demographics and surgical outcome, and intraoperative and postoperative complications of the patients were analyzed. Patients were arranged in order based on surgery date and then grouped into 4 by the sequence of 6 months.

Measurements and Main Results: The total operative time (min.) was longer in the LESS-H group (126.4 ± 3.2) than the LESS-C group (101.9 ± 4.3). The EBL (ml) was higher in the LESS-H group (314.6 ± 16.4) than the LESS-C group (231.8 ± 20.2). The difference in hemoglobin levels was higher in the LESS-H group (2.0 ± 0.1) than the LESS-C group (1.8 ± 0.1). The hospital stay (days) was longer in the LESS-H group (2.3 ± 0.1) than the LESS-C group (1.8 ± 0.1). The major complications of LESS-H were 2 entry-related bowel injuries, 2 bladder injuries, 1 vesicovaginal fistula, 1 ureterovaginal fistula, and 1 delayed subcutaneous emphysema, and the complication rate was 4.4 % (7 cases) in the LESS-H group and 0% in the LESS-C group. The estimates of half-life analysis of the group learning curves were 6 surgeries for the LESS-H group and 5 endoscopies for the LESS-C group.

Conclusion: The learning curve rates between two groups did not differ much and the overall complication rate of LESS-H (4.4%) is not higher than reported

conventional laparoscopic hysterectomy (0.2% to 10.3%). However, complications of the LESS-H group strongly trended to occur more frequently in the beginning stages. Therefore, an appropriate amount of supervision is needed during the early phase of surgical experience.

703

Comparison Between Histopathological Results and Malignancy Index Risk in Adnexal Complex Cysts Treated by Laparoscopic Surgery



Toledo KL, Audifred JR, Topete RE, Niebla DC, Hernandez SE, Morales L. Endoscopic Gynecology, General Hospital Dr Manuel Gea González, México City, Mexico

Study Objective: To assess the diagnostic efficiency of the malignancy risk index described and validated by Yorito Yamamoto in the detection of ovarian cancer in patients with adnexal complex cysts, which were removed by laparoscopic surgery.

Design: A two-year retrospective, cross-sectional, analytical study.

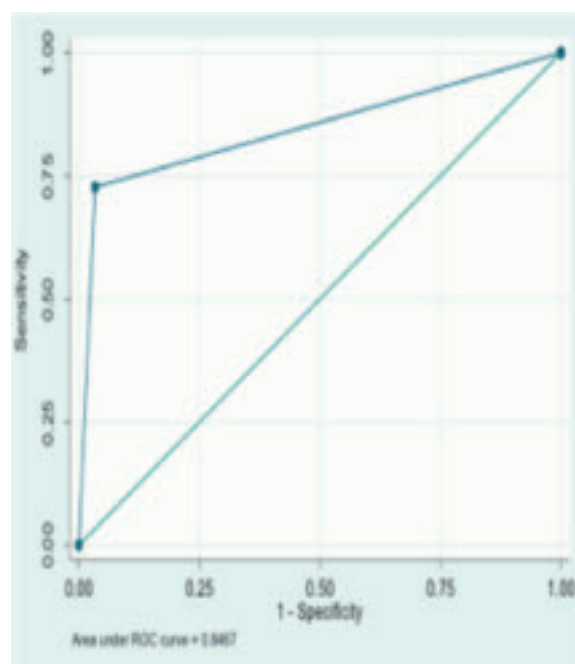
Setting: General Hospital Dr. Manuel Gea Gonzalez, second level care center.

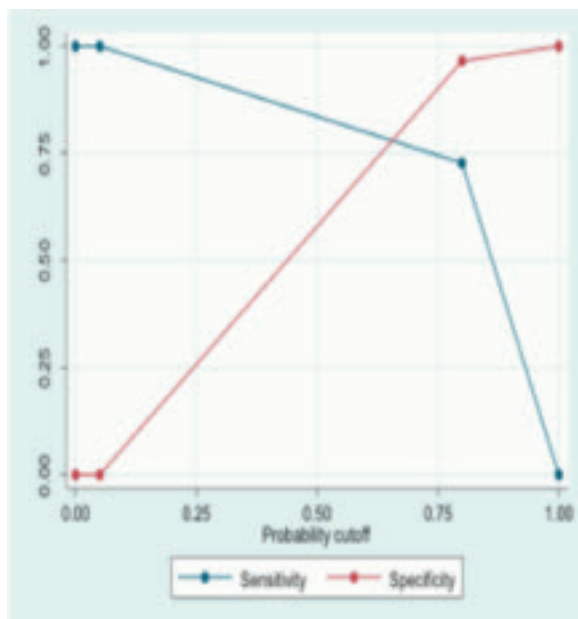
Patients: We included 70 patients with the following criteria: patients with adnexal complex cysts, diagnosed by ultrasound and Ca-125 blood determination, which were removed by laparoscopic surgery. The exclusion criteria were: patients without Ca-125 blood determination, patients with previous diagnosis of ovarian or cervical cancer, patients without pelvic or transvaginal ultrasound at our hospital, previous diagnosis of endometriosis and pregnant patients.

Intervention: Comparison between histological results and malignancy risk index of patients with diagnosis of adnexal complex cysts who underwent laparoscopic intervention surgery.

Measurements and Main Results: We applied the malignancy risk index to 70 patients who underwent laparoscopic intervention for removal of adnexal cysts.

Results showed 34 dermoid cysts (48.57%), 23 endometriomas (32.86%), 4 dysgerminomas (5.71%), 2 Brenner tumors (2.86%), 2 simple cysts (2.86%), 3 mucinous cystadenomas (4.28%) and 2 cystadenocarcinomas (2.86%). Of the 70 patients, 11 had an IMR cutoff above 450, which is suspicious of malignancy (15.72%), and 59 had a IMR cutoff under 450, which suggest that the tumors are benign. With these results we got a sensibility of 72.73% and a specificity of 96.61%. We used a ROC curve with an area under the curve of 0.846.*





Distribution of the histopathological diagnosis of patients with an adnexal complex cysts

Histopathology	Number of patients	Percentages
Teratomas	34	48.77%
Disgerminomas	4	5.71%
Brener Tumors	2	5.71%
Simple Cysts	2	2.86%
Endometriomas	23	32.86%
Cystadenocarcinoma	2	2.86%
Mucinous Cystadenoma	3	4.28

Conclusion: This study shows a 72.73% sensibility and 96.61% specificity for the malignant risk index applied to our population. This clinical tool, already used and validated for the preoperative study of patients with adnexal tumor, is cost effective, can be implemented by gynecologists and can be used for an opportune delivery to an oncologic center.

704

A Case in Which Ectopic Molar Pregnancy Was Treated with Laparoscopic Surgery

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Study Objective: Ectopic molar pregnancies are extremely rare. Recently, we experienced a case in which a tubal ectopic molar pregnancy was successfully treated with laparoscopic surgery. We describe the management of this condition and discuss its postoperative follow-up together with a review of the literature.

Design: We reported a case and thoroughly searched the literature in PubMed and other databases.

Setting: A tertiary care hospital.

Patients: A 41-year-old, gravida 2, para 0, Japanese female that experienced a tubal ectopic molar pregnancy.

Intervention: The patient visited our hospital with a chief complaint of amenorrhea. She did not have any abdominal pain or genital bleeding. Transvaginal ultrasound showed no signs of pregnancy. Since her serum hCG level was 23497 mIU/ml, we suspected an ectopic pregnancy, and so performed laparoscopic surgery. During the procedure, we found a

swollen ruptured left fallopian tube, and so carried out a left salpingectomy. Her postoperative course was uneventful. A histopathological examination showed an ectopic hydatidiform mole. The patient's hCG level decreased immediately after the operation and had fallen below the cut-off level by the 49th postoperative day.

Measurements and Main Results: Tubal molar pregnancy is rare. Only 21 cases have been reported since 1987. In our case, the patient's hCG level was not particularly high. In previous cases, hCG measurements were not always high, which makes it difficult to diagnose this condition preoperatively and suggests that postoperative pathological examinations are necessary. No cases of post-ectopic molar pregnancy choriocarcinoma have been reported, but such disease is theoretically possible. Five of the 21 reported cases were successfully treated with laparoscopy. We also successfully treated our patient using a laparoscopic procedure.

Conclusion: For accurate diagnosis of ectopic-molar pregnancy, clinicians should perform pathological examinations in cases of ectopic pregnancy and monitor the hCG level after the operation. Laparoscopic surgery is useful for treating tubal molar pregnancies.

705

Urinary Tract Fistula After Minimally Invasive Hysterectomy: Presentation and Outcomes

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Study Objective: To describe the presentation and long term outcomes of urinary tract fistulas, an uncommon complication of minimally invasive hysterectomy.

Design: Case Report.

Setting: Academic Affiliated Community Hospital System

Patients: Women who underwent a minimally invasive hysterectomy between August 2013 to March 2016. Review of these 1814 charts revealed two cases of urinary tract fistulas.

Intervention: Minimally Invasive Hysterectomy.

Measurements and Main Results: Here we describe the two cases of urinary tract fistulas after a robotic-assisted radical hysterectomy and a laparoscopic assisted vaginal hysterectomy. The rate of fistula formation was 0.001%.

Bilateral ureteric injury after robotic type III radical hysterectomy presented 2-weeks post operatively as urosepsis and leakage of urine vaginally. CT Urogram confirmed ureterovaginal fistula, which was managed with bilateral ureteral stenting and eventual ureteral re-implantation 23 days after hysterectomy. Long-term outcome after repair include recurrent pyelonephritis and voiding dysfunction.

The other patient underwent a laparoscopic assisted vaginal hysterectomy complicated by an intra-operatively diagnosed posterior bladder laceration, repaired primarily by urology. She presented 4-weeks post-operatively with vaginal leakage of urine. Cystogram confirmed vesicovaginal fistula. The vesicovaginal fistula was managed with Latzko repair per urogynecology 56 days after hysterectomy. Outcome after injury includes asymptomatic vesicoureteral.

Conclusion: Urinary tract fistula is an uncommon complication after hysterectomy. Diagnosis and treatment of urinary tract injury at the time of hysterectomy is imperative, but may not always prevent fistula formation. Even with successful repair, patients continue to have long-term urologic dysfunction sequelae.

706

Feasibility and Safety of Laparoscopic Hysterectomy for Uteri Weighing ≥ 1 kilogram

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Study Objective: To evaluate the feasibility and safety of laparoscopic hysterectomy for uteri weighing ≥ 1 kilogram.

Design: Retrospective cohort study.

Setting: Surgery database of a tertiary hospital of a University from January 2011 to December 2015.



Patients: We examined the records of patients with uteri weighing ≥ 1 kilogram underwent hysterectomy by laparoscopy or laparotomy.

Intervention: Hysterectomy.

Measurements and Main Results: A total of 26 patients with uteri weighing ≥ 1 kilogram underwent hysterectomy was identified. 11 were performed by laparoscopy and 15 were by laparotomy.

Two groups did not differ in demographics, medical and surgery history, indication or surgeon. As anticipated, laparoscopic cases had higher estimated blood loss (613.3 ± 25.2 ml versus 155.3 ± 25.2 ml, $P < .0001$), longer operative time (254.54 ± 40.7 min versus 130.54 ± 40.7 min, $P < .0001$), and higher rates of transfusion (36% versus 6%, $P < .001$).

Conclusion: Laparoscopic hysterectomy for uteri weighing ≥ 1 kilogram is feasible and safe enough when performed by an expert surgeon. However laparoscopic hysterectomy has higher rates of hemorrhage and blood transfusion and longer operative duration compared to that of abdominal hysterectomy. Anticipation of a larger uterus can guide referral patterns and pre-surgery counseling, as well as the implementation of preventive measures for hemorrhage and transfusion.

707

Laparoscopic Excision of Ectopic Pregnancy in the Cesarean Section Scar Pregnancy: A Case Series



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Study Objective: Ectopic pregnancy (EP) in a previous Cesarean section scar (CS) is a rare condition and present a challenging management. Our objective is to report on our experience with endoscopic removal of ectopic pregnancies implanted in the Cesarean scar with subsequent reconstruction of the uterine wall defect.

Design: Descriptive retrospective series.

Setting: Tertiary care academic center

Patients: Five women with ectopic pregnancy implanted.

Intervention: We report on laparoscopic and hysteroscopic resection of implanted ectopic pregnancy in the CS with subsequent uterine wall reconstruction.

Measurements and Main Results: All patients diagnosed with EP in a CS from April 2013 to December 2016 in our Hospital were evaluated. We describe the surgery techniques associated to medical treatment with systemic and local methotrexate (MTX) in select patients. We analyzed patients demographics, preoperative imaging, intraoperative parameters, and obstetrical outcomes. The endoscopic treatment involved laparoscopic surgery assisted by hysteroscopy.

Patients who were not interested in future fertility were managed with immediate hysterectomy.

The median age was 38, 2 years (range, 33–43). The median gestational age was 8, 2 weeks (range, 7, 4–9). All patients were diagnosed with USG and

MRI. A total of 3 patients underwent medical therapy with one cycle of MTX prior to surgical intervention. The median time from medical therapy to surgery was 18.3 weeks (Range 8–24). A total of 4 patients retained their fertility and one patient underwent a hysterectomy.

The median operation time was 116 min (range 70–210). The median length of hospital stay was 2,4 days (Range 1–7). There was not intraoperative or postoperative complications.

One patient became pregnant after conservative management.

Conclusion: Endoscopic resection of ectopic pregnancy in Cesarean section scar is feasible in select patients. Fertility preservation options are viable after conservative management.

708

Age as a Positive Correlation Factor for Longer In-Hospital Stay in Patients Undergoing Laparoscopic Hysterectomy



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Study Objective: The main objective of this study is to determine if a correlation exists, if any, between in-hospital stay and the patients' age in patients undergoing laparoscopic hysterectomy for benign gynecologic disease.

Design: A retrospective analysis of consecutive patients who underwent hysterectomy between 2007 and 2015 was performed; Means, standard deviations and confidence intervals were calculated and Pearson's correlation test was performed to explore correlations between variables, establishing a p-value at 0.05.

Setting: Two private hospitals belonging to a same healthcare system in northeastern Mexico.

Patients: A total 229 patients underwent hysterectomy for benign gynecologic disease in the studied time.

Intervention: A complete medical record, both physical and electronic, survey was performed in all patients.

Measurements and Main Results: Mean population variables were as follows: age of 44 years (SD 0.52; CI 44.11–45.83) with a mean in-hospital stay of 2.61 days (SD 0.06, CI 2.52–2.71). A statistically significant positive correlation between patient age and in-hospital stay was found ($p=0.005$).

Conclusion: Analysis of data suggests evidence of a statistical significant positive correlation between patient age and in-hospital stay. Our results reflect a shorter in-hospital stay in younger patients compared to that older patients; Age has been associated with a longer time of recovery and return to daily activities, in part due to comorbidities associated with the aging process and a higher prevalence of chronic-degenerative disease. Thus, age must be considered an important factor in patients undergoing minimally invasive surgery, and this variable must be taken into account during surgical planning and patient education.

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Laparoscopic Extraction of Retroperitoneal Tooth



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Study Objective: To review the evidence of cases of isolated retroperitoneal teeth and its laparoscopic appearances.

Design: Case history and literature review.

Setting: Operating theatre

Patients: A 30 year old woman presented with secondary dysmenorrhoea, chronic left iliac fossa pain and deep dyspareunia.

Laparoscopic ovarian cystectomy was performed by de-roofing and aspiration. In addition a mass was noted in the retroperitoneum in the left pararectal space. Retroperitoneal dissection was performed and a formed premolar tooth was subsequently extracted via the umbilical port.

Intervention: The reporting of pelvic extra ovarian teeth is extremely rare. It is believed the mechanism of extraovarian pelvic teeth is due to either an inflammatory process being associated with a dermoid cyst and spontaneous spillage of contents or, more frequently, spillage at the time of operative intervention. It is believed that operative spillage of dermoids is becoming more common with the increasing application of laparoscopic surgery. (Nezhat et al 1999).

There is only one case reporting extra ovarian pelvic teeth (Flood et al 2010), in which a woman was found to have an pelvic abscess associated with the dermoid, which likely resulted in the spilling of the teeth.

Reabsorption of ectopic teeth does not seem to occur presumably because the tooth is not exposed to macrophages and odontoclasts.

Conclusion: In the presence of a history of a previous dermoid, it would seem prudent to look for features of a dermoid if the patient is found to have a cyst at a later date. In light of this case, it would also appear sensible to consider the possibility of extra ovarian teeth if any pelvic hyperechoic structures are noted on ultrasound, particularly if a second pathology is considered. This may necessitate the addition of plain x-rays.

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Utility of Laparoscopic Resection of Ovarian Metastasis for Primary Tumor Identification



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Study Objective: Metastatic ovarian tumors can develop, although rare, from primary malignant tumors in the gastrointestinal tract. Differential diagnosis between primary and metastatic ovarian tumors is important. Identification of the primary tumor can be achieved through tissue extraction during laparoscopic surgery in some patients suspected to have a gastrointestinal cancer, despite it not having been identified by upper and lower gastrointestinal endoscopy.

Design: Case Presentation.

Measurements and Main Results: A 60-year-old woman presented to the department of internal medicine with chief complaints of abdominal pain and weight loss. CT showed thickening of the stomach wall, peritoneal dissemination, and irregular masses in the pelvis. Gastric cancer was initially suspected and the patient underwent upper gastrointestinal endoscopy, which showed ulcerative lesions, but no malignancy was detected on biopsy. We performed laparoscopic surgery with the aim of making the differential diagnosis between primary and metastatic ovarian tumors. Intraoperative observation showed mildly swollen ovaries and a small amount of ascites. Peritoneal disseminated lesions, including a white lesion measuring 6 cm in size in the greater omentum, were numerous. The stomach showed no signs of gastric cancer, although accurate observation was difficult due to the tight adhesion between the appendix and colon. The patient underwent bilateral adnexectomy and was histopathologically diagnosed with metastatic adenocarcinoma originating from colon cancer. After surgery, we performed lower gastrointestinal endoscopy but could not confirm the primary lesion due to colonic stricture resulting from disseminated lesions. Based on the histopathological examination of the ovarian specimens, the patient was diagnosed as having colon cancer with metastases. Chemotherapy was started 15 days after surgery according to the guidelines for colon cancer.

Conclusion: Laparoscopic adnexectomy, a surgical technique for ovarian tumors, is potentially useful for diagnosing other malignancies. In addition, the minimally-invasive nature of laparoscopic surgery allows patients to start treatment for their primary disease promptly after surgical resection.

711

Features of Surgical Treatment of Uterine Myoma After Previously Performed Inefficient UAE and MRgFUS Ablation



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Study Objective: To estimate the character of the changes of the reproductive system in women who have previously undergone ineffective UAE, MRgFUS ablation, and myomectomy on the basis of intraoperative and morphological observations.

Design: Retro- and prospective cohort study.

Setting: Federal State Institution, Research Center for Obstetrics, Gynecology, and Perinatology (Moscow, Russia).

Patients: 110 women with a history of ineffective treatment of uterine fibroids by UAE, MRgFUS ablation, and myomectomy conducted between 2008 and 2013. Group I included 32 patients with a history of UAE; Group II included 26 patients with a history of MRgFUS ablation of fibroids; and Group III included 52 patients who had previously undergone myomectomy.

Intervention: All of patients underwent myomectomy after previous intervention was found to be ineffective.

Measurements and Main Results: Age of the women ranged from 22 to 40 years. The main complaints were menorrhagia (80.2%), pelvic pain (70%), and infertility (95%). 40% of patients who had previous UAE were found to have multiple conglomerate-forming fibroids with pronounced signs of secondary changes. Secondary changes in myoma were found in 26% of women after MRgFUS ablation. 23% of patients in the group with previous UAE and 65% of patients with previous MRgFUS revealed multiple uterine fibroids. Increased diffuse myometrial bleeding was observed in 46.0% of patients in the UAE group.

Conclusion: This study demonstrates the necessity of future research, including the development of clear indications for UAE and MRgFUS ablation in reproductive-age patients. There is also a need to clarify the effect of the above methods on the condition of the endometrium, myometrium and ovarian function.

712

Extrauterine Spread of Benign Leiomyomas Following Endoscopic Power Morcellation for Uterine Disease: Case Report and Review of the Literature



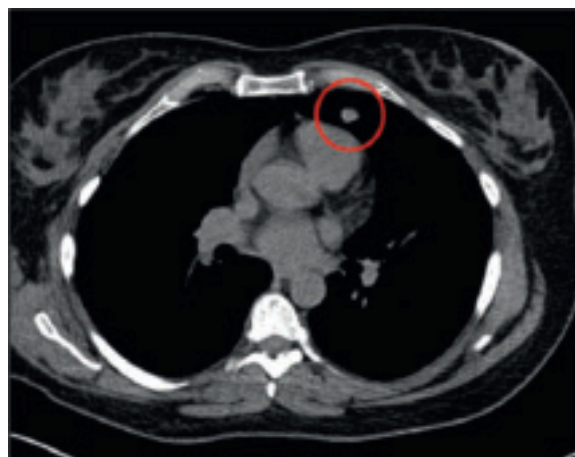
Park BY, Cornella JL, Leslie KO. Gynecology and Pathology, Mayo Clinic Arizona, Phoenix, Arizona

Study Objective: Benign metastasizing leiomyoma and other extrauterine spread of leiomyoma are rare. It most often occurs in premenopausal women with a history of fibroid surgery. We report a rare case of simultaneous leiomyomatosis to the lungs and abdominal cavity following a laparoscopic myomectomy with power morcellation.

Design: Case report and review of literature.

Setting: Tertiary care, academic hospital.

Patients: The patient is a 42 year old female who had undergone a laparoscopic myomectomy with power morcellation for enlarging myomas. A year following her myomectomy, a chest CT showed bilaterally scattered lung nodules, largest measuring 13mm



Biopsy confirmed benign leiomyoma with immunohistochemistry showing smooth muscle, desmin, estrogen/progesterone receptors and Wilms tumor antigen positivity.

Intervention: A robotically assisted hysterectomy with bilateral salpingo-oophorectomy was performed to exclude other uterine pathology and to induce surgical menopause. Leiomyomatous implants measuring up to 2.4 cm were observed along the small and large bowel mesentery and the bladder peritoneum. These lesions were fully resected at the time of surgery. Pathologic review confirmed benign leiomyomata of all lesions, none atypical.

Measurements and Main Results: Serial CT images of the chest at 1 month, 4 months, and 10 months from surgery revealed stabilized and slightly reduced lung pulmonary nodules without progression. There were no new lesions on CT of the abdomen.

Conclusion: The occurrence of metastatic leiomyomas is extremely rare. Why this rare subset of leiomyomas is different and prone to metastasis remains unknown. There are multiple theories of pathogenesis but metastatic spread is likely multifactorial. Reported cases of disseminated peritoneal leiomyomatosis have been increasing with the introduction of power morcellation and may occur in up to 1.2% of myomectomies using power morcellation. Metastatic leiomyomas can present decades from surgery. Given the very recent decline of power morcellation use, we will likely continue to find this phenomenon in the coming years.

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Torsion of Myoma in a Woman with Mayer-Rokitansky-Kuster-Hauser Syndrome: Case Report



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Study Objective: Mayer-Rokitansky-Kuster-Hauser Syndrome is a rare disorder and described as hypoplasia of uterus and vagina due to an early arrest in development of müllerian ducts. Women with this syndrome has normal ovarian functions and underdeveloped vagina. There are a few reports that fibroids and adenomyosis rarely develop in the rudimentary nonfunctioning uterus. We report a case of torsion of myoma in a woman with Mayer-Rokitansky-Kuster-Hauser syndrome.

Design: Case report.

Setting: Department of Obstetrics and Gynecology, Toho University Medical center Omori hospital

Patients: A 24 year-old woman with MRKH syndrome presented with lower abdominal pain. She had created neovagina when she was 20 year-old and there were no pelvic mass are founded at that time.

Intervention: Clinical examination, MRI, Ultrasonography, Laparoscopy.

Measurements and Main Results: Ultrasonography and MRI confirmed the existence of a solid mass with dimension 80mm at the right adnexa area. MRI confirmed normal size of bilateral adnexa.

In this case, laparoscopy revealed a solid mass originating from the right uterine remnant. The solid mass were laparoscopically excised.

The histopathological examination of the solid mass confirmed the diagnosis of a leiomyoma.

Conclusion: In rare cases, leiomyomas can originate from the fibromasular tissue of uterine remnants and had torsion in patients with MRKH syndrome.

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Hysterectomy: Technicity Index and Safety at a Tertiary Care University Affiliated Teaching Hospital in Ontario



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Study Objective: Both laparoscopic and vaginal hysterectomies are considered minimally invasive procedures. The technicity index (TI) is defined as the number of minimally invasive, over the total number of hysterectomies.

The objectives of this study were to assess the technicity index at Western University and to assess indications for choice of either approach. We

compared overall safety and outcomes from all hysterectomies performed over 3 years.

Design: Retrospective chart review (Canadian Task Force level II-b).

Setting: Two University Affiliated Teaching Hospitals.

Patients: Pre- and post-menopausal women who had a hysterectomy for benign gynecologic reasons between Jan 2010-Dec 2013. Oncologic and urogynecologic cases were excluded.

Intervention: After REB approval (REB # 106262), 387 patient charts were identified and audited from central patient records.

Measurements and Main Results: 179 hysterectomies were performed via a minimally invasive approach, overall TI (179/387,0.46). Women with abnormal uterine bleeding (n=226) had the highest indication for an MIS approach; TI (139/226, 61.5%, p<0.001) (83% performed vaginally). Women with uterine fibroids (n=73), had the lowest indication for MIS approach (6/73, 8.2%, p<0.001). Significantly heavier uteri were removed abdominally (381.8 +/- 404 gm) compared to MIS(143.1 +/- 99.3 gm) (p<0.001). Lysis of Adhesions was reported more commonly in abdominal procedures (23.2%) vs MIS procedures (12.8%) (p=0.009). MIS hysterectomy was associated with decreased blood loss (22.6 g/dL vs 25.7 g/dL, p=0.01), and shorter hospital stay (1.37 days vs 2.9 days, p<0.001). There were no significant differences in intra or post-operative complications between MIS and abdominal hysterectomy but vaginal hysterectomy was associated with lower Clavien Dindo Class I complications compared to the laparoscopic group (4.4 % vs 18.2%, p=0.009).

Conclusion: Proper patient selection is the most valuable tool for clinicians when choosing mode of hysterectomy. Vaginal hysterectomy remains the preferred mode of MIS approach when comparing costs, complications and patient outcomes.

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A Review of Single Surgeon's Experience of Laparoscopic Adnexal Surgery in 136 Patients



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Study Objective: To identify the types of laparoscopic adnexal surgery being performed and the associated pathology. To analyse indications, patients who had previous laparotomies, bed stay and complications.

Design: A retrospective chart, electronic and histopathology review, in laparoscopic adnexal surgeries performed between 2008 and 2014.

Setting: Gynaecology Department of a United Kingdom District General Hospital

Patients: 136 patients had laparoscopic adnexal operations (excluding ectopic pregnancies) over a six year period under a single surgeon.

Measurements and Main Results: 136 cases were identified. Patient mean age was 40 years (range 20 - 81), average BMI was 26 (range 18-44). 63/136 (46 %) patients had previous laparotomies.

Bilateral salpingo-oophorectomy was the commonest operation in 69/136 (51%), unilateral adnexectomy accounted for 31/136 (23%), unilateral cystectomy 22/136 (15%), endometrioma cyst ablation 9/136 (7%) bilateral cystectomy 5/136 (4%).

Pain was the most common indication for surgery in 97/136 (71%) of cases. Prophylactic surgeries performed for a strong family history of breast or ovarian cancer, a personal previous history of breast carcinoma and/or oncogene carriers for BRCA 1/2 accounted for approximately one quarter of patients 35/136 (26%). Miscellaneous reasons accounted for 4/136 (3%). The commonest pathological cyst identified was serous cystadenoma 41/136 (30%), dermoid 14/136 (10%), endometrioma 14/136 (10%) and mucinous cystadenoma 12/136 (9%). There were 3/136 (2%) unexpected malignancies, two tubal and one ovarian. CA125 was performed in 71/136 (52%) patients and elevated in 17/71(24%) and raised in only one of the malignancies.

Patient discharge within 24 hours of the operation was achieved in 81/136 (60%). No major complications occurred.

Conclusion: Over half of cases can be discharged within 24 hours. Laparoscopic adnexal surgery can be carried out safely in women with previous laparotomies (almost half of this cohort) with increased BMI. Unexpected malignancy should always be factored into the care of these patients.

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Incidence of Oophorectomy and Ovarian Pathology Comparing Vaginal versus Laparoscopic Hysterectomy: The Advantage of Minimally Invasive Approach



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Study Objective: To evaluate the incidence of oophorectomy and ovarian pathology comparing vaginal versus laparoscopic hysterectomy.

Design: A case-controlled, retrospective and descriptive analysis.

Setting: Private institution hospital in Monterrey Mexico

Patients: 244 total laparoscopic hysterectomies and 170 vaginal hysterectomies from January 2007 to January 2015.

We analyze our data with statistical software Quickcalcs by Graphpad. (2015). A Fisher's exact test and a contingency table to compare a categorical variables. A statistical significant p value was considered >0.05 establishing a 95% confidence interval. (CI).

Intervention: Vaginal hysterectomy vs Laparoscopic hysterectomy, and the incidence of oophorectomy and ovarian pathology.

Measurements and Main Results:

The surgical finding of ovarian cancer was positive in two cases in the laparoscopic Group and no cases in the vaginal Group. (p0.50). The

incidence of salpingectomy in both groups was 2.3% in vaginal versus 22.5% in laparoscopic hysterectomy. (p 0.0001).

Conclusion: Besides vaginal hysterectomy is the preferred approach for benign conditions (in selected cases), an advantage of the laparoscopic approach, is that we are able to perform a better visualization of the pelvic structures, guiding us the decision of removing one or two ovaries during the procedure.

Oophorectomy, rather than salpingo-oophorectomy is easily carried out through the vagina, and requires an excision margin through the ovarian hylum,

That leaves the possibility of partial oophorectomy. Thus, probably affecting the incidence of remnant ovary syndrome and ovary cancer on the future.

Incidence N= 414

	Vaginal n=170.		Laparoscopic n=244.		P value
	n	%	n	%	
Oophorectomy	9	5.2	27	11	0.054
Age <50 years	2	1.1	20	8.1	
Age >50 years	7	4.1	7	2.8	
Single Oophorectomy	5	2.9	23	9.4	
Bilateral Oophorectomy	4	2.3	7	2.8	
Bilateral Salpingectomy	4	2.3	55	22.5	0.0001*
Malignant diagnosis	0	0	2	0.8	0.50

* Significant p value >0.05.

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Laparoscopic Myomectomy Using a Cell Salvage Device: Do Patients Benefit from Its Use?



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Study Objective: Describe postoperative outcomes of laparoscopic myomectomy using a cell salvage device (ICS) and identify which patients benefit from its use.

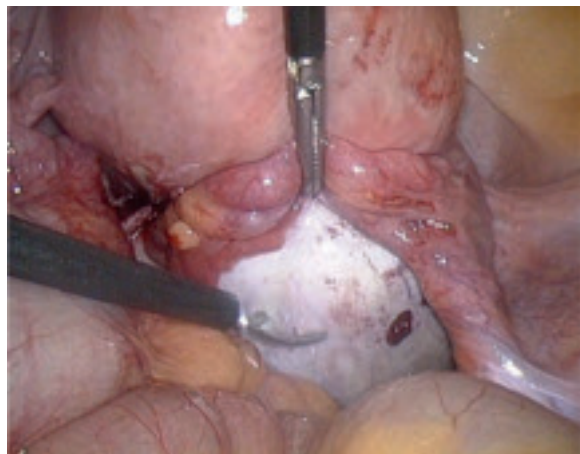
Design: Retrospective cohort study.

Setting: Academic affiliated community hospital.

Patients: Premenopausal patients over 18 years old with uterine myomas and fertility desire who underwent laparoscopic myomectomy between March 2012 and 2015.

Intervention: Implementation of a Cell Salvage device during laparoscopic myomectomies to improve hemodynamic postoperative outcomes.

Measurements and Main Results: A total of 63 consecutive patients underwent laparoscopic myomectomy by the same surgeon and were included for the analysis. Patients were divided in two groups: The ICS



Demographic Characteristics of the Sample

Variable	Vaginal n=170.			Laparoscopic n=244.		
	Mean	SD	Min/Max	Mean	SD	Min/Max
Age (years)	53	11.6	28/87	44	7.8	27/76
BMI	25	5.2	16.6/55.2	27	5.1	18/41
Gesta	3	1.8	0/13	2.9	1.7	0/13
Para	2	1.7	0/9	1.3	1.7	0/11
Prior C Sections	0.3	0.7	0/3	1.2	1.2	0/4
Abortions	0.4	0.8	0/4	0.4	0.8	0/6
Prior Surgeries	1.4	1.3	0/6	2.5	1.7	0/10
Uterine weight (gr.)	105	52.9	28/446	169.2	106.9	34.1/766.8
Hospital days	3.2	1.0	2/8	2.6	0.8	1/7
Surgical time (min.)	97	41.26	30/310	146.3	45.1	50/350
Bleeding (ml.)	210	130.2	0/1000	190	208.2	0/1500

The incidence of oophorectomy in vaginal hysterectomy Group was 5.2% and in total laparoscopic hysterectomy was 11.0% (p 0.054). The incidence of oophorectomy in patients with less than 50 years was 1.1% for vaginal and 8.1% for laparoscopic. The most common causes of oophorectomy in this study were Prophylactic oophorectomy, Serous cysts, haemorrhagic cysts, endometriotic cysts, and malignant pathology (Brenner's tumour, and Granulosa cell tumor.)

group included 29 patients in whom the ICS was used, and the non-ICS group which included 34 patients. Both groups were similar except for: pre surgical anemic status; [51 % in the ICS group vs. 26% in the non-ICS group (p 0,04)] and intramural myoma size; there were bigger myomas in the ICS group [74 mm vs 55 mm (p: 0,036)]

Intraoperative outcomes were similar in both groups.

In the ICS group an average of 394 ml of red cell concentration was reinfused during surgery.

There were no differences on postoperative outcomes. No complications related with the ICS were registered.

There were no differences in iron infusion and red blood cell transfusion between groups.

Conclusion: It is not uncommon that patients with uterine fibroids are anemic at time of surgery because of symptoms caused by the myomas. We know that this type of procedure might have an important blood loss which can required transfusion.

In spite of ICS group patient were more anemic and had bigger myomas, there were no differences between the groups in terms of iron infusion and transfusion rates.

ICS can be consider for patients with higher risk of intraoperative blood loss, specially for those who refused heterologous transfusions.

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D50%: A Crystal Clear Vision During Intraoperative Cystoscopy



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Study Objective: To describe our experience using 50% dextrose as distention media during cystoscopy for assessment of ureteric patency.

Design: Case series study.

Setting: Advanced laparoscopy and pelvic floor reconstruction fellowship program.

Patients: 69 consecutive patients who underwent vaginal, laparoscopic or abdominal hysterectomy and related procedures.

Intervention: Patients who underwent hysterectomy from 3 different routes were identified. At the end of the procedure, a solution of 100 cc of D50% plus 300 cc of normal saline (NS) was placed into the bladder through the indwelling catheter, at the same time, all patients received furosemide 20 mg IV given by the anesthesiologist. The catheter was removed and cystoscopy was performed. If the ureteral jet was not visualized, indigo carmin was given IV to change the color of the urine.

Measurements and Main Results: We were able to visualize ureteral jets in 68 patients 99.2 % of the time (137 ureters). There was one case in which the left ureter jet was not seen. The ureter was then inspected laparoscopically and was noted kinked by a close stitch that was placed in the left utero-sacral ligament. After removal of the stitch the left ureter jet was soon visualized on repeated cystoscopy. We encountered no complications as a result of using D50% as distention media.

Conclusion: We conclude that D50% should be considered as an effective alternative to improve visualization of ureteric jets during intraoperative cystoscopy.

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Laparoscopic Primary Repair of Distal Ureter Injury During Bilateral Oophorectomy



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Study Objective: To show the case of laparoscopic primary repair of distal ureter injury during bilateral oophorectomy.

Design: We demonstrate step by step procedure of laparoscopic ureteroureterostomy technique.

Setting: The patient was 61 years old with BRCA1 mutation. A 12mm trocar was placed at left lower quadrant. Three 5mm trocars were placed at right lower quadrant, subumbilicus, and suprapubic area.

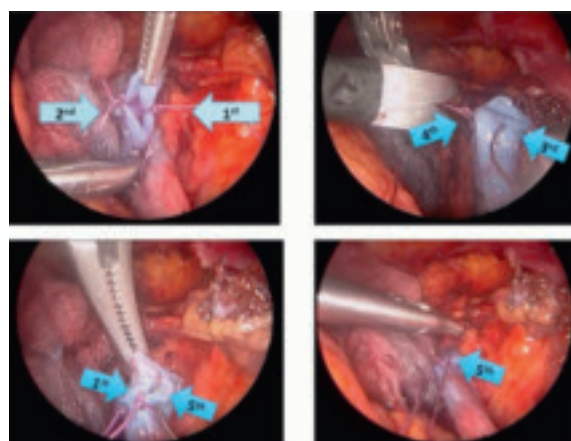
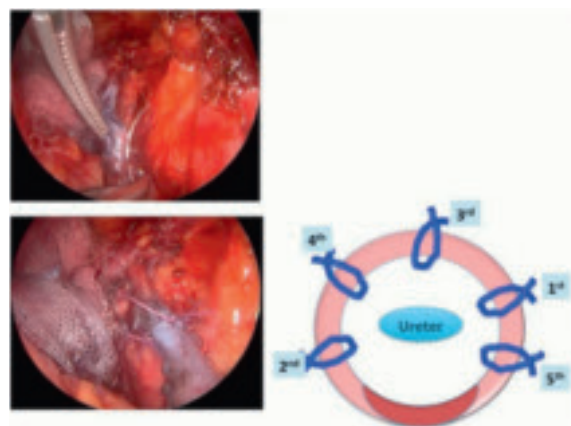
Patients: She underwent a surgery due to ovarian cyst rupture, but she didn't know which organ was removed. She also undertook open adhesiolysis due to bowel obstruction immediately after previous surgery. To make a decision for surgical procedure, magnetic resonance imaging (MRI) was performed. In MRI, left ovary with 0.5cm-sized simple cyst, right ovary, and subtotal hysterectomy status were found. To show the case of laparoscopic primary repair of distal ureter injury during bilateral oophorectomy. As expected, severe abdominal adhesions were found. Adhesiolysis and left oophorectomy was followed by right pelvic wall exploration with retroperitoneal approach. During identification of right infundibulo-pelvic ligament, the right ureter was transected obliquely by laparoscopic scissors without thermal injury.

Intervention: Although traditional management of ureter injury was open surgery, we decided to perform a laparoscopic repair with delayed absorbable suture.

Foley catheter was inserted because intraoperative retrograde pyelogram showed minimal leakage at the low pressure after completion of repair.

Measurements and Main Results: Laparoscopic repair of ureteral injury during gynecologic surgery was performed successfully. CT urography showed neither leakage nor obstruction at 2 weeks of repair.

Conclusion: Traditional open ureteroureterostomy could be substituted by laparoscopic repair.



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Different Laparoscopic Surgery for Hydrosalpinx and Their Reproductive Outcome: An Analysis of 77 Cases



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Study Objective: To study the reproductive outcome of infertile women suffered from hydrosalpinx treated by laparoscopic salpingotomy or salpingectomy.

Design: Retrospective study.

Setting: Teaching hospital.

Patients: There were 77 infertile women diagnosed hydrosalpinx by HSG or B ultrasonography and excluded from other infertile factors.

Intervention: Unilateral or bilateral salpingotomy or salpingectomy was performed after hydrosalpinx confirmed by laparoscopy. Seventy-seven patients were followed up for 1-4 years postoperatively.

Measurements and Main Results: Among 77 cases 39 cases (50.64%) got pregnancy. 13 cases (16.88%) conceived spontaneously and 26 cases (33.76%) conceived by IVF-ET (in vitro fertilization and embryo transfer). 35 cases delivered health babies and 4 cases going on pregnant.

Conclusion: Laparoscopic surgery is an effective treatment of hydrosalpinx results in infertility. After operation the pregnant rate of those conceived by IVF-ET is higher than spontaneously.

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Regional Anesthesia for Gynecologic Laparoscopy: Is It a Viable Alternative?



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Study Objective: To determine if regional anesthesia is an alternative to general anesthesia for patients undergoing gynecologic laparoscopic surgery.

Design: N/A

Setting: Research and Training Hospital

Patients: 3 patients -those whom have a fear of general anesthesia- were undergone gynecologic laparoscopic surgery under regional anesthesia.

Intervention: N/A

Measurements and Main Results: Laparoscopic surgery (2 laparoscopic hysterectomy, 1 laparoscopic myomectomy) was performed uneventfully under combined anesthesia. When material weight and complexity of the performed operation taken into account, operating times were comparable with the ones performed under general anesthesia. The regional anesthesia technique provided a significant effect on postoperative pain.

Conclusion: Laparoscopy has emerged as the preferred operative approach for most of gynecologic pathologies. It is generally an accepted rule in order to perform gynecologic laparoscopic surgery that all patient should undergo general anesthesia without exception. This understanding might alter the preferred surgical approach especially for patients with pre existing comorbidities. Either general or regional anesthesia has the potential to complicate surgery, therefore all of the factors such as preexisting comorbidities, patient's choice as well as surgeon's and anesthesiologist's choice must be taken into consideration. Combined anesthesia is a feasible and reliable method for both surgeons and patients. Absence of postoperative pain and early recovery are the most beneficial results of regional anesthesia. Further studies applying this technique in more patients should be conducted.

Table 1
Patient Characteristics

Case	Age	Operation Type	Operating Time	Minor/Major Complications	Tredelenburg Angle	Material Weight	Mean Intraabdominal Pressure
1	37	Total Laparoscopic Hysterectomy	71 minutes	None	25-30°	Uterus: 150gr	12-14 mmHg
2	41	Total Laparoscopic Hysterectomy	212 minutes	None	25°	Fibroid: 143gr	10-14 mmHg
3	30	Laparoscopic myomectomy	214 minutes	None	25°	Uterus: 453gr	10-14 mmHg

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Laparoscopic Outcomes in Patients with Pelvic Inflammatory Disease



Hernandez SE, Audifred JR, Niebla D, Topete R, Morales L, Toledo KL. Endoscopic Gynecology, General Hospital Dr Manuel Gea González, Mexico City, Mexico

Study Objective: To identify laparoscopic findings in patients with diagnosis of pelvic inflammatory disease.

Design: A 3 year retrospective observational descriptive study.

Setting: General Hospital Dr. Manuel Gea González, second level care center.

Patients: We included 16 patients who underwent laparoscopic surgery with the following criteria:

diagnosis of pelvic inflammatory disease according to CDC criteria, between 15 to 50 years old, since 2012 to 2015.

Intervention: We identified the rates of: Blood loss, surgical time, postoperative complications, need for laparotomy, mean hospitalization time, surgical findings, isolated organism in each patient and postoperative fever. Also we identified the risk factors of each patient for having developed the disease.

Measurements and Main Results: All the patients had the following risk factors:

The mean age was 34 years old, more than 2 sexual partners, use of intrauterine device (maximum 30 years minimum 3 years).

The surgical findings were: 5 patients had postoperative fever (31.25%), bilateral abscesses 87.5%, and unilateral abscess in 87.5%, mean blood loss 135 cc. We diagnosed third stage PID in 87.5% and fourth stage in 12.5 %.

The antibiotic therapy regimens were: clindamycin + gentamicin (56%), ceftriaxone and metronidazole (25%), clindamycin + gentamicin + doxycycline (12.5%), etarpenem (6.5%).

Detected microorganisms were: E.coli (31.2%), Bacteroides ovatus (6.2%), S. pyogenes (6.2%), 56% showed no growth of microorganisms in culture. Mean hospitalization time was 9 days (maximum 14 days, minimum 2 days).

Only one patient had intestinal serosa lesion.

Conclusion: We ascertained that minimally invasive surgery reduces postsurgical complications as there is less handling tissues, better soft tissue management, avoid drainage of purulent fluid, improve excision of adhesions and a best visualization of the pelvic anatomy.

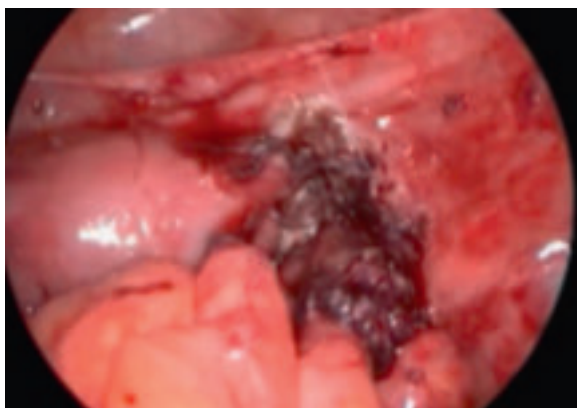
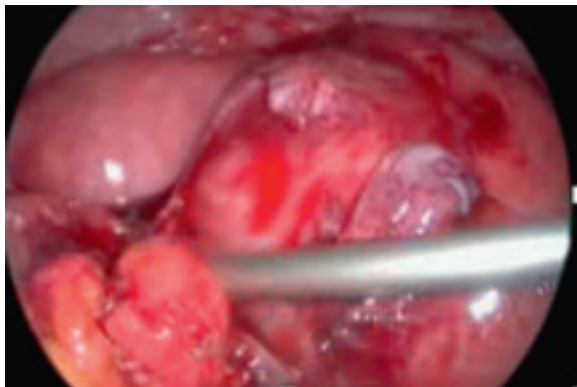
We need further studies to unify the medical and surgical treatment in these patients.

Hospitalization Time

Days	Patients
1-2	1
3-5	11
6-8	2
>9	2

Microorganisms Founded

Bacteria	Number of patients isolated
Escherichia coli	5
Bacteroides ovatus	1
Streptococcus pyogenes	1
None	9



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Characteristics and Complications of Laparoscopic Hysterectomies, Davila Clinic, Chile



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Study Objective: In the last years laparoscopic hysterectomy has taken a vital role within hysterectomies, reaching almost a 30%. In our center it has reached similar numbers compared to vaginal hysterectomy, although abdominal hysterectomy prevails. The objective of this study is evaluating our experience in this type of surgery in Davila Clinic, making emphasis in intra and post operative complications.

Design: Retrospective cohort study.

Setting: Private clinic, Santiago, Chile

Patients: Women who undergo laparoscopic hysterectomy for benign disease between January 2011 and December 2015.

Intervention: 199 women went through a laparoscopic hysterectomy, from which we excluded those who had malignant disease, therefore we have 182 women that were operated using the 10 step classic technique.

Measurements and Main Results: The average age was 45,9 years (29-74). The main diagnostics were Leiomyoma (53,8%), Endometriosis (13,7%), Benign endometrial disease (10,9%) and Adenomyosis (8,8%). 2,2% of surgeries required conversion to abdominal surgery. Intra operative complications include vaginal laceration (1,1%), rectal lesion (1,1%) and vesical lesion (0,5%). Average operating time was 162,8 minutes (64-360). The mean hospital stay was 3,5 days (2-15). In the immediate post operative (1 month), 10,9% of patients presented complications, which include Vaginal cuff hematoma (2,2%), vaginal cuff abscess (1,6%), dehiscence of the vaginal cuff (1,6%), wound infection (1,1%) and pulmonary embolism (0,5%). 5,5% of all patients required a new hospitalization or surgery. No deaths were associated to this procedure.

Conclusion: The standardized technique for laparoscopic hysterectomy for benign disease has acceptable intra and postoperative results, being intra operative complications quite rare and postoperative complications not life-threatening. The hospitalization time tends to be brief. We can observe a great dispersion of operating times, which may be explained either by surgeons ability or because our center has specialists dedicated to endometriosis, which, even if it is a benign disease, it requires extensive surgical effort.

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Modified Laparoscopic Assistant Vaginal Hysterectomy for Decreasing of Bladder Complications



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Study Objective: To compare the differences of post-operative complication rate in performing laparoscopic-assisted vaginal hysterectomy (LAVH) with two different surgical methods.

Design: Retrospective review.

Setting: Inje University Hospital, Department of Obstetrics and Gynecology

Patients: 463 cases of LAVH from March 2010 to June 2015 was conducted.

Intervention: Laparoscopic-assisted vaginal hysterectomy (LAVH) with two different surgical methods (typical vs modified).

Measurements and Main Results: Of the 463 women underwent LAVH, 234 women underwent typical LAVH and other 229 women underwent modified LAVH. 9 cases of the 234 occurred bladder and urinary tract complication and 4 cases of the 229 occurred. ($p=0.017$) 7 cases with intraoperative bladder injury in classic LAVH group and 1 cases in modified group occurred. ($p<0.05$).

Conclusion: There was no significant decrease of bladder and urinary tract complication and other post-operative complication rate. However, in modified group, intraoperative bladder injury was significantly decreased.

725

Laparoscopic Management of Large Serous Cystadenofibroma of the Fallopian Tube: A Case Report

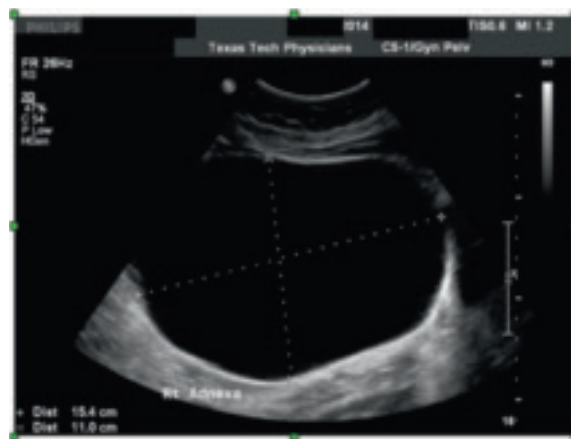


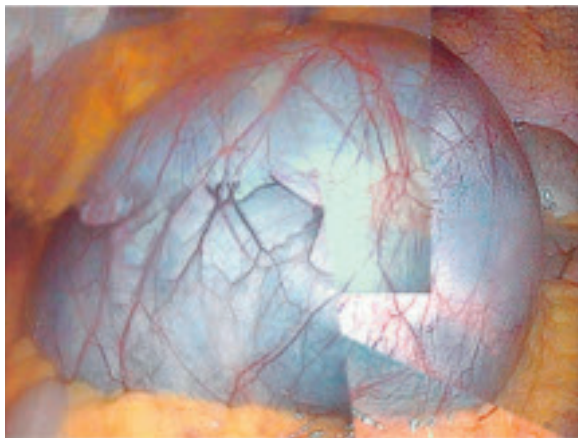
Vinson NM, Kauffman RP. Obstetrics and Gynecology, Texas Tech University Amarillo, Amarillo, Texas

Study Objective: Laparoscopic removal of a large, rare cystadenofibroma of the fallopian tube.

Design: Case report.

Setting: Hospital





Patients: 1

Intervention: A 39 year old G3P3 with weight gain, pelvic pain, and abdominal distention over 3 years. Transvaginal-abdominal ultrasound demonstrated a thin-walled 15.6 x 15.6 x 11.2 cm right adnexal cystic mass without Doppler color flow, septations, excrescences, or evidence of ascites (Figure 1). The right ovary was not visualized. The left ovary measured L-2.7 x W-2.6 x H-2.1 cm.

Serum CA-125 was 35 U/ml, BMI 32 kg/m², CBC and chemistries normal. She then presented to the emergency department with significant abdominopelvic pain radiating to her back and down her right leg. She was taken to the OR for laparoscopic excision of the mass.

Measurements and Main Results: Large cystic mass without adhesions or findings suggestive of malignancy was visualized.

Smooth capsule, prominent vascularity noted. View through a 5mm laparoscope (composite of 4 images)

1380 mL of straw-colored, watery fluid was drained from the mass. Of note, cyst was actually emanating from the left tube. Left distal salpingectomy performed, ipsilateral ovary conserved.

Microscopic findings: paratubal cyst, lined by benign ciliated cuboidal epithelium. Cyst wall composed of fibrous tissue containing plump bland fibroblasts consistent with a benign serous cystadenofibroma.

Conclusion: Cystadenofibromas of the fallopian tube are extremely rare and usually benign. In fact, there is general consensus that it is more likely a Mullerian remnant than a proliferating neoplasm. Upon review of the literature, this is only the 18th one reported since Iwanow in 1909, and the only one of its size to be decompressed and removed laparoscopically. The closest in size to our tumor was removed laparoscopically by Sills et al in 2003 at 5.5 cm. Additionally, the tumor itself was the primary complaint, unlike most tumors of this ilk which are typically discovered incidentally.

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Quick and Easy Acquisition of Laparoscopic Suturing Skills



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Study Objective: To investigate the learning curve for surgeons acquiring laparoscopic suturing skills.

Design: Surgery and training was performed using a needle holder with an integrated needle that articulates through 90°.

Setting: Laparoscopic procedures performed in private hospitals in Australia and Indonesia, and laparoscopic training exercises performed in training centres.

Patients: 40 patients undergoing advanced laparoscopic surgery, and training models resembling vaginal and bowel tissue.

Intervention: Gynaecologists performed laparoscopic surgery. Gynaecologists and fellows participated in suturing skills exercises in training centres.

Measurements and Main Results: Quick uptake of laparoscopic suturing skills during training was confidently translated to laparoscopic surgery.

Laparoscopic surgery exhibited less than typical bleeding and short vaginal cuff closure times. While present for surgeons familiar with conventional laparoscopic suturing techniques, this trend was particularly apparent in the inexperienced. LAVH surgeons found the transition to TLH requiring pedicle ligation and laparoscopic vaginal cuff closure easier than when attempting conventional laparoscopic suturing. Removing complicated needle-handling manoeuvres, through the use of a needle holder with an integrated needle capable of articulation, assisted in shortening the learning curve and building basic skills and dexterity for laparoscopic suturing. Extracorporeal knot-tying was the preferred method for initial tissue-securing, with an intracorporeal tie to follow. Additional timesaving was achieved by using an integrated laparoscopic grasper-and-scissors that avoided repetitive instrument changes.

Conclusion: This study demonstrated quick acquisition of the skills necessary for confident and efficient laparoscopic pedicle ligation and cuff closure. Specialised suturing equipment fast-tracks surgeons to an advanced level otherwise requiring years of practice and attendance at suturing workshops. With the elimination of complicated needle-handling, only extracorporeal knot-tying abilities is required for the immediate acquisition of suturing skills. The reduced learning curve is especially valuable for fellows and entry level GYNs or surgeons transitioning from LAVH to TLH.

Virtual Posters – New Instrumentation or Technology

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First Use of Augmented Reality in Gynecology

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Study Objective: To report the first use of Augmented Reality (AR) in gynecology.

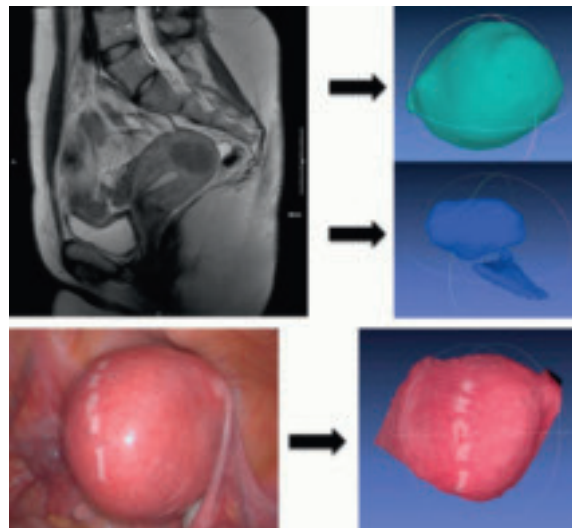
Design: AR is a surgical guidance technology that enables important hidden surface structures to be visualized in endoscopic images. AR has been used for other organs, but never in gynecology and never with a very mobile organ like the uterus. We have developed a new AR approach specifically for uterine surgery and demonstrate its use for myomectomy.

Setting: Tertiary University Hospital

Patients: A 38 year old woman with a 6 cm uterine myoma.

Intervention: A laparoscopic myomectomy was performed with the use of AR.

Measurements and Main Results: Pre-operatively, three-dimensional (3D) models of the patient's uterus and myoma were constructed prior to surgery from a T2 MRI





The intra-operative 3D shape of the uterus was determined. These models were automatically aligned and “fused” with the laparoscopic video in real-time (Figure 2). The live, fused video made the uterus appear semi-transparent and the surgeon can see the location of the myoma in real-time while moving the laparoscope and the uterus.

With this information the surgeon easily and quickly decide on how best to access the myoma.

Conclusion: To improve laparoscopic myomectomy, we have developed an AR system for gynecological surgery. Technically, our software is very different to approaches tried for other organs, and can handle significant challenges including image blur, fast motion and partial views of the organ. It is the first to successfully perform AR with a moving organ such as the uterus.

728

Fundal Pathology Removal with the MyoSure® Reach Device



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Study Objective: To evaluate the MyoSure® Reach device for removal of intrauterine tissue.

Design: Prospective, open-label, survey to assess performance metrics (percent pathology removed, procedure time, fluid management) and physician preference.

Setting: Community-based ob/gyn practices. Procedures were performed in ambulatory surgery center (18.5%) and hospital (81.5%) settings.

Patients: 27 women undergoing removal of intrauterine polyps and/or fibroids (type 0, I, II).

Intervention: Intrauterine pathology removal using a hysteroscopic tissue removal system (MyoSure® Reach).

Measurements and Main Results: A total of 39 pathologies removed (29 polyps, 10 fibroids). The average pathology size was 20.3mm overall (polyps 18.1mm, fibroids 26.3mm) and the average percent pathology removed was 98.7% (polyps 100%, fibroids 95% [type 0: 100%, type I: 92%, type II: 96.7%]). Overall, procedure time averaged 10.2 min (2.6 min cutting time). Mean fluid deficit was 657.9 ml, while mean intrauterine pressure (high) was 98.6 and mean intrauterine pressure (low) was 89.4.

Of the 21 fundal pathologies (13 polyps, 8 fibroids), the average lesion size was 20.5 mm (polyps 16.2mm, fibroids 27.5mm) and the average percent removed was 97.6% (polyps 100%, fibroids 93.8% [type 0: 100%, type I: 90%, type II: 96.7%]). For cases with fundal pathology, the average procedure time was 10.5 min and cutting times averaged 2.8 min. The mean fluid deficit for cases with fundal pathology was 739.9 ml, while mean intrauterine pressure (high) was 101.2 and mean intrauterine pressure (low) was 94.1.

Overall, 100% of physicians strongly agreed the devices were easy to operate, 100% would recommend the MyoSure® Reach device to other physicians, and 100% agreed that they would choose the MyoSure Reach device over predecessor MyoSure devices for cases with confirmed fundal pathology.

Conclusion: The MyoSure® Reach device allowed successful removal of fundal polyps and fibroids. Physicians rated the MyoSure® Reach device favorably in all key performance categories.

729

Robotic Biopsy of the Uterus Standardized Technique (ROBUST): A New Technique for Uterine Biopsy Prior to Minimally Invasive Surgery



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Study Objective: To develop an accurate diagnostic tool for uterine biopsy based on robotics and 3D/4D ultrasound images fusionned with MRI.

Design: Innovative research program.

Setting: University hospital, university research center

Intervention: According to the FDA Laparoscopic Power Morcellation should be avoided as long as a reliable pre-operative diagnosis of uterine sarcoma is not available.

To distinguish a malignancy from a benign condition the only gold standard is a uterine biopsy. However, there is no routine tool allowing a reproducible, reliable sampling with high sensibility and specificity.

Measurements and Main Results: ROBUST includes a robotic system to position an ultrasound probe and the needle guide attached to it. A “ co-manipulation mode “ is used to control a robotized probe holder.



Trinity® is an ultrasound imaging system with organ tracking and accurate cartography developed for prostate biopsies.

Image registration between MRI/US volumes and US/US volumes is challenging. ProMap[®] Algorithms used for prostate biopsies is adapted to uterus specificities. Augmented visualization will be evaluated through the implementation of novel functions using the robot as a locator.

To achieve the highest accuracy during biopsies, we propose a “co-manipulation mode” to control a robotized probe holder. The surgeon is master of his action as the robot and the practitioner simultaneously manipulate the same instrument.

An MRI and ultrasound uterine images database is established. Then phantoms and anatomical specimens are biopsied, including a risk analysis of the medical device. A clinical validation on patients is prepared for a feasibility study on real patients to evaluate the accuracy and the robustness of the system.

Conclusion: Uterine biopsy requires the development of innovative functions exploiting state of the art in imaging and robotics to enable a secure, reproducible, and accurate sampling. These techniques have been developed for prostate biopsies and are being adapted to uterine biopsies.

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Outcome of LESS Contained Power Morcellation of an Unsuspected Leiomyosarcoma: A Case Report



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Study Objective: To present a case report of an unsuspected leiomyosarcoma that was power morcellated within an inflated isolation bag.

Design: Retrospective chart review.

Setting: Community hospital

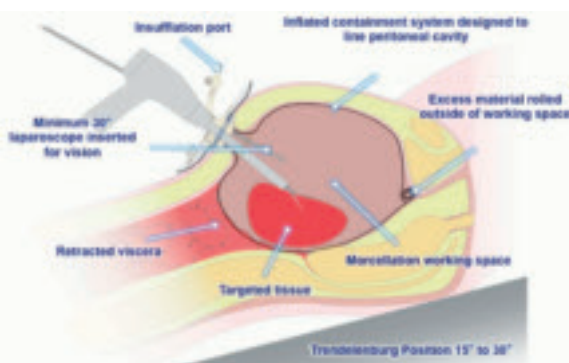
Patients: Perimenopausal 56 Year old white female presented with menorrhagia, pelvic pain and 14-15 week size mobile uterus. Pre-operative ultrasound revealed a solitary 9.9cm fundal myoma. The patient is reported to menstruate monthly.

Intervention: Primary Interventions: April 2014, LESS LSH and bilateral salpingectomy. LESS technique for contained power morcellation within an inflated isolation bag. The patient had an EBL of 50cc and was discharged same day. The operative note reports a visually intact bag post morcellation. Pathologic evaluation revealed Leiomyosarcoma. Pathology is confirmed by outside review as high grade Leiomyosarcoma.

Secondary Interventions: Re-operation for surgical staging by Gyn Oncologist. Trachelectomy, biopsies, pelvic washings and bilateral oophorectomy. Post surgical chemotherapy.

Measurements and Main Results: Two month re-operation staging procedure reveals negative washings and biopsies confirming no residual LMS. No initial upstaging with tumor staged as Stage I high grade, Leiomyosarcoma.

Follow up at 3 month intervals with exams and Imaging studies showing no local or distant metastatic disease. To date the patient remains without evidence of recurrence.



Conclusion: Contained Power morcellation using a LESS inflated bag approach did not appear to upstage leiomyosarcoma, at LSH, in this perimenopausal patient with high grade Leiomyosarcoma. This LESS technique for contained power morcellation, may reduce the risk of surgical upstaging of an unsuspected malignancy. Further studies will be necessary to confirm this initial promising result.

731

The Intraoperative Imaging of the Recto-Vaginal Septum Using a Dual Array Transrectal / Transvaginal Ultrasound Probe: A Novel Aid to Promote Intraoperative Safety and Accuracy



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Study Objective: To allow the intraoperative assessment of the rectovaginal endometriosis, specifically the extent and depth of rectal wall involvement.

Design: Observational study to demonstrate normal and abnormal anatomy in women with severe endometriosis and to evaluate the benefit of the availability of such scanning to the surgical team.

Setting: A BSGE accredited tertiary referral centre for endometriosis in a busy teaching hospital.

Patients: Women symptomatic of rectovaginal endometriosis were consented for intra operative transrectal/transvaginal ultrasound.

Intervention: Women with rectovaginal endometriosis seen at laparoscopy underwent a transrectal and transvaginal ultrasound with a dual array high frequency with forward and lateral beam imaging. The layers of the rectal wall including the muscularis propria were visualised and any associated endometriotic nodules were assessed for depth and extent.

Measurements and Main Results: Comparison of the laparoscopic visualisation of the pelvic anatomy and the simultaneous ultrasound visualisation of deeper structures.

Conclusion: The intraoperative imaging aids in the decision making process if complete resection is possible with rectal shaving or formal disc resection is required.

Virtual Posters – Oncology

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Comparison of Surgical Outcomes of Laparoscopy and Laparotomy for Secondary Cytoreductive Surgery with Localized Single Recurrent Site Epithelial Ovarian Cancer



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Study Objective: To compare surgical outcomes of laparoscopic and laparotomic cytoreduction in patients with single recurrent epithelial ovarian cancer (EOC).

Design: Retrospective study of recurrent EOC patients treated in Samsung Medical Center between 2002 to 2013.

Setting: Academic affiliated tertiary medical center

Patients: We performed a retrospective analysis of 79 EOC patients who had localized single recurrent sites, as demonstrated by CT scan, MRI, or PET/CT scan; no ascites; had been disease-free for 12 or more months; and who had undergone secondary cytoreduction (laparoscopy in 31, laparotomy in 48).

Intervention: For secondary cytoreduction, laparoscopic and laparotomic approach were performed.

Measurements and Main Results: By reviewing the electric medical records, we investigated patient baseline characteristics, surgical characteristics, and surgical outcomes. For comparison, survival analysis was performed.

There were no statistically significant differences between laparoscopy and laparotomy patients in terms of age, body mass index, cancer antigen 125 level, tumor type, initial stage, grade, recurrence site, type of procedures used in the secondary cytoreduction, adjuvant chemotherapy, and disease-free interval from the previous treatment. With regards to surgical outcomes, reduced operating time, shorter hospital stay, and less estimated blood loss were achieved in the laparoscopy group. Complete debulking was achieved in all cases in the laparoscopy group.

Conclusion: The laparoscopic approach is feasible without compromising morbidity and survival compared to laparotomy in selected groups of patients with recurrent EOC. The laparoscopic approach can be a possible treatment option for recurrent EOC.

733

Minimally Invasive Surgery versus Open Surgery for Early-Stage Type II Endometrial Cancer: Peri-Operative and Survival Outcomes



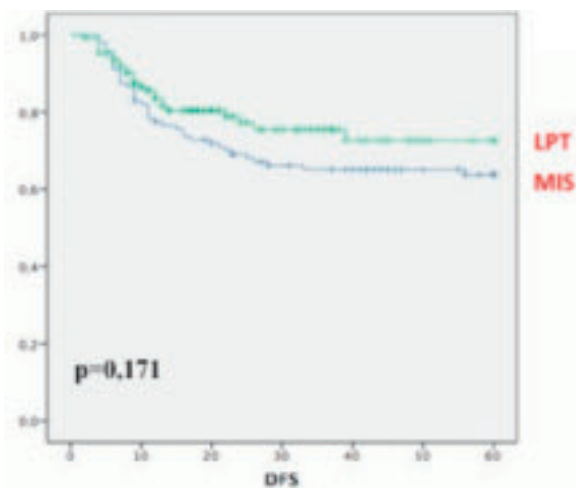
Monterossi G,¹ Ghezzi F,² Vizza E,³ Restaino S,⁵ Uccella S,² Corrado G,³ Perrone E,¹ Careri R,¹ Casarin J,² Scambia G,¹ Fanfani F.⁴ ¹Obstetrics and Gynecology, Catholic University of the Sacred Heart, Rome, Italy; ²Gynecology and Obstetrics, University of Insubria, Varese, Italy; ³Gynecologic Oncologic Unit, "Regina Elena" National Cancer Institute, Rome, Italy; ⁴Gynecologic Oncology Department of Medicine and Aging Sciences, University G. d'Annunzio, Chieti, Italy; ⁵Department of Obstetrics and Gynecology, University of Trieste, Trieste, Italy

Study Objective: To compare the peri-operative outcomes and survival outcomes of Type II endometrial cancers patients who staged by minimally invasive surgery (MIS) versus laparotomy.

Design: Retrospective cohort study.

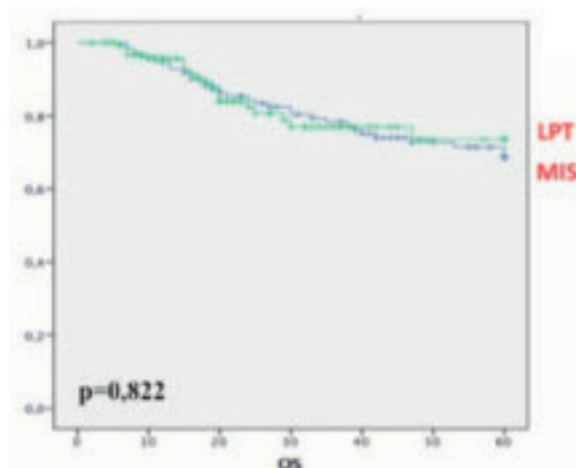
Setting: Multi academic medical centers.

Patients: Two hundred eighty-three clinical FIGO stage I-II Type II endometrial cancer patients accrued between 2000 and 2015.



Intervention: None

Measurements and Main Results: The study population was divided into 2 groups: 142 submitted to open surgery and in 141 to MIS. A MIS included laparoscopy, single-site surgery, mini-laparoscopy and robotic surgery. The two groups were comparable for baseline features. We found similar pathological finding, except for myometrial invasion and the rate of positive lymph nodes. In the MIS group we obtained a higher rate of invasion less than half respect with laparotomy ($p < 0.001$) and the greater number of metastatic lymph node was found in the



laparotomy group ($p < 0.003$) were found. Peri-operative data were comparable except for operative time, longer for laparotomy cohort ($p < 0.001$) and hospital stay, shorter in the MIS group ($p < 0.001$). MIS group experienced fewer urinary complications ($p < 0.001$). Significant differences were observed in the rate, number and site of recurrences. We found higher rate of abdominal nodes involvement and distant sites as lung and bone ($p < 0.001$) in laparotomy group. Progression-free (figure 1) and overall survival (figure 2) was not significant between the groups.

Conclusion: Our data confirmed the safety of MIS for stage I endometrial cancer. Complication rate of MIS was not significant when compared with laparotomy. Well-designed studies are needed to evaluate the surgical safety and feasibility of the MIS in advanced stages and to identify predictors of complication and/or conversion rate. Recurrence data were similar regards local relapse, confirming that the recurrence is not correlated with the type of technique used.

734

Uterine Sarcomas: Prevalence in Presumed Benign Surgical Specimens



Agochiya J, Livinti I, Mikhail M, Shah AJ, Dabiri T. Ob/Gyn, Bronx Lebanon Hospital Center, Bronx, New York

Study Objective: The Primary objective of the study was to determine the incidence of unsuspected Uterine Sarcomas among women who underwent surgical procedures for uterine fibroids over a 10 year period from April 2006 until March 2016. The surgical procedures included hysteroscopic, laparoscopic and open myomectomy, vaginal / laparoscopic/ robotic / open hysterectomy.

Design: The retrospective cohort study collected the data from the Surgical Pathology database in our hospital for all surgical specimens sent to pathology for uterine masses. The search criteria was a diagnosis of uterine fibroids, leiomyomas and sarcomas. Patients who were diagnosed to have uterine sarcoma on pathological examination without a preoperative suspicion for malignancy were identified and relevant clinical and pathological data was collected.

Setting: An Inner-city Community Hospital serving a population with a naturally occurring high prevalence of uterine fibroids.

Patients: All patients who underwent surgery for uterine fibroids or leiomyomas. These include myomectomies and hysterectomies via minimally invasive and open routes.

Intervention: N/A

Measurements and Main Results: 1023 surgical samples were studied and 2 patients had an incidental finding of uterine sarcoma on pathological examination, with an Incidence of 0.19% (1 in 512 approx). 1 patient was a 53 y G1P0 with a history of abnormal uterine bleeding and rapidly enlarging fibroid uterus and the other was a 72y P5

with post menopausal bleeding and endometrial hyperplasia on biopsy, incidentally found to have endometrial adenocarcinoma. There were 22 other cases of uterine sarcomas, however they were excluded as they had a preoperative diagnosis of a gynecological malignancy prior to the surgical intervention.

Conclusion: Our findings are consistent with the published prevalence of approximately 0.2 % for uterine sarcomas. The 22 other cases of a preoperative diagnosis of gynecological malignancy emphasize the importance of a thorough work up of abnormal uterine bleeding especially in the setting of an enlarged / enlarging uterine mass.

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Laparoscopic Cytoreduction for Isolated Retroperitoneal Lymph Node Recurrence in Gynecologic Malignancies: Experience of Hospital Italiano of Buenos Aires, Argentina



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Study Objective: Evaluate the feasibility and efficacy of laparoscopic cytoreduction of para-aortic, iliac primitive and pelvic lymph node isolated recurrence in gynecologic malignancy.

Design: Retrospective study.

Setting: Tertiary care teaching hospital

Patients: We completed 16 cases with different gynecological malignancies, with laparoscopic cytoreduction. Our series included recurrence of cervical; ovarian, fallopian tube and primary peritoneal; endometrial, uterine sarcoma and breast cancer.

Intervention: Laparoscopic cytoreduction of para-aortic, iliac primitive and pelvic lymph node recurrence in gynecologic malignancy.

Measurements and Main Results: The median patient age was 62.1 (35 - 80) and the average body mass index was 25.59 (18.6-37.5). The technical approach was 10 transperitoneal (62.5%) and 6 retroperitoneal (37.5%). The location of recurrence was para-aortic: 10 cases, common iliac: 3 cases and pelvic: 6 cases. The average size of the lymph nodes was 26 mm (min 10 mm and max 45 mm) and in all

Results

Body mass index	25.59 Kg/m ² (18.6 - 37.5)
Median patient age	62.1 (35 - 80)
Initial pathology	7 Ovarian, fallopian tube and primary peritoneal cancer 4 cervical cancer 3 endometrial carcinoma 1 leiomyosarcoma 1 breast cancer
Imaging study detection	87.5 % Positron emission tomography
Technical approach	10 Transperitoneal (62.5%) 6 retroperitoneal (37.5%)
Location of recurrence	Para-aortic: 10 cases common iliac: 3 cases pelvic: 6 cases
Time of surgery	134 min (70 - 245)
Hospital stay	35 hrs (24 - 72)
Intraoperative complication	2 Vascular lesions (12.5%)
Conversion to laparotomy	0
Median blood loss	100 ml
Total cytoreduction	16 patients (100%)
Average tumor size	26 mm (10 - 45)
Postoperative complication	0
Pathological analysis	14 positive results (87.5%)

cases a total debulking was performed without residual macroscopical disease. In all cases we report 2 vascular lesions (12.5%) that were completely repaired with intracorporeal laparoscopic suture. The median hospital stay was 35 hours; the median time of surgery was 134 minutes (70 - 245). No patient required conversion to laparotomy. Recurrence was confirmed in the pathologic study in 14 of the 16 patients (87.5%).

Conclusion: We consider that secondary cytoreduction is feasible in selected patients with few peri- and postoperative complications. Due to our vast experience in minimally invasive surgery, we prefer laparoscopic transperitoneal or retroperitoneal approach, achieving shorter hospital stay, less complications, faster recovery and decreasing the time to beginning a subsequent complementary treatment. Randomized clinical studies are needed to define the best therapeutic strategy for these patients.

736

Can Morcellation Really Worsen the Prognosis of Unexpected Uterine Malignancy?



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Study Objective: We investigate the prognosis and the feasibility of laparoscopic restaging surgery for women with unexpected uterine malignancy after power morcellation.

Design: Retrospective study.

Setting: University teaching hospital.

Patients: Eight patients who underwent laparoscopic restaging surgery due to unexpected uterine malignancy after prior hysterectomy or myomectomy with morcellation from January 2008 to July 2014 at Hanyang university hospital.

Intervention: Laparoscopic systemic restaging surgery.

Measurements and Main Results: The median age of the patients and BMI were 55 (44-78) years and 23.8 (20.75-31.89)kg/m². The median interval between prior hysterectomy and the restaging surgery was 21 (range, 10–35) days. The median values of operating time and return of bowel activity were 325 (200-475) minutes and 35 (18-50) hours, respectively. The median number of harvested pelvic and para-aortic lymph node were 17.5 (14-29) and 20.5 (7-36), respectively. All patients were used vaginal or power morcellation for uterine or myoma extraction and final FIGO stage was IA. Of the eight subjects, three received chemotherapy, and none received radiotherapy. All patients were alive without disease recurrence until now.

Conclusion: Laparoscopic restaging surgery is recommend for patients diagnosed with unexpected uterine malignancy and necessary if power or vaginal knife morcellation was used on them.

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Hepcidin Expression Comparison and Its Significance in Patients with Cervical Cancer and with Cervical Intraepithelial Neoplasia



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Study Objective: 1.To measure the serum hepcidin level in patients with cervical cancer and with cervical intraepithelial neoplasia, and to further explore the clinical significance of hepcidin in patients with cervical cancer and with precancerous lesions. 2. To provide new ideas for the treatment of gynecological malignant tumor.

Design: Retrospective clinical trial.

Setting: Beijing Obstetrics and Gynecology Hospital

Patients: 35 patients diagnosed with cervical cancer and 32 patients diagnosed with cervical intraepithelial neoplasia II to III were recruited for experimental groups. 31 healthy female blood donors were selected as healthy control group from June 2015 to March 2016.

Intervention: All the patients had pathological diagnosis after operation or biopsy. Meanwhile, we collected the morning fasting venous blood of patients and healthy donors to obtain routine blood test results, biochemical results and tumor marker levels and then measure the serum hepcidin level.

Measurements and Main Results: 1. Compare the patients with cervical cancer with patients with cervical intraepithelial neoplasia ($P=0.00$) and the difference of serum hepcidin expression was statistically significant.

2. Compare the patients with cervical cancer with healthy adult women ($P=0.00$) and the difference of serum hepcidin expression was statistical.

Conclusion: 1. The concentration of serum hepcidin in patients with cervical cancer was significantly increased than in patients with cervical intraepithelial neoplasia, so the measurement of serum hepcidin has definite value in diagnosis of cervical cancer.

2. The concentration of serum hepcidin in patients with cervical intraepithelial neoplasia was higher than in healthy adult women, so the measurement of serum hepcidin has definite value in diagnosis of cervical intraepithelial neoplasia.

3. The relationship between the concentration of serum hepcidin and the grade and the type of the cervical cancer needs further research.

738

Does Caprini Score Predict the Risk of DVT Among Patients with Uterine Cancer Treated with Robotic Hysterectomy? Prevalence and Risk Factors



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Study Objective: The objective of this study was to evaluate the Caprini Risk Assessment Model's ability to predict VTE compared to the actual prevalence of VTE among uterine cancer patients treated with total robotic hysterectomy. We also evaluated VTE risk factors and its complications.

Design: This was a retrospective cohort study of uterine cancer patients seen from 2010-2014.

Setting: The study was performed at two tertiary care facilities.

Patients: 332 patients with UC treated with MIS by 2 gynecologic oncologists from 2010-2014 were included. Cases converted to laparotomy were excluded.

Intervention: All patients were treated with MIS and received postoperative VTE prophylaxis.

Measurements and Main Results: Of the 332 patients in the study, 97.6% underwent robotic hysterectomy and 2.4% underwent robotic radical hysterectomy for uterine carcinoma

Postoperatively, All of patients received VTE prophylaxis with sequential compression devices and 31.2% received chemoprophylaxis with unfractionated or low molecular weight heparin. The primary outcome measure was clinically diagnosed VTE within 120 days of surgery. All patients had a Caprini Score greater than 5, predicting that 40-80% would develop a VTE. VTE prevalence was 1.5% (5/332)

The majority of VTE (4/5) occurred within the 30 day postoperative period. Two of the 5 patients had a DVT history, 1 year and 30 days prior to surgery, respectively. Of the 3 patients with new onset DVT, 1 (0.4%) of 228 patients did not receive chemoprophylaxis. The 120-day mortality rate was 0.3% (1/332) in a patient with a previous DVT 1 year prior who was on chemoprophylaxis.

Conclusion: The Caprini Score predicted a 40-80% risk of DVT/PE among UC patients, yet our rate of new onset DVT/PE was only 0.9% among this high risk group. The VTE rate of 0.4% among UC patients not receiving chemoprophylaxis after MIS calls into question whether chemoprophylaxis is warranted in this patient population given the risk of bleeding and major complications.

Table 1

Patient demographics.

Demographics	Total* (N=332) n (%)
Age (years) ^b	61.7 (11.1)
BMI (kg/m ²) ^c	31.8 (7.1)
Histology	
Endometrioid adenocarcinoma	230 (74.4)
Papillary serous adenocarcinoma	18 (5.8)
Carcinosarcoma of sarcoma	14 (4.5)
Clear cell adenocarcinoma	2 (0.6)
Other	45 (14.6)
Histology grade	
1	150 (55.1)
2	80 (29.4)
3	42 (15.4)
FIGO stage	
Ia	176 (63.8)
Ib	70 (25.4)
Ic	6 (2.2)
IIa	1 (0.3)
IIb	3 (1.1)
IIIa	12 (4.3)
IIIb	2 (0.7)
IIIc	6 (2.2)
IVa	0 (0)
IVb	0 (0)
Surgical Type	
Total robotic hysterectomy	323 (97.6)
Robotic radical hysterectomy	8 (2.4)
BSO	317 (95.5)
Staging	108 (32.8)
omentectomy	23 (6.9)
Lysis of adhesions	11 (3.3)
Debulking	8 (2.4)
Lymphadenectomy	
Pelvic	298 (90)
Paraortic	232 (70.5)
Patients with Positive lymph nodes	
Pelvic	23 (7.3)
Paraortic	10 (3.2)
Thromboprophylaxis	
SCD	332 (100)
Chemoprophylaxis	74 (31.2)
No chemoprophylaxis	163 (68.8)
Operative time (min) ^g	106 ()
Estimated blood loss (ml) ^h	50 (75)
Length of stay hospital (days) [*]	1 (0)
Comorbidities	
Hypertension	168 (53.2)
Diabetes	81 (25.6)
Thyroid disease	48 (15.2)
Previous history of smoking	42 (13.2)
History of VTE	3 (1.3)
Medications	
SERMs	9 (3.1)
Bisphosphonates	16 (5.5)
OCPs/HRT	13 (4)

BSO, bilateral salpingo- o -ophorectomy; SCDs, sequential compression devices; VTE, venous thromboembolism; SERMs, selective estrogen receptor modulators; OCP, oral contraceptive pill; HRT, hormone replacement therapy.^aAll patients in this study met Caprini Risk Assessment Model high risk estimate (score ≥ 5).^bMean age (SD)^cMean BMI (SD)^dMean operative time (SD)^eMedian estimate blood loss (IQR)^fMedian length of stay in hospital (IQR)

Table 2

Characteristics of the 5 patients that developed venous thromboembolism in this current study.

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Age (years)	67	65	62	62	70
BMI (kg/m ²)	39	44	31.6	24.2	26.1
Post-op day of VTE Event	1	10	15	21	118
Histology	Endometrioid	Endometrioid and squamous cell	Papillary serous	Endometrioid	Carcinosarcoma
Grade	2	2	3	Unknown	3
Stage	1A	1A	3A	Unknown	3A/3B
Thromboprophylaxis					
SCDs	Yes	Yes	Yes	Yes	Yes
Heparin	Yes	No	No	No	No
Lovenox	No	Yes	No	Yes	Yes
Typa of surgery	TRH, BSO, pelvic and paraaortic lymphadenectomy	TRH, BSO and pelvic lymphadenectomy	TRH, BSO, staging, pelvic and paraaortic lymphadenectomy	TRH, BSO, pelvic and paraaortic lymphadenectomy	TRH, BSO and pelvic lymphadenectomy
Length of surgery (min)	Unknown	123	156	86	111
Estimated blood loss (ml)	250	25	150	25	25
Complications	None	None	None	None	None
Length of stay in hospital (days)	3*	1	1	3	1
Previous history of VTE	Yes	Yes	No	No	NO
Caprini RAM ^a	12	12	9	9	9
ACOG High Risk ^b	Yes	Yes	Yes	Yes	Yes
ASCO High Risk ^c	Yes	Yes	Yes	No	Yes

TRH, total robotic hysterectomy; BSO, bilateral salpingoophorectomy; VTE, venous thromboembolism;^a Patient died on post operative day 3 due to cardiac death. Autopsy demonstrated multiple pulmonary artery thrombi.^b All patients in this study met Caprini risk Assessment Model high risk esitaira (score ≥ 5).^c Subset of cohort meeting American Society of Clinical Oncology (ASCO) high-risk guidelines defined by the presence of cancer and residual disease, history of VTE, or obesity.^d Subset of cohort meeting the American College of Obstetrics and Gynecologist (ACOG) high-risk guidelines defined by presence of cancer and history of VTE or age >60 years.

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The Characteristics of Cervical Intraepithelial Neoplasia in Postmenopausal Women



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Study Objective: Aim

To investigate the relationship between menopause state, HPV infection, TCT and pathological results after cervical conization compared with colposcopic biopsy in postmenopausal women.

Materials and methods

The study was carried out at the Obstetrics & Gynecology department of Sir Run Run Shaw Hospital of Zhejiang University. 750 patients, of which 129 (17.2%) menopausal women, 621 (82.8%) premenopausal women, with abnormal histological findings after colposcopy underwent cervical conization, either for treatment or diagnostic purpose. The data of TCT, HPV infection, colposcopic biopsy and cervical conization results were collected.

Results

Multi-factorial analysis of TCT, HPV, pre or post menopausal state by comparing pathological results after colposcopic biopsy Vs cervical conization. The results showed that pathological results of cervical conization up-grading compared with colposcopic biopsy was co-related with TCT and pre or post menopausal state, but not for HPV infection. There were no significant difference between premenopausal and postmenopausal patients in terms of the pathologic results up-grading compared with colposcopic biopsy, stratumed by TCT results;postmenopausal for 5 years were positively co-related to the cervical conization pathologic results up-grading(OR=1.8, 95% CI:(1.1,2.8), P=0.029), especially when TCT results were LSIL(OR=4.2, 95%CI:(1.1,15.8), P=0.033). The SCC rate was higher in group of women

in postmenopausal for over 5 years after cervical conization Vs other age group(20%vs5.3%).

Conclusions

Postmenopausal women, especially after menopause for over 5 years, due to lower level of estrogen, the transformation zone could retreat into the inner cervical canal, leads to inaccurate cervical screening and colposcopic biopsy results, subsequently increased misdiagnosis rate. It should be taken with caution, and better combing the TCT to avoid misdiagnosis as much as possible.

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Single Port Access (SPA) High Definition Double Consol Robot, Risk Reducing Bilateral Total Salpingectomy (RRBTS), with Conservation of Both Ovaries for Patients Who Are Carriers of Mutant BRCA1 and BRCA2 Genes: Farghaly's Technique



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Study Objective: To evaluate the safety and efficacy of robot-assisted bilateral total salpingectomy in patients who are carriers of mutant BRCA 1 and BRCA 2 genes.

Design: Innovative new minimally invasive ovarian and breast cancer risk reducing surgical technique.

Setting: In Patient.

Patients: Patients who are carriers of mutant BRCA 1 and BRCA 2 genes, and at risk of developing ovarian or breast cancer.

Intervention: Robot-assisted bilateral total salpingectomy is performed utilizing da Vinci Xi intuitive surgical system. A 2 cm intraumbilical

vertical skin incision and a 2 cm rectus fasciotomy are performed to enter the peritoneal cavity. A reusable single-port trocar is inserted into the abdominal cavity, and the abdomen is insufflated to 12 mmHg. Pelvic washings are collected and sent for pathological examination. Both Fallopian tubes are clamped distal to the uterine cornua, ligated and transected with a vessel sealing device. A rigid Hopkins high-definition three-chip camera is used. At the end of the procedures, specimens are placed in specimen bag and removed through the umbilicus after first removing the port device. PK forceps is used in the left robotic arm, and monopolar scissors in the right arm.

Measurements and Main Results: This technique offers satisfactory surgical outcome. Operative time can be maintained in 50 minutes, blood loss is negligible, and, hospital stay for one day.

Conclusion: Farghaly's Technique of robot-assisted risk reducing bilateral total salpingectomy (RRBTS) is safe, feasible, cost effective, with acceptable operative, and clinical outcomes. It retains the advantage of minimally invasive surgery. In addition, total salpingectomy followed by delayed oophorectomy yield, the best possible quality of life for those patients due to preservation of both ovaries.

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The Contribution of Genetic Polymorphisms in Development of Hysteromyoma in Women of Russia's Central Region



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Study Objective: Study of role of the combination genetic polymorphisms rs12324955, rs1782507 and rs3092921 in formation of hysteromyoma.

Design: Prospective cohort study.

Setting: Perinatal center St. Joasaph Belgorod Regional Clinic Hospital.

Patients: The research group consisted of 1245 women between 2010 and 2013, of which 250 hysteromyoma patients and 995 persons of the control group. Main group and control group included Russian women who were native of Central Region of Russia and who were not relatives to each other. Patients with hysteromyoma were provided with clinical and gynecological examination, ultrasound investigation of pelvic floor, hysteroscopy with further target diagnostic curettage and scrape histologic study.

Intervention: Typing of single nucleotide polymorphism of the following genes was performed for patients with hysteromyoma women from control group: rs12324955, rs1782507 and rs3092921. Analysis of roles of combinations of genetic variants in occurrence of hysteromyoma was performed with the help of APSampler software.

Measurements and Main Results: It has been discovered that combination of genetic variants GG rs12324955 with A rs1782507 and C rs3092921 occur in 40.64% of sick women, respectively, which is 1.16 times lower than that occur in control group (47.09%, $p=0.04$). When there are these combination of polymorphic markers, pathology risk of hysteromyoma is significantly lower (OR=0.77, CI 0.57-0.98).

Conclusion: Protective meaning at formation of hysteromyoma belongs to combination of genetic variants GG rs12324955 with A rs1782507 and C rs3092921 (OR=0.77). The study was supported by the Russian Foundation for Basic Research (No.- 15-44-03194).

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Patient Outcomes in Cases of Endometrial Cancer (EMC) and Endometrial Hyperplasia (EH) Diagnosed Following Uterine Morcellation at the Time of Hysterectomy



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Study Objective: To evaluate outcomes in cases of EMC and EH diagnosed following uterine morcellation during hysterectomy.

Design: Case series with 11-48 months of patient follow up.

Setting: 3 academic-affiliated community hospitals.

Patients: Patients who underwent uterine morcellation at the time of hysterectomy between 2005 and 2013 who had final pathology of EMC or EH. 11 patients were identified: 4 with EMC, 3 with complex atypical hyperplasia, 1 with complex hyperplasia without atypia, and 3 with simple hyperplasia without atypia.

Intervention: Patient demographics, preoperative imaging and endometrial sampling results, tumor grade and histology, stage, uterine weight, surgery performed, mode of morcellation, second surgery performed, complications, adjuvant treatments, current disease status/survival, and recurrences were abstracted from patient records.

Measurements and Main Results: Mean uterine weight was 157g (SD=43). The mean weight of specimens from abdominal mechanical morcellation was 133g (SD=49); those from vaginal non-mechanical morcellated specimens was 251 g (SD=102). Among patients with preoperative endometrial sampling, 67% (4/6) had more severe postoperative pathology. The final stages for the endometrial cancers were IA (3 cases) and IB (1 case). Size of identified tumors ranged from microscopic to 13 cm, myometrial invasion ranged from 0-66%, and there were no cases with cervical or lymphovascular space invasion. Three patients underwent a second surgery and none were upstaged. One patient received adjuvant radiation and a second patient received adjuvant radiation and hormonal therapy. There have been no recurrences to date.

Conclusion: Mechanical morcellation could have been avoided in cases with EMC or EH diagnosed on final pathology. Further investigation into patient outcomes following inadvertently morcellated malignancies is required.

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Study of Outcomes After Total Laparoscopic Hysterectomy for Early-Stage Endometrial Cancer in Our Department



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Study Objective: According to the Treatment Guidelines for Uterine Body Cancer by Japan Society of Gynecologic Oncology (JSGO), pelvic lymphadenectomy can omit in patients with endometrioid adenocarcinoma G1 or G2 and $\leq 1/2$ myometrial invasion, no findings of extrauterine lesion. Therefore we omit pelvic lymphadenectomy by a case. We reviewed cases underwent total laparoscopic hysterectomy (TLH) for early-stage endometrial cancer retrospectively.

Design: Retrospective study.

Setting: Academic affiliated community hospital.

Patients: The subject of this study is 28 patients with atypical endometrial hyperplasia complex (AEHC) or stage IA endometrial cancer (endometrial adenocarcinomaG1-G2) underwent TLH in our department between April 2013 and December 2015.

Intervention: In our department, TLH for early-stage endometrial cancer has been performed since April 2013.

Measurements and Main Results: We compared preoperative histopathological diagnosis and imaging examination with postoperative histopathological diagnosis. There are 22 cases (AEHC 10, endometrial cancer 12) with no myometrial invasion, and 5 cases (AEHC 1, endometrial cancer 4) with $\leq 1/2$ myometrial invasion pointed out by preoperative MRI. As a result of the postoperative histopathological study of endometrial cancer patients have no myometrial invasion before surgery, there were 2 cases without myometrial invasion, 7 cases with $< 1/2$ myometrial invasion, and 3 cases with $\geq 1/2$ myometrial invasion. In comparison of pre- and postoperative histology, 8 of 11 cases of AEHC and 4 of 16 cases with stage IA endometrial cancer were upgraded. A case with endometrial polyp was diagnosed stage IA endometrial cancer. 6 cases had postoperative adjuvant therapy, and there were 2 cases had recurrent. 2 recurrent cases are currently under treatment.

Conclusion: Pelvic lymphadenectomy in patients with the low risk of recurrence was considered to be able to omit. But there were the cases upgraded by postoperative histology or recurrent cases, so the further study about the indication of omitting lymphadenectomy seemed to be necessary.

Is the Pattern of Recurrence After Robot-Assisted Radical Hysterectomy Different or Not?



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Study Objective: The purpose of this retrospective study is to investigate the pattern of recurrence after robot-assisted radical hysterectomy and to compare this findings with historic abdominal radical hysterectomy control cohort.

Design: A Retrospective comparative cohort study.

Setting: Oslo University Hospital, Norway.

Patients: Patients who underwent elective surgery both robot-assisted radical hysterectomy and open radical hysterectomy between November 2005 and December 2012 were identified. Robot-assisted radical hysterectomy were performed by using the da Vinci robotic surgical platform. Patients demographic data were prospectively collected in a database and extracted for this study.

Measurements and Main Results: The mean operating time for ORH and RRH were 171 and 263 minutes respectively ($p:0.001$). Estimated Blood Loss was significantly reduced in RRH compared to ORH, 80 ml versus 468 ml ($p:0.001$). The mean follow up times were 4.3 and 3.9 years in patients who underwent ORH and RRH respectively ($p:0.54$). Disease recurrence was similar in both group (12 patients 9.8% recurrence in ORH and 9 patients 12.1 % recurrence in RRH $p:0.83$). On the other hand; Hematogeneous spreads and intraperitoneal spread has experiencing higher in RRH group.

Conclusion: Robot-assisted radical hysterectomy under CO₂ pneumoperitoneum may carry a risk of intraperitoneal and hematogeneous spreads in patients with early stage cervical cancer patients. However, larger, prospective and randomised studies are needed to formally conclude.

Laparoscopic Radical Hysterectomy for Cervical Cancer: San Bernardo Parroquial Hospital (Chile) Experience



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Study Objective: Radical hysterectomy with pelvic lymph-node dissection is the treatment of choice for early stage cervical cancer. Laparoscopic management of these cases has been proven as safe way of surgery with benefits over the classic laparotomy. Our aim is to review our first experience in this area considering the limited resources on developing countries hospitals.

Design: Retrospective cohort study.

Setting: Academic affiliated public hospital in Santiago, Chile.

Patients: We examined medical records of patients treated with laparoscopic radical hysterectomy in our Hospital from January 2011 to December 2015.

Intervention: Radical hysterectomy with pelvic lymphadenectomy in patients with cervical cancer.

Measurements and Main Results: Since 2011, surgery was performed in 13 patients; patient mean age was 42.4 (31–55). All of them were diagnosed by an abnormal PAP smear and then confirmed by colposcopic biopsy and one of them didn't require colposcopy. All patients were diagnosed at stage IB1, with mean tumor size of 18.5 mm (5–33). The same surgeon performed all surgeries; the mean total O. R. time was 3:37 hours (3–5:35), there were no intraoperative complications and one ureter lesion that required a second surgery to repair it. All, but one, postoperative biopsies presented margins free of tumor. Mean lymph node resection was 17.2 (6–28). Current mean follow up is 11.2 months. Three patients required adjuvant radiotherapy and one patient presented pelvic tumor relapse two years after surgery.

Conclusion: Laparoscopic radical hysterectomy with pelvic lymph-node dissection is a feasible technique that can be achieved in a setting of limited resources. In well selected patients is a technique with good surgical and oncological results. Our surgical results are comparable with the literature.

Robotic-Assisted Surgical Management of Early Stage Cervical Cancer: A Single Surgeon Experience



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Study Objective: To describe a single surgeon's outcome measures for hysterectomy in early stage cervical cancer.

Design: Retrospective chart review.

Setting: Baroness Erlanger Hospital

Patients: 60 patients who underwent robot-assisted surgery for early stage cervical cancer.

Intervention: Robot-assisted total laparoscopic hysterectomy ± bilateral salpingo-oophorectomy ± lymph node dissection.

Measurements and Main Results: The mean for patient age, body mass index, surgical console time, estimated blood loss, number of dissected lymph nodes, and specimen weights was calculated for all hysterectomy types. Classification of hysterectomy types with associated estimated blood loss, surgical console time, specimen weight, intra-operative and post-operative complications were surveyed.

Mean age was 43.08 ± 10.97 years and mean body mass index was 27.89 ± 6.25 kg/m². For all hysterectomy types, the mean surgical console time was 144.01 ± 67.78 minutes; mean blood loss was 51.67 ± 57.29 ml; lymph nodes retrieved were 29.93 ± 12.67 nodes; specimen weight was 144.70 ± 90.05 gm. Surgical console time increased with a higher type hysterectomy: 80.56 ± 50.58 min vs. 137.22 ± 88.14 vs. 174.7 ± 46.19 min for type I, II, and III hysterectomy, respectively. Estimated blood loss increased similarly: 24.38 ± 23.08 ml vs. 32.67 ± 15.98 ml vs. 33.34 ± 10.84 ml for type I, II, and III hysterectomy, respectively. Specimen weight increased similarly: 91.2 ± 43.6 gm vs. 118.86 ± 31.88 gm vs. 168.56 ± 101.61 gm for type I, II, and III hysterectomy, respectively. There were no conversions. Three intra-operative complications (5%) occurred. All were with type III hysterectomy (ureteral and common iliac vein injuries) and were managed surgically. Nine post-operative complications (15%) occurred (1 pyelonephritis, 1 lower-extremity deep vein thrombosis, 3 uterovaginal fistulas, 1 rectovaginal fistula, 1 ileus, and 2 patients requiring transfusion).

Conclusion: Radical hysterectomy can be achieved in a minimally invasive and efficient manner with overall good outcomes when performed by an experienced surgeon.

Impact of Diagnosis Endometrial Cancer After Laparoscopic Surgery on the Pathological Examination



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Study Objective: To report our case and show the new problems in laparoscopic surgery.

In patients diagnosed with endometrial cancer after surgery, insufficient surgery becomes problematic in terms of curability and cancer stage. Due to the need for uterine morcellation to collect specimens, it is difficult to pathologically diagnose tumor dissemination, residual tumor, or myometrial invasion in cases with endometrial cancer. We herein report our experience with a case in which endometrial cancer was found after the patient had undergone total laparoscopic hysterectomy for a giant uterine leiomyoma.

Design: Case report.

Setting: Single center study

Patients: A 45-year old woman, gravida 0, para 0, had a asymptomatic uterine leiomyoma that had grown in size from 10 to 18 cm in 3 years.

Intervention: We performed total laparoscopic hysterectomy. The uterus was morcellated inside the abdominal cavity and transvaginally removed.

Measurements and Main Results: A giant leiomyoma was found in the specimens, along with a very small (5 mm) endometrial malignant tumor. CT performed showed neither distant metastasis nor enlarged lymph nodes. We performed laparoscopic bilateral salpingo-oophorectomy as additional surgery. No malignancy was found in either adnexa of the uterus, and the cancer was staged at IA. Considering possible underestimation of the disease stage and cancer dissemination in the abdominal cavity, postoperative chemotherapy was also administered.

Over a 3-year period from April 2012 to March 2015, we performed hysterectomy in 713 patients who had been preoperatively diagnosed with uterine leiomyoma, uterine adenomyosis, or uterine prolapse. Overall, malignant tumor was found in 3 patients (0.4%) after surgery, which is consistent with the outcomes reported for previous studies.

Conclusion: In the present case, we were able to identify tissues of a small endometrial cancer in a large specimen. However, such minute lesions tend to be overlooked in morcellated specimens. Therefore, it is desirable to accumulate reports on appropriate measures aimed at minimizing the patient's risk.

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Ten Years of Uterine Sarcomas in Mexico

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Study Objective: Determine if the prevalence of women with diagnosis of uterine sarcoma in Hospital Ángeles del Pedregal, Mexico City was similar in the world bibliography.

Design: An observational and retrospective study, from 2005-2015.

Setting: Hospital Ángeles del Pedregal, México City. We reviewed clinical records and bibliography.

Patients: 1310 cases of uterine tumors at Hospital Ángeles del Pedregal, México City.

Intervention: An observational and retrospective study.

Measurements and Main Results: We observed a total of 4 cases (0.3%) of uterine sarcomas in 10 years, with age range 55-87 years and a 50% in the peak of diagnosis age. The previous suspect diagnosis was endometrial cancer in the 4 cases. Abnormal bleeding was present in 100% of the patients and range weight 76-180 gr. With a 5.3% of all uterine cancers (75) and 0.3% all uterine tumors (1310 cases). 50% treated with abdominal hysterectomy Piver II and 50% with laparoscopic radical hysterectomy with lymphadenectomy, without use power morcellator.

Conclusion: The prevalence in our Hospital is comparable with data publish. The principal symptom was postmenopausal bleeding and the probable initial diagnosis was endometrial cancer. The uterine sarcomas are a rare tumor but we need to contemplate this diagnosis, when we have a woman with abnormal bleeding and/or enlarged uterus, even if we have a suspected of benignity, principal in postmenopausal women. The treatment with minimally invasive approach is safe and effective.

Virtual Posters – Pelvic Pain

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A Temporal Evaluation of Pain Improvement in Women with Chronic Pelvic Pain After Adhesiolysis Procedure

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Study Objective: To evaluate the duration of pain relief after laparoscopic adhesiolysis in women diagnosed with chronic pelvic pain secondary to abdominal adhesions.

Design: Retrospective Cohort (Canadian Task Force Level II).

Setting: Hospital based practice of Gynecological Surgery and Pelvic Pain, St. Joseph's Hospital and Medical Center, Phoenix, AZ

Patients: Women who underwent adhesiolysis for chronic pelvic pain secondary to pelvic and/or abdominal adhesions between April 2012-February 2016.

Intervention: Adhesiolysis performed via laparoscopic or robotic-assisted, defined as 30 minutes or greater of operating time needed to restore normal anatomy.

Measurements and Main Results: Eighty-eight women were identified with Current Procedural Terminology (CPT) codes 4410 and 58550 for adhesiolysis. The average age at the time of adhesiolysis was 39 years old (range 19-57). The average number of abdominal surgeries was 1.42 (range 1-4). Fifty-six patients were excluded for concomitant procedures. Of the 32 remaining patients, 17 (53.1%) patients had previously undergone at least one adhesiolysis procedure for the treatment of chronic pelvic pain. All 17 of these patients had improvement of their pain. Fourteen (82%) of these patients had undergone 2 total adhesiolysis procedures with the median length of time between the first and second procedure (improvement in pain after procedure) being 24 months (range of 6-162 months). Three (17.6%) of these patients had undergone a third adhesiolysis procedure with the median pain free interval of 24 months prior to the third adhesiolysis procedure. Two (11.8%) of the 17 patients had undergone four adhesiolysis procedures for treatment of pelvic pain, with the average pain free interval being 24 months prior to the 4th procedure. The earliest reported return of pain was 6 months, and the longest total pain free interval was 13 years and 6 months.

Conclusion: In a select patient population, adhesiolysis may be associated with temporal improvement of pain and reoperation may alleviate pain when symptoms recur.

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Functional Phenotyping of Menstrual Pain

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Study Objective: We sought to determine feasibility of identifying contractile mechanisms underlying menstrual pain utilizing functional MRI imaging.

Design: Feasibility study.

Setting: Academic affiliated community hospital

Patients: Women with menstrual pain (n=9), menstrual pain with chronic pelvic pain (CPP, n=6), and healthy controls (n= 3).

Intervention: None

Measurements and Main Results: Patients presented for MRI during their menses, off any pain medication, and separately post-menses. We acquired functional MRI sequences during periods of self-reported sensations of menstrual cramps for those with dysmenorrhea and at random intervals for those without dysmenorrhea. Symmetrical large amplitude increases in T2 signal lasting longer than 16 sec were readily apparent in uteri of women with dysmenorrhea. The consistent progression from either cervix to fundus, or vice versa, suggested these are myometrial contractions. Two trained raters independently extracted contraction events with an intra-class correlation coefficient of R= 0.97 (p<0.001).

Women with dysmenorrhea on their menses had a median of two contractions (IQR1-4) over a 10 minute window. 8/9 subjects with isolated dysmenorrhea had uterine contractions. The one subject with dysmenorrhea on her menses without contractions did not have pain during her fMRI scans. 3/6 endometriosis/CPP subjects had identifiable contractions; the three without identifiable contractions still reported cramping during MRI testing.

Contractions were not observed in healthy controls. During non-menses visit, contractile-like activity was not observed in dysmenorrhea subjects, except in one subject reporting nonmenstrual pelvic pain.

Conclusion: Evaluation of pelvic fMRI sequences to determine the frequency of uterine contractions is consistent across reviewers and can be reliably quantified. Our results support the hypothesis that contractions contribute to menstrual pain in most women with dysmenorrhea. Further research is warranted to specifically evaluate the role of contractions in endometriosis and determine if phenotypic subtyping can optimize subsequent treatment outcomes.

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Is Degree of Religiosity Related to the Prevalence of Dyspareunia in a Population?



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Study Objective: To assess whether increasing degree of religiosity corresponds to a change in prevalence of dyspareunia.

Design: Cross-sectional survey study.

Setting: Participants were recruited from gynecology and family medicine clinics associated with a major hospital group and from a local university campus.

Patients: Surveys were collected from women of reproductive age who were 18 years or older, had been sexually active, and were not pregnant or menopausal.

Intervention: N/A

Measurements and Main Results: A survey with twenty-four questions was designed which incorporated the Duke Religiosity Index (DRI) questionnaire and questions about dyspareunia, attitudes towards sex, and demographic information. The DRI measures organizational religiosity, non-organizational religiosity, and intrinsic religiosity. A total of 448 surveys were collected: 348 women reported no dyspareunia, 76 women did report dyspareunia, and 24 surveys had missing data regarding primary outcome. Our results indicate that there is no significant difference in degree of organized religiosity and non-organized religiosity among women with or without dyspareunia. However, women with dyspareunia were significantly more likely to have lower intrinsic religiosity scores compared to women without dyspareunia (Mean: 10.92 vs 11.56, Median: 13 vs 11.5, $p=0.042$). In addition, women who reported having grown up with no religious affiliation were more likely to have dyspareunia compared to women who had grown up with religion (No religion: 31.3%, Catholic: 19.1%, Other Christian: 16.4%, Other religion: 8.8%, $p=0.045$). Furthermore, women who were taught that sex is bad when growing up had an increased likelihood of reporting dyspareunia, compared to those who were not taught this (26.5% vs 14.8%, $p=0.005$).

Conclusion: Women with less intrinsic religiosity and no religious upbringing may be at higher risk for developing dyspareunia. Women

Figure 1. Women with dyspareunia have significantly lower intrinsic religiosity scores.

Dyspareunia	# of Women	Median Intrinsic Religiosity Score (Scale of 3-15)	Average Intrinsic Religiosity Score (Scale of 3-15)	Standard Deviation	P-value
Yes	76	11.5	10.92	3.40	0.042
No	348	11	11.56	3.68	

Figure 1. Women with dyspareunia have significantly lower intrinsic religiosity scores.

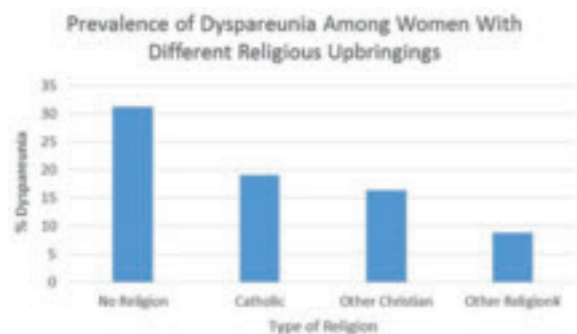


Figure 2. Women with no religious upbringing have a significantly higher prevalence of dyspareunia ($p=0.045$).

Women categorized as “Other Religion” include those who marked: Jewish, Muslim, Hindu, Buddhist, or Other on the survey.

who were taught sex is bad when they were young may also be at higher risk of experiencing painful intercourse.

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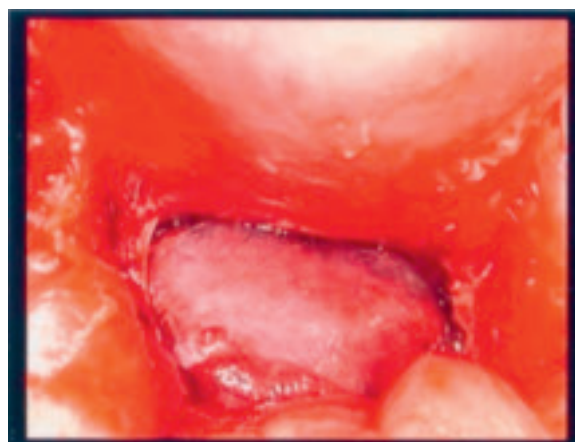
Embryologic Pelvic Mass Presenting as Urinary Retention



Mama ST, Chaudhry U, Iavicoli M. Ob/Gyn, Cooper Medical School of Rowan University, Camden, New Jersey

Study Objective: Paratubal or paraovarian cysts constitute 10% of adnexal masses occurring in all age groups. They are asymptomatic, incidentally found, usually benign although borderline tumors have been reported with the actual incidence unknown. Symptoms occur with enlargement, hemorrhage, rupture or torsion. They are located in the mesosalpinx and originate from mesothelium or remnants of the paramesonephric (Mullerian) or mesonephric (Wolffian) ducts.

Patients: A 34 year old female with a stable 6 cm left ovarian cyst for 3 years with no symptomatology except increasing constipation presented with sudden onset of severe pelvic pain associated with urinary retention. Pelvic ultrasound showed no torsion. On admission, the foley catheter drained 900cc of urine. On diagnostic laparoscopy normal uterus and ovaries were seen and a bluish, smooth walled pelvic mass occupied the entire posterior cul-de-sac. MRI showed no origination from the spinal cord or column. At surgery, the mass filled the posterior cul-de-sac



indenting the rectosigmoid occupying the left anterior paravesical space. It was dissected free intact. It was twisted thrice on its pedicle and was a paratubal cyst containing bluish, dark material. Final pathology was benign necrotic cyst with hemorrhage. The patient's urinary retention and pelvic pain resolved postoperatively.

Intervention:

Measurements and Main Results:

Conclusion: We present a unique case of a patient with a long standing, embryologic paratubal cyst with sudden onset hemorrhage within it complicated by torsion causing severe pelvic pain. The extraordinary feature in this case was the presentation with urinary retention. This was secondary to the mass effect of the rapidly enlarging mass compressing the left posterior bladder in the left anterior paravesical space. This case illustrates the difficulty in accurate diagnosis by imaging and adds to the literature on symptomatic paratubal cysts.

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Long-Term Follow-Up After Surgical Repair of Occult Hernia in Women with Unexplained Chronic Pelvic Pain



Aoun J,¹ Shaw J,² Eisenstein D,¹ Tsafirir Z.³ *Minimally Invasive Gynecologic Surgery, Henry Ford Hospital, West Bloomfield, Michigan; ²Wayne State University, Wayne State University, Detroit, Michigan; ³Gynecology, Sourasky Medical Center, Tel Aviv, Israel*

Study Objective: To evaluate whether surgical repair of ultrasound-diagnosed occult hernia resulted in improvement of pain scores in a female clinic population with unexplained pelvic pain.

Design: Retrospective cohort study with follow-up questionnaire.

Setting: Pelvic pain clinic at a university-affiliated tertiary medical center in Southeast Michigan.

Patients: Female patients with unexplained chronic pelvic pain who underwent surgical repair of ultrasound-diagnosed occult hernia between January 2005 and July 2012.

Intervention: Patients were contacted for a follow-up interview 3 to 9 years after their procedure.

Measurements and Main Results: Among 96 women with unexplained chronic pelvic pain and focal groin tenderness, 51 (53%) were positive for ultrasound-diagnosed occult hernia, of those, 35 (69%) were surgically repaired. Long-term follow-up after hernia repair was possible in 40% of patients, via phone interview. When the preoperative and postoperative scores were compared, the average pain improvement was 60% using the Brief Pain Inventory and 56% using the Short Form McGill Pain Questionnaire. Improvement was noted in all categories of the questionnaires. Sixty-four % (9/14) considered the surgery to be effective and 79% (11/14) were overall satisfied with the results, and finally, 71% (10/14) claimed that they would have the surgery again. No association was found between patients' satisfaction with their hernia repair surgery and co-morbidities such as smoking, hypertension, diabetes mellitus, degenerative joint disease, and obesity.

Conclusion: The majority of women with ultrasound-diagnosed occult hernia reported improvement of their pain after surgical repair. Some women, however, did not or only partially benefited from the procedure, which illustrate the difficulties faced by practitioners in diagnosing and treating individual findings like occult hernia in chronic pelvic pain patients where etiologic multiplicity is not uncommon.

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Successful Symptomatic Control of Fibroids Using Esmya, in a Patient with a Hostile Abdomen Secondary to Complications of Laparoscopic Excision of Endometriosis



Jones AS, Kwasnicka L, Griffiths A, Penketh R. *Department of Women's Health, University Hospital of Wales, Cardiff, South Glamorgan, United Kingdom*

Study Objective: This case report describes the effective use of Esmya in the treatment of pain and menorrhagia secondary to fibroids, in a patient

who was too high risk for surgery due to complications from laparoscopic excision of endometriosis.

Design: N/A

Setting: This patient was treated at the University Hospital of Wales, Cardiff.

Patients: The case is of a 45 year old G1P1 who initially presented with pelvic pain and secondary infertility, requesting IVF. She underwent a laparoscopy which demonstrated multiple endometriomas and dense adhesions between the sigmoid colon and posterior aspect of the uterus. She underwent adhesiolysis and excision of rectovaginal endometriosis, however unfortunately returned to theatre with feecal peritonitis 3 days postoperatively. She underwent a laparotomy and loop colostomy with repair of the sigmoid colon. However on reversal of her colostomy a year later, she developed an abscess and a subsequent stercoral perforation at the anastomosis site. This was managed as a cutaneous fistula and treated with TPN until it healed, however she acquired a large incisional hernia. A year later she presented with menorrhagia and severe pelvic pain when two 7cm posterior wall fibroids were found on ultrasound.

Intervention: Assessment by both general surgeons and gynaecologists concluded surgical management would be too risky due to her complex surgical history, raised BMI and resulting hostile abdomen. Esmya (ulipristal acetate) was commenced and continued in a 3 months on, 1 month off regimen. On follow up the patient reported resolution of her symptoms and ultrasound demonstrated a decrease in fibroid size.

Measurements and Main Results: The plan for this patient is to continue conservative management with Esmya until menopause, with regular follow up and ultrasound assessment of the fibroids as she is now symptom free.

Conclusion: Esmya is a practical and effective option for medical management of symptomatic fibroids in those unsuitable for surgical management.

755

Atypical Appendicitis Presenting as Adnexal Mass: A Gynecologic Case Report



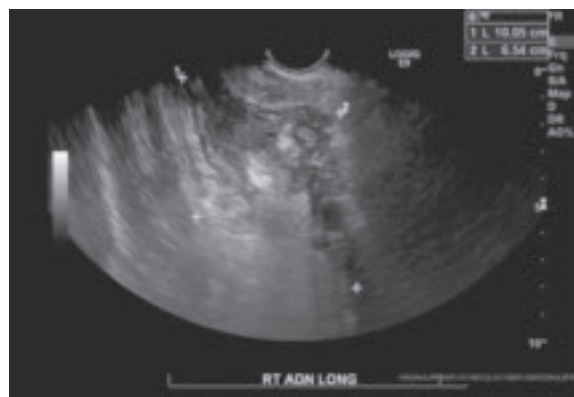
Lombardi TM,¹ Janco JM,² Tsai LJ.¹ *Obstetrics and Gynecology, Scripps Clinic, San Diego, California; ²Gynecologic Oncology, Scripps Clinic, San Diego, California*

Study Objective: There are many etiologies for pelvic pain in females, including both gynecologic and gastrointestinal. This case report demonstrates an atypical presentation of acute appendicitis masking as an adnexal mass. This patient's case serves as an important reminder regarding unusual presentations for otherwise common etiologies.

Design: Case report.

Setting: Large community-based hospital in San Diego, California

Patients: The patient was a 42-year-old gravida 2 para 2 who initially presented with two-and-a-half weeks of persistent right pelvic pain. Her work up included a pelvic ultrasound which revealed a 10 cm complex, vascular right adnexal mass.



Intervention: Referral to gynecologic oncology with plans for diagnostic laparoscopy.

Measurements and Main Results: The patient underwent consultation with a gynecologic oncologist given the sonographic complexity of this adnexal mass. CA-125 testing was normal. Following this consultation the plan was to proceed with surgical management via laparoscopy. Intraoperative findings revealed normal ovaries and fallopian tubes bilaterally. Dense adhesions and an inflammatory rind between the appendix and the peritoneum anterior to the right round ligament were identified, consistent with the mass that had been seen on imaging.



Intraoperative frozen section following appendectomy revealed a low-grade acute appendicitis.

Conclusion: This case report demonstrating an unusual presentation of acute appendicitis serves as an important reminder of the differential diagnosis for acute pelvic pain in females, and that atypical presentations of otherwise common etiologies should be considered in the differential diagnosis.

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Case Report of Leiomyoma Embedded within the Inguinal Canal



Lax DB, Thani SR. *Obstetrics and Gynecology, Newark Beth Israel Medical Center, Newark, New Jersey*

Study Objective: Report of a leiomyoma found within the inguinal canal and excised using robotic-assisted laparoscopy.

Design: Case Report.

Patients: 51 year old G4P2022 presented with persistent left pelvic pain. Three months prior to scheduled surgery, the patient presented to a sister medical center with left lower quadrant pain. Computed tomography scan was performed showing a mass in the left adnexal region that was 4.5cm in size and suspicious for ovarian mass or pedunculated uterine mass. Ultrasound was performed to rule out the possibility of ovarian torsion. A left adnexal mass that correlated to the prior CT was seen with peripheral doppler flow and absent central doppler flow.

Intervention: Given the pre-operative imaging results, the patient was scheduled to undergo a robotic-assisted left ovarian cystectomy. Intraoperative findings revealed a mass which appeared retroperitoneal, and within the inguinal canal. Initially this was thought to be scar tissue from a previous hernia repair although the patient had denied a surgical history. Survey of the skin overlying the lesion showed no scarring. Robotic-assisted laparoscopy was used to dissect the overlying tissue, which revealed the external surface of the mass. The appearance of the mass was suggestive of a leiomyoma and the mass was subsequently excised. General surgery was consulted to evaluate the defect of the inguinal canal and placed a mesh implant to repair the inguinal defect.

Measurements and Main Results: Pathology report confirmed the mass to be a leiomyoma.

Conclusion: The etiology of pelvic pain is a broad topic for multiparous women. Uterine fibroids are one of the most common tumors found in females. There are rare reports of round ligament leiomyomas, which have herniated through the inguinal canal. The fibroid we are reporting on was found imbedded within the inguinal canal, deep to the overlying peritoneum. Surgical excision should provide symptomatic relief.

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Laparoscopic Hysterectomy of an Incarcerated Fibroid Uterus in a Postmenopausal Patient



Griffith KC, Hicks-Courant KD, Clark N. *Obstetrics and Gynecology, Tufts Medical Center, Boston, Massachusetts*

Study Objective: To report a unique case of an incarcerated fibroid uterus in a postmenopausal patient treated with total laparoscopic hysterectomy.

Design: Case report with a literature review.

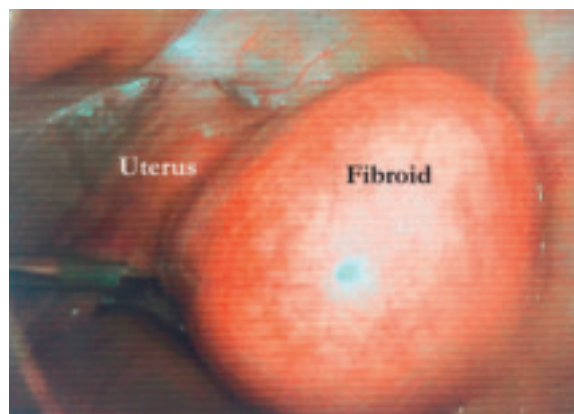
Setting: An academic medical center in Boston, MA.

Patients: A 60 year-old postmenopausal female who presented with severe pelvic and lower back pain.

Intervention: Total laparoscopic hysterectomy and bilateral salpingo-oophorectomy.

Measurements and Main Results: A 60 year-old postmenopausal para 0 presented with acute-onset pelvic and lower back pain for one month. Associated symptoms included low-volume voids and worsening constipation. The patient was initially diagnosed with back strain. A CT scan and pelvic ultrasound showed a partially exophytic, partially subserosal, fundal uterine fibroid measuring 5.1cm. The fibroid was focally tender on exam, and a diagnosis of a degenerating uterine fibroid was made.

The patient underwent an uncomplicated total laparoscopic hysterectomy and bilateral salpingo-oophorectomy. Upon laparoscopic survey, the uterus was small and retroflexed with a large exophytic fundal fibroid incarcerated in the posterior cul-de-sac. Pathology revealed a benign calcified fibroid. The patient's pain resolved immediately post-operatively, her bowel and bladder function normalized, and she did not require any narcotics.



Conclusion: Uterine incarceration is a rare diagnosis that has previously only been described in pregnancy. It occurs when an enlarging retroverted uterus becomes trapped below the sacral promontory. Symptoms include pelvic and back pain, urinary retention, and constipation. A large

pedunculated fibroid may act like an enlarged gravid uterus, and collapse into the cul-de-sac leading to uterine incarceration. It is important to recognize uterine incarceration as a possible cause of pelvic pain in non-pregnant patients with uterine retroflexion and fundal fibroids.

Virtual Posters – Reproductive Issues

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Laparoscopic Resection and Repair of Uterine Isthmocele



Steller CJ,¹ Miller CE,² Cholkeri-Singh A,² Sasaki K.² ¹Advocate Lutheran General Hospital, Park Ridge, Illinois; ²The Advanced Gynecologic Surgery Institute, Naperville, Illinois

Study Objective: To present our experience with laparoscopic resection and repair of uterine isthmocele.

Design: This is an observational study.

Setting: This study took place in two independent hospitals in Illinois

Patients: 21 patients who had undergone a laparoscopic resection and repair of uterine isthmocele from January 2014 through January 2016 were included.

Intervention: Data was collected via retrospective chart review.

Measurements and Main Results: Of the twenty-one patients who had a resection and repair of uterine isthmocele, all but five (23.8%) presented with infertility.

Presenting symptoms

Presenting Symptom	Number of Cases (%)
Infertility	9 (42.9)
Abnormal uterine bleeding (AUB)	2 (9.5)
Ectopic pregnancy in scar	2 (9.5)
AUB and infertility	4 (19)
AUB and Pelvic Pain (PP)	1 (4.8)
PP and infertility	1 (4.8)
AUB, PP and infertility	2 (9.5)

Fifty percent of patients have no residual isthmocele on post-operative imaging, and 44.4% have only a small niche that measured ≤ 6 mm.

Post-Operative Imaging

Post-operative imaging findings (N=18)	Number (%)
Normal/no isthmocele	9 (50)
Small defect	8 (44.4)
No improvement	1 (5.6)

Fifteen patients have attempted pregnancy, of which 12 have achieved pregnancy (80%). Approximately 42% of those conceived spontaneously. Four pregnancies ended in a first trimester miscarriage, six are ongoing, and two delivered, one at term with a repeat cesarean section and the second underwent a 31 week repeat cesarean section due to preterm labor. Patients who initially presented with pain and abnormal uterine bleeding had complete resolution of their symptoms. Two patients initially presented with an ectopic pregnancy in their isthmocele that was removed in conjunction with a resection and repair of the isthmocele. Both had uncomplicated follow up and one went on to achieve successful pregnancy.

Conclusion: Laparoscopic resection and repair of uterine isthmocele is a feasible and successful technique resulting in improved symptoms and improved fertility rates.

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Fertility and Pregnancy Outcomes in Robotic vs. Abdominal Myomectomy



Mandelberger A, Yoselevsky E, Soffer M, Carroll R, Ascher-Walsh C. *Obstetrics and Gynecology, Icahn School of Medicine at Mount Sinai, New York, New York*

Study Objective: To compare fertility and pregnancy outcomes after robotic vs abdominal myomectomies.

Design: Retrospective cohort study.

Setting: Tertiary-care academic institution

Patients: All patients undergoing abdominal or robotic myomectomy with available follow up data from June 2006 - December 2013.

Intervention: We reviewed the medical records of patients who underwent robotic or abdominal myomectomies with a single surgeon at a large university hospital. The route of surgery was determined by the goal of removing all fibroids. Patients undergoing RALM had all fibroids accessible laparoscopically as shown by pre-op MRI. Follow up data was obtained and recorded as part of the surgeon's routine postoperative care.

Measurements and Main Results: Follow up data was available for 360 patients: 254 robotic and 106 abdominal myomectomies out of a total of 336 and 450 respectively. Robotic and abdominal groups differed in terms of mean age (36.523 +/- 0.891 vs 41.981 +/- 1.02), race (57% vs 31.5% caucasian and 22.8% vs 58.7% african american), number (3.192 +/- 0.365 vs 38.17 +/- 10.039) and weight (346.557 +/- 39.093g vs 715 +/- 187.647) of fibroids removed. Indications for myomectomy were similar, but a greater number of patients with robotic myomectomies cited infertility as their main indication (29.3% vs 18.9%, p=.045). 44.8% of robotic and 52.9% of abdominal actively tried for pregnancy postoperatively. Of those, 72.3% of robotic myomectomies vs. 59.6% of abdominal were able to achieve pregnancy (p=0.095). 52.1% of robotic vs. 49.1% of abdominal myomectomies required use of assisted reproductive technology. Pregnancy outcomes in both groups were similar, with 23.4% spontaneous abortion rate in robotic vs 32.5% in abdominal myomectomies (p=0.490). 17.6% of pregnancies resulted in preterm delivery in robotic vs 16.3% in abdominal myomectomies (p=0.852). Uteroplacental complication rate was very low overall, with 1 placenta accreta and no uterine ruptures.

Conclusion: Despite differing patient populations, overall pregnancy rates are very good and similar after both robotic and abdominal myomectomies with low uterine complication rates.

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Laparoscopy Is the Gold Standard for the Diagnosis of Subtle Fimbrial Pathology, Peritubal and Periovarian Adhesions



Abuzeid O,¹ Yip M,² Hebert J,¹ Abuzeid M.¹ ¹Obstetrics and Gynecology, Hurley Medical Center, Flint, Michigan; ²College of Human Medicine, Michigan State University, Flint, Michigan

Study Objective: Hysterosalpingogram (HSG) has an established role in the diagnosis hydrosalpinx of the fallopian tube. The primary aim of this study is to compare the accuracy of HSG to laparoscopy in detecting subtle fimbrial pathology, peritubal and periovarian adhesions based on the presence of loculation of the radio opaque material around the fallopian tubes. Additionally, our secondary aim is to evaluate the impact of BMI and presence of anovulation on HSG accuracy. These characteristics can lead to physiological loculation of dye and affect results.

Design: Retrospective Study.

Setting: Tertiary Referral Center

Patients: Database with 1864 infertility patients who underwent diagnostic/operative laparoscopy (1992 – 2015) were reviewed. Patients with documented HSG results were considered (n=819). Patients with proximal, mid or distal tubal occlusions on HSG were excluded (n=373). A total of 446 patients were included in this study. Two hundred ten patients had normal HSG findings and 236 patients had loculation of the dye around the tubes.

Intervention: Diagnostic laparoscopy evaluation for presence of peritubal adhesions, periovarian adhesions or subtle fimbrial pathology.

Measurements and Main Results: Mean age at time of surgery was 32.39 + 4.40 years, mean duration of infertility was 2.84 + 2.60 years and 54.90% had primary infertility. The sensitivity and specificity for detecting pathology based on loculation seen on HSG was 55.21% and 54.26%, respectively. The positive and negative predictive values, false positive and false negative rate were 74.79%, 33.02%, 45.74% and 44.79%,

respectively. Analysis based on BMI and anovulation showed the greatest difference in sensitivity in those with normal weight/ovulation compared to obese/anovulation (55.51% vs 46.96%).

Conclusion: This data suggest HSG is not the preferred method for detecting subtle fimbrial pathology and peritubal/periovarian adhesions, especially in obese or anovulatory patients. Diagnostic laparoscopy is the gold standard for the diagnosis of such pathologies.

761

Classification and Surgery of Uterovaginal Anomalies

Makiyan Z, Adamyan L, Stepanian A, Farkhat K, Miroshnikova N. Federal State Institution, Research Center for Obstetrics, Gynecology, and Perinatology named after V.I. Kulakov, Moscow, Russian Federation



Study Objective: To optimize the surgical correction and reproductive outcomes for females with uterovaginal malformations.

Design: Retrospective analysis of reproductive outcomes after surgery for various female genital malformations.

Setting: Federal State Institute, Research Center of Obstetrics, Gynaecology and Perinatology, named after V.I. Kulakov, Moscow, Russia

Patients: 2025 patients underwent surgery for various uterovaginal anomalies between 1992 and 2016.

Intervention: Clinical investigations included ultrasonography, MRI, laparoscopy, hysteroscopy.

Surgical correction of genital malformations based on clinical manifestations: obstruction of menstrual outflow, abdominal pain, infertility, miscarriage, sexual problems.

Neovagina creation (colpopoiesis) for utero-vaginal aplasia (MRKH syndrome) was performed in 352 cases. Surgical reconstructions for uterus duplex took place in 296 patients, for various factors of infertility in patients with bicornuate uterus in 210 cases, for unicornuate uterus - laparoscopic removal of rudimentary horn in 245 cases; for partial vaginal aplasia - vaginoplasty in 240 cases, for septate uterus - hysteroscopic dissection of septum in 445 patients. The cervico-vaginal aplasia group included 64 patients; hysterectomy of rudimentary uterus was performed in 45 cases; 21 patients successfully underwent the creation of a neo-cervical canal with intrauterine stentation.

Measurements and Main Results: More than 52% patients had concomitant infertile factors: tubal and peritoneal adhesions (34%), intrauterine synechia (7%), polycystic ovary (17%) and hormonal disorders - anovulation (19%), ovarian hypofunction (8%).

The extra-genital endometriosis was removed in 56%, deep infiltrative endometriosis in 23%, ovarian endometriosis in 6%, adenomyosis in 8% cases.

Clinico-anatomical classification based on the analysis of 2025 of female patients with various genital malformations and a review of the relevant literature enabled differential diagnosis and appropriate surgical correction.

Conclusion: The endometriosis was still the major cause of pain and infertility (56%). The reconstructive surgical correction, assisted reproduction methods, and pathogenetic rehabilitation appeared to improve reproductive outcomes in 57% women with utero-vaginal anomalies.

762

Uterine Dehiscence and Evisceration of Leiomyoma Through Cesarean Scar After Cesarean Section

Dhariwal L, Nahar D, Sternchos J, Nimaroff M. Obstetrics and Gynecology, North Shore University Hospital - Northwell Health System, Manhasset, New York



Study Objective: We report a case of a large intramural uterine leiomyoma resulting in preterm premature rupture of membranes, preterm labor, and eventually uterine dehiscence and evisceration through the cesarean section scar.

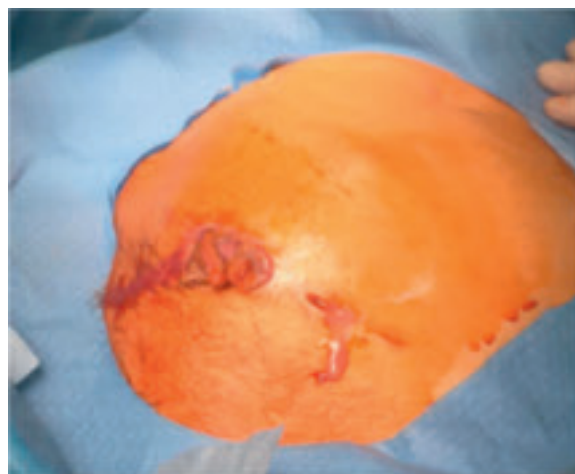
Design: Case report of single patient.

Setting: Academic teaching hospital

Patients: A 34 year-old woman with known uterine leiomyoma underwent an emergency classical cesarean section at 25 weeks for cord prolapse. She was followed for a superficial wound opening and presented 43 days after surgery complaining of increased drainage and pain from her incision. An MRI performed a few days prior revealed probable dehiscence of uterine scar.



Intervention: Patient was sent to the hospital where she was emergently taken to the operating room. Examination under anesthesia revealed a 6 centimeter dilated cervix smooth necrotic mass extruding from both her cervix and anterior abdominal wall. Upon laparotomy this was consistent with a degenerating leiomyoma which was eviscerating through her fascia and cesarean section scar. She underwent an exploratory laparotomy, myomectomy, repair of hysterotomy dehiscence, and placement of Strattice graft and negative pressure wound therapy.



Measurements and Main Results: The patient was followed closely postoperatively, where her course was complicated by anemia, fevers, and a postoperative infection. This was managed with a blood transfusion, wound care, and intravenous antibiotics. Final pathology revealed a degenerating leiomyoma and wound cultures grew *Enterococcus Faecalis*.

Conclusion: Rupture of a degenerated leiomyoma is an extremely rare complication of uterine leiomyomata. The abundant hormonal changes in pregnancy and the postpartum period are thought to be a cause of

degeneration of leiomyomas. We report a case on uterine dehiscence and fibroid evisceration where uterine-preserving surgery was performed.

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Management of Patients with Tubo-Ovarian Abscesses: Do the Presence of STD Risk Factors Predict Outcomes?



Young S, Kho K. *Obstetrics and Gynecology, University of Texas Southwestern, Dallas, Texas*

Study Objective: To determine if presence of STD risk factors influence the success rate of conservative management of tubo-ovarian abscesses (TOA).

Design: Retrospective cohort study.

Setting: Teaching hospital

Patients: Patients admitted to Parkland Hospital from 2013 to 2014 with TOA.

Measurements and Main Results: A total of 81 patients met inclusion criteria. Median age was 37 years (18-64). 13 (16%) were White, 40 (49%) were Hispanic, and 30 (37%) were African-American. 45 (57%) patients had risk factors for STDs while 36 (43%) did not. The median age of patients with risk factors was 34 years (18-54) vs. 43 years (21-54) without (p-value = 0.0004). Of patients with risk factors, 11 (24%) had positive gonorrhea or chlamydia probes. 20 (44%) patients with risk factors vs. 20 (55%) without were septic (p-value = 0.32). 18 (40%) patients with risk factors vs. 16 (44%) without underwent surgical management or image-guided drainage (p-value = 0.69). Median abscess size for patients with risk factors was 7.5 cm vs. 7.4 cm without (p-value = 0.57). 5 (11%) patients with risk factors vs. 7 (19%) without were readmitted for treatment failure or recurrence (p-value = 0.29). Median length of stay for patients with risk factors was 4 days, vs. 6 days without (p-value = 0.35).

Conclusion: A lack of STD risk factors was associated with older patients; however, rates of sepsis, need for surgical management, rate of readmission, length of stay, and abscess size were not significantly different. We hypothesize that older patients presenting with TOAs without STD risk factors may have a mechanism for infection which is not ascending, but descending from a GI source. While the differences in outcomes did not reach statistical significance, this may be due to a small sample size, and further research is needed.

764

Is Race and BMI Associated with Leiomyoma Recurrence in Women Above Age 40?



Hijaz M, Jankowski J, Sangha R. *Henry Ford Hospital, Detroit, Michigan*

Study Objective: To evaluate the association between race and recurrence of leiomyomas following myomectomy in women aged 40 and above.

Design: A retrospective chart review.

Setting: Academic affiliated community hospital: Henry Ford Health System

Patients: 61 women above the age of 40 who underwent uterine myomectomy, regardless of route, between 2003 and 2013.

Intervention: Uterine myomectomy, regardless of route (open, robotic, laparoscopic, hysteroscopic).

Measurements and Main Results: A total of 61 patients were identified, 46 were African American, 6 were Caucasian, 3 Hispanic and 6 were classified as "other." Fisher's exact test was used to test for an association between race and recurrence. Results revealed p value of 0.606 showing non-significance. The mean BMI was 28.2 with S.D of 5.01 overall. There was no significant difference between the recurrence and no recurrence groups (p-value 0.438).

Conclusion: There was no evidence of an association between race or BMI with recurrence in our patient population.

765

Use of Focus Groups to Identify Pre- and Post-Hysterectomy Patient Centered Preferences



Sangha R, Bossick A, Wegienka G. *Obstetrics and Gynecology, Henry Ford Hospital, Detroit, Michigan*

Study Objective: To identify patient-centered preferences before hysterectomy, and to assess women's overall experience post-surgery.

Design: Focus groups.

Setting: Henry Ford Hospital (Detroit, MI)

Patients: All English-speaking Henry Ford Health System patients having undergone hysterectomy and within three time periods post hysterectomy: 0-6 months, 6-12 months, 12 months and greater post hysterectomy.

Intervention: Focus groups were conducted to identify women's expectations and degree to which patient-centered preferences were discussed before their hysterectomy surgeries, and to assess women's outcomes and overall experience post-surgery.

Measurements and Main Results: A total of 25 women participated. Questions also addressed experiences and resources that helped to inform women's decisions to move forward with surgery, their reflections post-surgery, and advice participants had for women who might be facing a decision about hysterectomy. Women's expectations are illustrated in Table 1. The only expectation that persisted during recovery, regardless of the complications experienced, was that women thought they would heal faster and be back to their normal energy level than the doctor predicted. Women brought up the following topics that they feel could have been discussed: Mood change/depression, weight gain/loss, unexpected issues such as constipation, extended healing time and other complications (shoulder, back pain), emotionally coping during recovery.

Conclusion: Various themes identified included not only physical aspects but also social consequence of hysterectomy, personal feelings of being "broken" or changed self-image, frustrations, consequences related to sexual intimacy, regrets and depression. Providers should be aware that clearly undergoing hysterectomy is also an emotional experience for most women.

Patient Centered Expected Outcomes after Hysterectomy

Expected Outcomes	# of times mentioned by participants
No more menstrual cycles	4
Less pain	5
No more heavy bleeding	7
To survive	2
Be Healthy	2
"Stomach-free"/Not look pregnant	2
Less painful sex	3
Total	25

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An Atypical Presentation of the Most Common Uterine Anomaly: The Septate Uterus



Bhagat N, Whitelock J, Goel P, Barcia P, Hashemi E, Anderson P, Ambarus T. *Ob/Gyn, Newark Beth Israel Medical Center, Newark, New Jersey*

Study Objective: A case of an atypical presentation of a septate uterus in a 13 year old female with chronic pelvic pain.

Design: Case Report.

Setting: Community hospital

Patients: 13 year old female presented to the ER for multiple visits secondary to persistent pelvic pain. Patient underwent menarche a year prior to presentation. Physical examination revealed normal external female genitalia.

Intervention: Patient underwent a diagnostic hysteroscopy and operative laparoscopy with drainage of hematometria and hematosalpinx with minimal alleviation of her symptoms. Visual findings confirmed the diagnosis of a septate uterus, despite the reading of bicornuate uterus on imaging. Cessation of menstruation with hormonal contraceptives with the intention to delay definitive surgery until sexual maturity was unsuccessful. A multidisciplinary approach was undertaken to do a hysteroscopic resection of the uterine septum with the concurrent use of laparoscopic ultrasound surveillance of the uterus. However, secondary to reaching the maximum accepted fluid deficit for operative hysteroscopy,

the patient ended up having an uterine metroplasty with resection of septal wall via laparotomy. A foley catheter was left in utero for 6 days to prevent intrauterine adhesions. Patient was discharged home on Necon oral contraceptives to help rebuild her endometrium.

Measurements and Main Results: Ultrasound imaging demonstrated a distended right horn with a stenosis at the inferior end of the right endometrial cavity suggesting a bicornuate uterus with normal left horn and right hydrosalpinx. CT and MRI also revealed similar findings along with hemorrhage of various ages within the endometrial cavity.

Conclusion: Despite radiologic findings of a bicornuate uterus, the patient had a complete septate uterus with hematometrium of the right endometrial cavity and right hematosalpinx, causing worsening pelvic pain. Hysteroscopic resection of the septum would have been the ideal approach to surgery, however due to hysteroscopic limitations on acceptable fluid deficits, laparotomy was the safest approach for resection of the septal wall and definitive therapy.

Virtual Posters – Robotics

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Incidence of Port-Site Metastases in Gynecologic Cancers After Robotic Surgery



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Study Objective: To estimate the incidence of port-site metastases after robotic surgery for gynecologic malignancies.

Design: Retrospective cohort study.

Setting: University-affiliated teaching hospital.

Patients: Two hundred eighty-seven women who underwent robotic-assisted procedures between 2012 and 2015 were identified for analysis.

Intervention: Of all 287 women who underwent surgical treatment for gynecologic malignancies, 142 received staging surgery for endometrial cancer, 83 received staging surgery for ovarian cancer, and 62 received radical hysterectomy for cervical cancer. Patient demography, surgical outcomes and complications were evaluated.

Measurements and Main Results: Among these patients, 2 had robotic port-site metastasis, leading to an incidence of 0.7%. The types of cancers causing port-site metastasis were one cervical adenocarcinoma and one ovarian serous carcinoma. The port-site metastasis occurred 15 and 25 months after robotic surgeries with the tumor measuring 1 and 3 cm for these two cases, respectively.

Conclusion: In women with gynecologic malignancy, the incidence of port-site metastasis following robotic surgery was 0.7%. Although, the rate of port-site metastasis is low, preventive procedures to reduce tumor implantation and close follow ups are required.

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The Feasibility and Safety of Robotic Single Incision Surgery for Variety Benign Pathologies in Minimally Invasive Gynecology Teaching Program



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Study Objective: To describe the complications associated with robotic single incision surgery for variety benign gynecologic pathology in a minimally invasive fellowship Program.

Design: A retrospective Cohort.

Setting: A single academic institution.

Patients: Ninety-seven consecutive patients undergoing robotic single incision surgery with variety benign pathology.

Intervention: Robotic single-incision surgery.

Measurements and Main Results: Ninety-seven consecutive patients underwent robotic single-incision surgery. The most common surgery was total laparoscopic hysterectomy with bilateral salpingectomy (n=56/97, 58.2%), followed by endometriosis including stage IV (n=22/97, 22.7%),

myomectomy (n=7, 7.2%), sacrocolpopexy (n=6/97, 6.2%) and abdominal cerclage (n=4/97, 4.1%). The mean age was 40.7±14.1. For procedures completed via Robotic single-incision (n=96/97, 99%), the average blood loss was 72±76 ml. The conversion to multiple-port was 1 of 97 (1%). The hernia rate was 1 of 97(1%). The median time for follow-up was 80 days (range, 10-381 days).

Conclusion: Robotic single-incision surgery is a feasible and safe minimally invasive modality for treatment of most benign simple and complex gynecologic pathology in academic teaching program.

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Robot-Assisted Laparoscopic Myomectomy, an Alternative to Laparotomy for Numerous Myomas (Over 10)



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Study Objective: To evaluate the feasibility of robot-assisted laparoscopic myomectomy in multiple myomas over 10 in number and to compare outcomes with open myomectomy.

Design: A retrospective chart review.

Setting: A single operator at St. Marys Fibroid Center in Seoul between October 1, 2010 and January 31, 2014

Patients: 216 patients who underwent robot-assisted laparoscopic myomectomy in the selected patients, 10 or more uterine myomas were removed.

Intervention: We reported the demographic information, the characteristics of the removed myomas including with maximum diameter, the sum of the diameter of each myoma, and the types of the combined surgeries with robot-assisted laparoscopic myomectomy that were used on 10 or more myomas; we the organized surgical outcomes that were measured including the operative time, estimated intraoperative blood loss, length of hospital stay, and perioperative complications. And we compared these surgical outcomes with cases of open myomectomy.

Measurements and Main Results: A total of 13 women underwent the removal of 10 or more uterine myomas by robotics. The patient age was 37.6±3.6 years, and all of the patients were nulliparous. The operation time was 389.8±100.6 min. The number of removed myomas for each case was 13.1±3.8 (range 10-20). The myoma with the maximum diameter was 6.5±0.7 centimeters (range 5.0-8.0 centimeters). The sum of the diameters was 34.9 ±9.6 centimeters (range 20.0-54.5 centimeters). The Estimated blood loss during operation was 219.2±158 milliliter. The postoperative hospital stay was 2.6±0.6 days.

Compared to laparotomic adenomyomectomy, robotic surgery has strengths that enables less blood loss, shorter hospital stay and decreasing risk of blood transfusion although it takes more operation time.

Conclusion: In robot-assisted laparoscopic myomectomies, supplementary techniques including preoperative MRI assessment, intraoperative sonographic navigation, and palpation by an assistant to localize the myomas are helpful in overcoming the absence of haptic perception. This technique is considered to be an alternative to laparotomy for more than 10 myomas.

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Risk Factors Associated with Postoperative Complications from Robotic-Assisted Gynecologic Surgery, 2009-2014



Chang L, Mohammed R, Curran C, Mayo A, Hunter K, Mama ST. Ob/Gyn, Cooper Medical School of Rowan University, Camden, New Jersey

Study Objective: To identify significant risk factors in postoperative complications within 90 days of discharge associated with robotic gynecologic surgical procedures.

Design: Methods: Patients with benign or malignant disease who underwent robotic-assisted gynecologic surgery at an academic medical center from 2009 to 2014 were identified. Patient demographics and characteristics, intraoperative data, and postoperative complications within 90 days of discharge was collected. This included postoperative complications during the original surgery admission, hospital

readmission, and emergency department and outpatient visits. Statistical tests included Independent T test, Mann Whitney U test, chi square test, and logistic regression.

Measurements and Main Results: Six hundred and ninety nine patients were included. Eighty eight (12.6%) had postoperative complications during their surgery admission, 33 (4.7%) during readmission, and 76 (10.9%) during outpatient visits.

For patient's during initial surgical admission, race, history of myocardial infarction (MI)/stroke, pulmonary disease, renal disease, having more than 4 existing medical comorbidities, previous surgeries, intraoperative adhesions and intraoperative complications were all significantly associated with postoperative complications.

In the patient's requiring hospital readmissions, history of MI/stroke, pulmonary disease, congestive heart failure, greater than 4 existing medical comorbidities, previous surgery, urogynecologic procedures and intraoperative complications were all significantly associated with a higher rate of postoperative complications.

In patients with postoperative complications managed outpatient, age, operator experience, operating time, renal disease, robotic vaginal or urogynecologic procedures and intraoperative complications were all significant factors identified.

Conclusion: This analysis suggests that within 90 days from surgery, risk factors for postoperative complications vary. Prior multiple medical comorbidities, prior surgeries, intraoperative adhesions, intraoperative complications, vaginal or urogynecologic surgery, age and race are risk factors significantly associated with postoperative complications. Patient selection and awareness of potential patient morbidity in robotic surgery utilizing these risk factors may aid gynecologic surgeons.

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Risk Factors Associated with Postoperative Complications from Robotic-Assisted Benign versus Malignant Gynecologic Surgery, 2009-2014



Chang L, Mohammed R, Curran C, Mayo A, Hunter K, Mama ST. *Ob/Gyn, Cooper Medical School of Rowan University, Camden, New Jersey*

Study Objective: To identify risk factors in postoperative complications within 90 days of discharge associated with benign versus malignant robotic gynecologic surgical procedures.

Design: Patients with benign versus malignant disease undergoing robotic-assisted gynecologic surgery at an academic medical center from 2009 to 2014 were identified. Patient characteristics, intraoperative data, and postoperative complications were collected including postoperative complications during the original surgery admission, hospital readmission, and emergency department and outpatient visits. Statistical tests were Independent T test, Mann Whitney U test, chi square test, and logistic regression.

Measurements and Main Results: Of the 699 patients included, 88 (12.6%) had postoperative complications during their surgery admission, 33 (4.7%) during readmission, and 76 (10.9%) during outpatient visits.

For patient's during initial surgical admission, for benign cases, operator experience, race, pulmonary disease, renal disease, having >4 existing medical comorbidities, previous surgeries, intraoperative adhesions and intraoperative complications were all significantly associated with postoperative complications. For cases with malignancy, history of MI/stroke, pulmonary disease, renal disease, >4 existing medical comorbidities, and intraoperative complications were all significant.

In patients readmitted to the hospital, for benign cases, age, operator experience, pulmonary disease, congestive heart failure, renal disease, > 4 existing medical comorbidities, previous surgery and intraoperative complications were all significant. For cases with malignancy, estimated blood loss, history of MI/stroke were significantly associated.

In patients with postoperative complications managed outpatient, for benign cases, uterine weight, operator experience, operating time, history of hyperlipidemia, total robotic hysterectomy and intraoperative complications were significant. For malignant cases, operator experience, total robotic cases and robotic vaginal cases were significant.

Conclusion: This analysis suggests that risk factors for postoperative complications vary both according to time elapsed since surgery and whether surgery was for benign or malignant cases. The unique risk factors identified may aid surgeons in early recognition of potential complications.

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Postoperative Complications Associated with Robotic-Assisted Gynecologic Surgery, 2009-2014



Chang L, Mohammed R, Curran C, Mayo A, Hunter K, Mama ST. *Ob/Gyn, Cooper Medical School of Rowan University, Camden, New Jersey*

Study Objective: To delineate trends in postoperative complications associated with robotic gynecologic surgical procedures within 90 days of discharge.

Design: Methods: Patients who underwent robotic-assisted gynecologic surgery using the da Vinci Surgical System at an academic medical center from 2009 to 2014 were identified. These included patients with benign and malignant disease. Medical records were reviewed for patient demographics and characteristics, intraoperative data, and postoperative complications within 90 days of discharge. This included postoperative complications during the original surgery admission, hospital readmission, and emergency department and outpatient visits.

Measurements and Main Results: Six hundred and ninety nine patients were included. Eighty eight (12.6%) had postoperative complications during their surgery admission, 33 (4.7%) during readmission, and 76 (10.9%) during outpatient visits. The most common types of postoperative complications during the surgery admission were bowel issues (37.5%), medical comorbidities (34.1%), and fever or infection (28.4%). During hospital readmission, the most common types of postoperative complications were wound complications (51.5%), fever or infections (39.4%), medical comorbidities (33.3%), and bowel issues (30.3%). For outpatient visits, the highest rates of postoperative complications were fever or infections (35.5%), wound complications (34.2%) and bowel issues (27.6%).

Conclusion: This retrospective case series suggests that bowel issues, medical comorbidities, and fever and infection are the most common postoperative complications seen after robotic gynecological surgical procedures for benign or malignant disease, whether it be immediately postoperative, at readmission or on an outpatient basis. Wound complications also remain a common postoperative complication. Patient's with pre-existing medical comorbidities are at higher risk for postoperative complications and demand greater vigilance. This along with early recognition of possible postoperative complications may overall have an impact on decreasing patient morbidity.

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Telelap ALF-X Total Hysterectomy in Obese Patients: A Pilot Study



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Study Objective: This study was aimed to investigate the safety, feasibility and efficacy in hysterectomy of new robotic platform Telelap ALF-X (Transenterix Inc., USA) in obese patients. This platform is characterized by the innovation of 3D eye-tracking camera and a tactile feedback that could improve the surgical practice.

Design: A Pilot study.

Setting: "Policlinico Gemelli" Foundation, Catholic University of the Sacred Heart of Rome

Patients: 10 obese patients (BMI > 30 < 40) underwent elective hysterectomy with bilateral salpingo-oophorectomy in the context of the single-institution phase II trial (id: OBALF-X, NCT02338505) now on-going.

Intervention: Telelap ALF-X robotic hysterectomy with bilateral salpingo-oophorectomy

Measurements and Main Results: We recorded perioperative and post-operative outcomes. The median age was 60 years (range 51–75), and the median BMI was 33.3 kg/m² (range 30.4–38.3). The median uterine weight was 112.5 g (range 77–225). Indication to total hysterectomy was early stage (FIGO Stage IA) endometrial cancer in 100% of patients. The median docking time was 10.5 minutes (5–25). The median estimated blood loss was 100 mL (50–200). No conversions to laparotomy were recorded. No intra and 30-days post-operative complications were



Table 2

Perioperative outcomes

No. of patients	10
Docking time (minutes), median (range)	10.5 (5-25)
OT (minutes), median (range)	110 (70-200)
EBL (mL), media (range)	100 (50-200)
Time to discharge (days), median (range)	2 (1-4)
Duration of ileus (hours), median (range)	17 (12-36)
Conversion, N (%)	
LPS	0
LPT	0
Intraoperative complications, N (%)	0
Postoperative complications, N (%)	0
VAS score, median (range)	
2 hours	2 (1-3)
4 hours	2 (1-3)
12 hours	4 (1-8)
24 hours	3 (1-5)

Conclusion: Our preliminary data suggest that Telelap ALF-X platform could be safe for gynecologic procedure even in obese patients. More clinical data are needed to determine whether this approach would offer any additional benefits in a new middle line between standard laparoscopy and robotics.

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A Malignant Transformation of Adenocarcinoma In Situ of the Cervix to Invasive Adenocarcinoma at Port Site After Robotic-Assisted Surgery



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Study Objective: We present here an interesting and never before reported case of possible port site malignant transformation of cervical adenocarcinoma-in-situ (AIS) after a preventative robotic radical hysterectomy.

Design: Case report.

Setting: University-affiliated teaching hospital.

Patients: A 49-year-old woman underwent a loop electrosurgical excision procedure initially after the finding of adenocarcinoma in situ followed by preventative radical hysterectomy.

Measurements and Main Results: Histopathological finding actually revealed adenomyosis coexisting with leiomyoma, but no evidence of a primary tumor. One year later, the patient developed invasive adenocarcinoma of the port site which was removed en bloc and concurrently treated with radiotherapy. The patient continued follow-up treatment without recurrence.

Conclusion: This is the first report describing a case that has never before been reported of malignant transformation of adenocarcinoma in situ of the cervix to invasive adenocarcinoma at port site. Our case serves to remind gynecologic oncologists that although the risk of port site metastasis is low in early stage cancers, close follow ups are still necessary.

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Hysterectomy - Vaginal, Abdominal and Robotic Laparoscopic Study: Clinical Evaluation and Cost Analysis



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Table 1
Baseline Characteristics

All patients	10
Age (year), median (range)	60 (51-75)
BMI (kg/m ²), median (range)	33.3 (30.9-38.3)
Median uterine weight (g), median (range)	112.5 (77-225)
Previous abdominal surgery, N (%)	
Laparotomy	6 (60)
Laparoscopy	0 (0)
No previous surgery	4 (40)
Diagnosis, N (%)	
Endometrial cancer (FIGO stage IA)	10 (100)

The median operative time (OT) was 110 minutes (70–200)

registered. The median ileus was 17 hours (12–36) and the median time to discharge was 2 days (1–4). The median VAS scores registered at 2, 4, 12, and 24 hours was respectively 2 (1-3), 2 (1-3), 4 (1-8) and 3 (1-5)

Table 1
Summary of Patients' Record Results

	TVH	TAH	RLH	Comparisons Significant differences
Total patients	72	119	142	
Operative time (minutes)	119.75	181.65	194.11	RLH > TAH > TVH
Length of hospital stay (days) (mean)	1.41	2.80	1.41	TAH > TVH, RLH; no significant difference between TVH and RLH
Total charges (\$) (mean)	\$18,164.65	\$23,252.16	\$23,686.48	TAH, RLH > TVH; no significant difference between TAH and RLH
Estimated blood loss (mL) (mean)	97.11	194.16	105.67	TAH > RLH > TVH

RLH, robotic laparoscopic hysterectomy; TAH, total abdominal hysterectomy; TVH, total vaginal hysterectomy.

Table 2
Summary of Patient Questionnaire Results

	TVH	TAH	RLH	p	Comparisons Significant differences
Total patient responses	49	80	101		
Postoperative pain level (mean)	5.47	6.9	5.59	0.005	TAH>RLH; no significant difference between TVH and TAH or between TVH and RLH
Days of analgesic use (mean)	7.61	11.13	8.43	0.1581	TAH>RLH,TVH; no significant difference between TVH and RLH
Days until self-care (mean)	3.78	6.34	5.43	0.1109	TAH>TVH; no significant difference between TVH and RLH or between TAH and RLH
Days to return to work	34.03	43.18	29.7	0.0004	TAH>RLH; no significant difference between TVH and TAH or between TVH and RLH
Days until first BM after surgery (mean)	2.29	2.39	2.32	0.9216	None
Weeks until intercourse after surgery (mean)	8.05	11.74	9.64	0.0053	TAH>TVH; no significant difference between TVH and RLH or between TAH and RLH

p- value, total comparison between all groups using analysis of variance. BM, bowel movement.

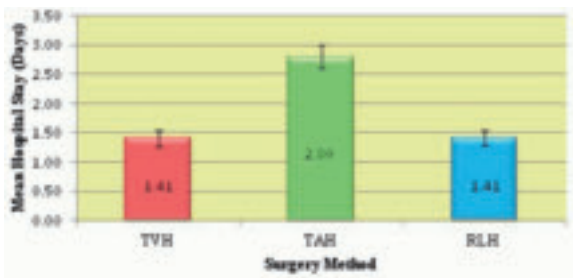


FIG. 1. Mean hospital stay in days with 95% CI error bars for each surgical group.

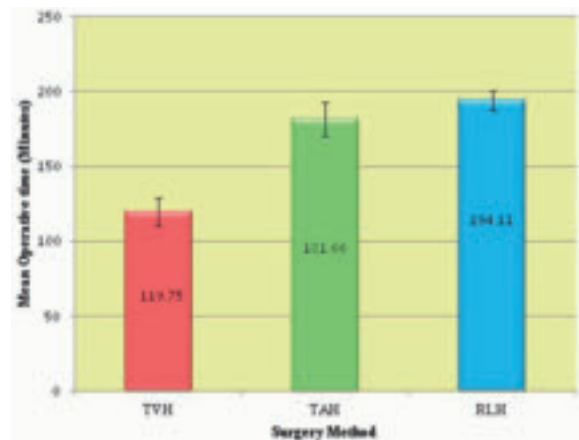


FIG. 2. Mean Operative time with 95% CI error bars for each surgical group.

Study Objective: Comparing postoperative clinical outcome and cost analyses of Total Vaginal (TVH), Total Abdominal (TAH) and Robotic Laparoscopic (RLH) Hysterectomy.

Design: Retrospective single-center study.

Setting: Emory St. Joseph's Hospital.

Patients: 333 consecutive hysterectomies grouped into TVH (72), TAH (119) and RLH (142).

Intervention: Postoperative outcome and cost analyses were compared in hysterectomy cases performed by the author from January 1st, 2008–December 31st, 2015.

Measurements and Main Results: Hysterectomies were reviewed, 230 patient questionnaires were completed. TAH had significantly higher hospital stay (2.80days) than TVH (1.41days) and RLH (1.41days). RLH

had significantly higher operative time (194.11min) than TVH (119.75min) and slightly higher than TAH (181.66min). Learning curve was a factor in operative time in RLH cases as it decreased significantly from 2008 (213.25min) to 2015 (186.44min). EBL was significantly higher in TAH (194.16ml) than RLH (105.67ml) and TVH (97.11ml). Increase in operative time between RLH only and RLH+ other procedures (lyses of adhesions, excision of ovarian cysts...etc.) were not significant. Hospital charges were similar in TAH (\$23,252.16) and RLH

(\$23,686.48) but were significantly low in TVH (\$18,164.65). TAH had significantly higher postoperative pain levels and days of analgesic use (6.9, 11.13) than RLH (5.59, 8.43), TVH (5.47, 7.61). TAH had significantly higher days until self-care (6.34) than TVH (3.78) but higher and not significant than RLH (5.43). TAH had significantly higher days to return to work (43.18) than RLH (29.7) and slightly higher than TVH (34.03). No significant difference across all groups for days until first BM. TAH (11.74) had significantly higher weeks until first intercourse than TVH (8.05) but slightly higher than RLH (9.64).

Conclusion: EBL and mean hospital stay is significantly less in RLH, TVH than TAH. TAH and RLH had significantly higher hospital charges and operative time than TVH. TAH had a higher level of postoperative pain, days to return to work than RLH and TVH.

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A Comparison of Surgical Approach for Long-Term Symptom Resolution and Recurrence Rates After Myomectomy



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Study Objective: To compare symptom resolution and recurrence rates after robotic vs abdominal myomectomies.

Design: Retrospective cohort study.

Setting: Tertiary care academic institution

Patients: All patients undergoing abdominal or robotic myomectomy with a single surgeon with available follow up data from June 2006 - December 2013.

Intervention: We reviewed the medical records of patients who underwent robotic or abdominal myomectomies with a single surgeon at a large university hospital. The route of surgery was determined by the goal of removing all fibroids. Patients undergoing RALM had all fibroids accessible laparoscopically as shown by pre-op MRI. Follow up data was obtained and recorded as part of the surgeon's routine postoperative care.

Measurements and Main Results: Follow up data was available for 360 patients: 254 robotic and 106 abdominal myomectomies out of a total of 336 and 450 respectively. Robotic and abdominal groups differed in terms of mean age (36.523 +/- 0.891 vs 41.981 +/- 1.02), race (57% vs 31.5% caucasian and 22.8% vs 58.7% african american), number (3.192 +/- 0.365 vs 38.17 +/- 10.039) and weight (346.557 +/- 39.093g vs 715 +/- 187.647) of fibroids removed. Indications were similar between groups with pain and bleeding most common. Symptom improvement was scored using a rating system of none=1, small=2, significant=3, and complete=4. Symptom improvement was similar between groups, with robotic myomectomy scoring 3.505 +/- 0.105 and abdominal 3.51 +/- 0.118, p=0.952. The majority of patients in both groups reported either significant or complete resolution of symptoms (90% for robotic and 98% for abdominal). Reported recurrence was higher among patients with abdominal myomectomies, at 30.3% vs 2% of robotic myomectomies, p<.001. Mean time to recurrence was 2.643 +/- 0.369 years vs 1.25 +/- 3.177 years in abdominal vs robotic myomectomies.

Conclusion: Resolution of symptoms is excellent in both robotic and abdominal myomectomies, despite differing number and weight of fibroids removed. Recurrence rate is higher among abdominal myomectomies, where the initial fibroid count was higher.

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Perioperative and Postoperative Outcome of Robotic-Assisted Total Hysterectomy for Extremely Large Uterus Compared with Adequate Size Uterus



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Study Objective: How large for a uterus is suitable and safely indicated for robotic total hysterectomy is still unknown. This study compares perioperative and postoperative parameters of robotic-assisted total hysterectomy for large uterus (>500g) with adequate uterus (<500g).

Patient Characteristic

Characteristics	Large uterus, >500g, n=36	Uterus < 500g, n=411	P value
Mean (SD) age (yrs)	47.4±3.9	47.1±6.7	0.65
Mean (SD) BMI (kg/m ²)	23.4±3.9	23.0±3.7	0.23

Perioperative and Postoperative Data

	Large uterus, >500g, n=36	Uterus < 500g, n=411	P value
Mean (SD) operating time (min)	170±79	128±35.5	P<0.05
Mean (SD) estimated blood loss (ml)	288.9±315.8	128.1±156.3	P<0.05
No. of transfusion	3	14	
Complications (no.)	3	7	
Complication rate (%)	8.3	1.7	P<0.01

Herein, we intend to define largest uterine size indicated for robotic-assisted surgery for total hysterectomy.

Design: Clinical retrospective study.

Setting: University-affiliated teaching hospital

Patients: 447 patients who underwent robotic-assisted total hysterectomy between December 2000 to December 2015 were reviewed.

Intervention: Apart from the need for multiparty and small uterine size for laparoscopic assisted vaginal hysterectomy, patients were all included regardless of parity. Patients with uterine size larger than 20 gestation weeks were excluded. Estimate of uterine weight by sonography (weight (gm) = Length x Width x Anterior-posterior diameter x 0.52) was first calculated. Patients were divided into two group by calculated uterine size: 36 patients with large uterus (>500g) and 411 patients with adequate uterus (<500g).

Measurements and Main Results: The perioperative and postoperative course of two groups was compared. Largest uterine size for safely robotic surgery is defined. There were no significant difference between two group in patient characteristics. Operation time, blood loss significantly increased in larger uterus group (operation time: mean, 170 minutes vs 128 minutes, P<0.01; blood loss: mean, 288 ml vs 128 ml, P<0.01). Perioperative complications increased with large uterus group (8.3 % vs 1.7%, P <0.01). One patient with uterus larger than sonographically 15.3 cm in long axis and 1196 gm in size was sent for subsequent laparotomy due to internal bleeding. Largest uterine size done robotically was sonographically 14.4 cm in long axis and 1113 gm in size.

Conclusion: In this large series, operation time, blood loss and complication rate are increased for large uterus. A preoperative sonographic uterus long axis 14 cm and estimate weight 1113 gm might be the largest limit of robotic-assisted total hysterectomy.

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Comparing with Open Surgery, Robot-Assisted Laparoscopic Adenomyomectomy Is a Feasible Option of Uterus-Sparing Surgery



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Study Objective: To compare surgical outcomes of open and robot-assisted laparoscopic adenomyomectomy.

Design: Case series.

Setting: Fibroid Center of tertiary university hospital.

Patients: 7 patients who underwent robot-assisted laparoscopic adenomyomectomy and 11 patients who underwent open adenomyomectomy.

Measurements and Main Results: All 18 patients with severe secondary dysmenorrhea and pelvic pain visited Seoul St. Mary's hospital between 2012 and 201. Except only one patient, all 17 patients were nulliparous woman. Adenomyosis was diagnosed by pelvic ultrasonography and pelvic MRI. Patients' characteristics were measured including age, marital status, BMI, gravida. Preoperative and postoperative characteristics were measured including the extent of adenomyosis lesion, CA-125 level. Surgical outcomes were measured including operative time, estimated intraoperative blood loss, length of hospital stay, and perioperative complications. Their mean age was older in open surgery group (robot vs open 33.29 ± 4.3 vs 37.55 ± 3.41 years old) and mean body mass index (BMI) was higher in robot surgery (robot vs open 25.86 ± 6.01 vs 21.09 ± 2.4 kg/m²). The amount of estimated blood loss was significantly larger in open surgery group than robot surgery group (robot vs open 250 ± 249.6 vs 690.91 ± 776.47 ml) and the length of hospital stay was also longer in open surgery group than robot surgery group (robot vs open 2.57 ± 0.53 vs 4.0 ± 1.09 days). In all 18 patients, dysmenorrhea and pelvic pain nearly disappeared after surgery. One patient who received robot-assisted laparoscopic adenomyectomy were pregnant naturally after surgery. Another patient who received open adenomyectomy were pregnant twin babies after surgery by IVF. Both patients delivered healthy babies via cesarean section in pelvic MRI.

Conclusion: Adenomyosis usually affects premenopausal women and the standard treatment is hysterectomy. However, the challenge comes in when treating symptomatic woman who want to maintain fertility. Adenomyectomy is a conservative surgical option for preserving fertility. Comparing with open surgery, robot-assisted laparoscopic adenomyectomy is a feasible option of uterus-sparing surgery.

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Removal of a 15 cm Ovarian Torsion During Second Trimester Pregnancy Using a Single-Site Robotic Platform: Case Report and Surgical Technique



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Study Objective: Here we describe the management of a 15 cm ovarian torsion in a 17 week gestational pregnancy using the da Vinci Single-Site Surgical Platform.

Design: Case Report.

Setting: Teaching Hospital

Patients: 27 year old pregnant patient at 17 weeks gestation presented to the emergency room with a 15 cm left ovarian torsion.

Intervention: Single-Site Robotic Platform.

Measurements and Main Results: The management of ovarian teratomas during pregnancy can be expectantly managed, but in certain circumstances surgical intervention may be required. This 27 year old multi gravid female presented to the emergency department at 17 weeks gestation with non-specific upper abdominal pain, nausea and vomiting. Ultrasound demonstrated a 15 cm left ovarian teratoma with absent arterial and venous blood flow. A decision was made to remove the left ovarian adnexa using the da Vinci Single-Site Surgical Platform. The robotic was docked between the patients legs and the 3D 8.5-mm high definition laparoscope confirmed the presence of a 15 cm necrotic left ovarian torsion and a 17 week gravid uterus. Once the left salpingo-oophorectomy was completed, the robot was then undocked and a 15 mm endobag was advanced into the patients abdomen between the outer edge of the single site port and the lower edge of the umbilical incision to help guide in the delivery of the ovarian teratoma. The operative procedure was successful and the patients pregnancy progressed well.

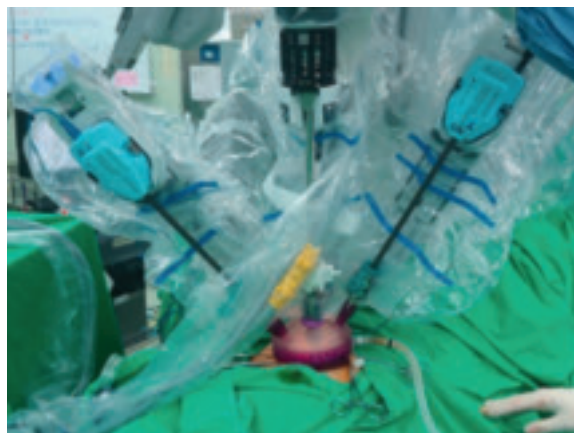
Conclusion: In conclusion, the da Vinci Single-Site Surgical Platform may be a safe and effective alternative to laparotomy in patients with large adnexal masses.

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Single Port Robotic Hysterectomy for Deep Infiltrative Endometriosis Using GelPOINT Access Platforms



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Study Objective: Despite improved ergonomics of robotic instruments compared to traditional laparoscopic instruments, arm collision is still a significant problem. In patients with total obliteration of cul-de-sac, it is a risky task to achieve maximal dissection of the plane between rectum and posterior uterine wall of uterus.

The surgical management of DIE is risky due to severe adhesion of cul-de-sac and distorted pelvic anatomy. The surgical procedure of DIE includes temporary suspension of ovaries, adhesiolysis, skeletonization of ureters and uterosacral ligaments, creation of para-rectal space and excision of endometriotic nodules.

Measurements and Main Results: Here we present a video of robotic single-port subtotal hysterectomy in a patient with severe adhesion of cul-de-sac due to deep infiltrative endometriosis.

Conclusion: This video depicts the benefit of GelPOINT access platform that facilitate triangulation of robotic instruments.

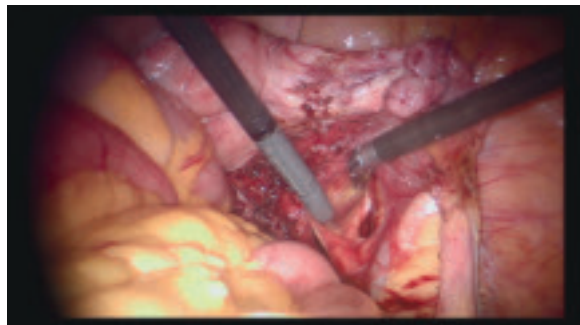
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da Vinci Robotic Radical Hysterectomy in a 90 Years Woman with Early Stage Cervix Cancer



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Study Objective: For elderly advanced or even early stage of cervix cancer, the radiation therapy or even no active treatment will be suggested. However, the side effects of radiation therapy exists and, as longevity increases, the population of women over age 80 with pelvic cancer increases.



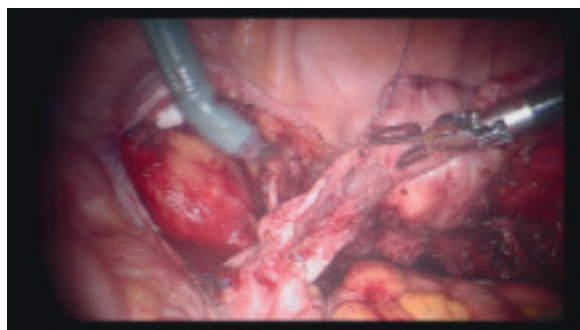
Aging is associated with an increasing prevalence of frailty and comorbidities. By decreasing complications and shortening length of hospital stay without affecting oncologic safety, surgery performed using the robot, rather than traditional laparotomy, improves the chances of a better outcome in our growing elderly populations. The major advantage of minimally invasive robotic surgery lies within the intraoperative period where blood loss is less in comparison with open radical hysterectomy. The main disadvantage is physiological disturbance, mainly due to the pneumoperitoneum and patient positioning.

Patients: Here we presented our first experience of robotic type II radical hysterectomy for a 90 years old women with cervix cancer IB tumor 2 cm, SCC, presented with massive menopausal bleeding who had hypertension, mild dementia, minor stroke, sitting in wheelchair without bed-ridden status.

Intervention: Prophylactic ureter double J insertion was done under local anesthesia the day before surgery. The da Vinci Si system 4 arms was used, after the pneumoperitoneum in 10 mmHg, the uterus was first suspended by suture for traction ante-verted position. By doing this, the steep Trendelenburg could be avoided.

Only one side nerve sparing radical hysterectomy was tried due to limit of surgical interval. The surgical time is 190 minutes, the blood loss 100 cc. She was sent to surgical intensive care unit for 2 nights under the request of anesthesia team suggestion.

Conclusion: She recovered well and went home 6 days after surgery with Foley under training for one month.



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Minimizing Blood Loss in Women with Huge Severe Adhesive Adenomyosis Using da Vinci Robot



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Study Objective: Background: In cases with huge severe adhesive adenomyosis, adhesiolysis is often difficult and skill-demanding. It is also a tough task to identify and ligate the uterine vessels via

traditional laparoscopic approach. We would like to share our experience in performing the aforesaid surgical techniques using the da Vinci Robot.

Material and Methods: Women with huge severe adhesive adenomyosis was selected for robotic subtotal hysterectomy. Bilateral uterine arteries were identified through retrograde tracking of the umbilical ligaments, and ligated with hem-o-locs or hemoclips. Dissection of the adhesive plane between uterus and rectosigmoid colon was attempted with care using the robotic instruments, followed by subtotal hysterectomy.

Results: Ten women were recruited in this study, with average age of 45, mean uterine weight of 800 gm and mean estimated blood loss of 250 cc. No major complications such as ureteral injury or bowel injury were noted and none of the case was converted to laparotomy.

Conclusions: Robotic surgery has the advantages of articulation beyond normal manipulation and three-dimensional magnification that results in improved ergonomics. Endowrist instruments offer a greater range of motion than the human hand, allowing rapid and precise dissection and tissue manipulation.

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Uterine Leiomyomas – Minimally Invasive Outcomes on Management and Hospital Stay (MIOMHS): A Disease Specific Approach



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Study Objective: Primary objective is to look at the changes in the types of hysterectomy on women with Fibroid disease since the introduction of the Fibroid Center and Robotic Program at a community hospital. The secondary objective was to look at the impact of the Fibroid center on the outcomes.

Design: The retrospective study collected the data for hysterectomies performed for Uterine Fibroids in the year before the introduction of Fibroid Center and Robotic program (Sep 2013- Aug 2014) and the year after the introduction of the program (Sep 2014- Aug 2015). The patients were divided into 3 groups - Group 1 included the patients who had hysterectomies prior to the introduction of the Fibroid Center, Group 2 included the patients from the Fibroid Center and Group 3 included the patients undergoing hysterectomies after the introduction of the program but were not seen in the Fibroid Center. The frequency distribution of the surgical approach, length of stay in the hospital and rate of complications were compared for the 3 groups.

Setting: A first of its kind program offering Robotic Gynecological Surgery, established in an Inner-city Community Hospital.

Patients: N/A

Intervention: Introduction of Fibroid Center - a disease specific clinic aimed to treat a high prevalence condition in the community served by our inner-city hospital.

Measurements and Main Results: Randomly selected charts demonstrated changes in distribution of Surgery as in Table 1. Comparison of outcomes in Hysterectomy is shown in Table 2.

Conclusion: Since the introduction of the Fibroid Center, there has been a shift towards Robotic Hysterectomy, even for Uteri weighing > 250g.

Distribution of Hysterectomy

	Robotic Hyst	Abdominal Hyst	Laparoscopic Hyst	Vag Hyst
Group 1 - Pre-Robot		19	8	4
Group 2 - Fibroid Center	27	4		
Group 3 - Non Fibroid Center		25	11	1

Outcomes of Hysterectomies

	Av visits prior to Surgery	Walk-In+ ED visits	Length of Stay (Av)	Blood Loss (Av)	Specimen Weight (Av)	Complications
Group 1- Pre-robot	3.6	10	60 hours	326	636.5 g	2 wound infections, 1 readmission for wound infection, 2 blood transfusions,
Group 2-Fibroid Center	3.1	9	29.5 hours	188	318 g	Conversion 4, wound complication 2, blood transfusion 2, Ileus 2
Group 3 - Non Fibroid Center	3.6	17	90.4 hours	275	707 g	Conversion : 2, Ileus 2, Wound 6, Blood Transfusion : 4, damage to surr structures 1, UTI 1

This has led to a decrease in the length of stay and overall morbidity expressed in terms of less blood loss and reduced complications. The Fibroid Center patients also have fewer ED and walk-in visits, and fewer visits with the operating surgeon providing patients with a streamlined access to care.

Virtual Posters – Urogyn/Pelvic Floor Disorders/Vaginal Surgery

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Sexual and Functional Outcome of Sheares Vaginoplasty in 16 Patients with Mayer-Rokitansky-Küster-Hauser Syndrome



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Study Objective: To evaluate the Sexual and functional outcome of of Sheares vaginoplasty in treatment of Mayer-Rokitansky-Küster-Hauser(MRKH) syndrome.

Design: Prospective observational study.

Setting: Academic hospital.

Patients: 16 cases with MRKH syndrome who underwent Sheares vaginoplasty from September 2014 to June 2015 in our hospital were enrolled in this study

Intervention: Patients and surgical data, follow-up information and Female Sexual Function Index (FSFI) scores were recorded and analyzed.

Measurements and Main Results: All of the patients were completed the surgery successfully without complication or transfusion. The operative time was 18.00-59.00(41.38±8.97) min, the blood loss was 10.00-200.00(66.25±48.23) ml, and the hospitalization time after operation was 8-11(9.43±1.42) days. After six months of operation, normal external genitalia, along with a smooth, moist, soft and elastic vaginal wall with a normal vaginal mucosa, were found in these patients.

The width of neovagina were 2.7cm and the length of squamous epithelialization of the neovagina was 5.00-8.50(6.90±1.12)cm. 12 of the



Table 1

Results of Sexual Functional Outcomes in Patients with MRKHS Who Received Sheares Vaginoplasty

Sexual functional outcomes	Score (mean±SD)
Desire score	3.1±0.6
Arousal score	4.0±0.9
Lurication score	4.4±0.3
Orgasm score	5.1±0.9
Satisfaction score	4.9±0.5
Comfort score	4.3±0.7
Total FSFI score	25.8±1.2

Abbreviations: SD, standard deviation;

patients had a sexual partner and became sexually active. The FSFI score was 23.1-6.2(25.8±1.2).

Conclusion: Sheares vaginoplasty provides good anatomic and functional results, and provides an alternative choice of treatment for women with MRKHS.

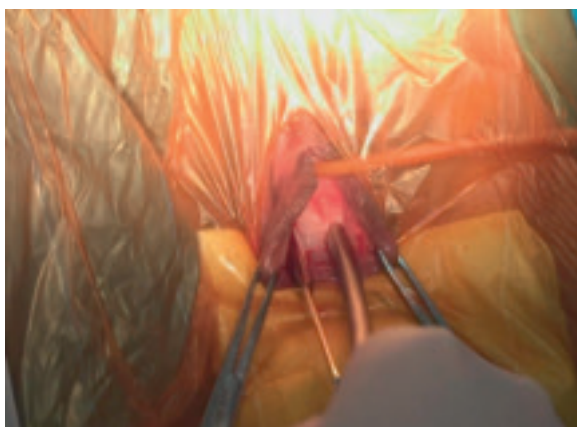
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Successful Use of Ring Pessary with Support for Advanced Pelvic Organ Prolapse



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Study Objective: Support pessaries are not recommended for patients with advanced prolapse. This study aimed to explore the efficacy of the ring pessary with support for the treatment of advanced pelvic organ prolapse (POP).



Design: We conducted this prospective study on pessary fittings performed between November 2013 and September 2014 at the Department of Obstetrics and Gynecology, Peking Union Medical College Hospital (PUMCH), Beijing.

Setting: University-based tertiary care hospital.

Patients: A total of 109 patients with stage III or IV POP completed a detailed history.

Intervention: A successful fitting was defined as the continued use of the device for over 3 months from the initial fitting. Data were analyzed with the Wilcoxon rank-sum test, independent sample t-tests, continuity correction χ^2 tests, and Fisher's exact test.

Measurements and Main Results: A total of 74.3% (81/109) of the patients were successfully fitted with the ring pessary with support at the initial visit. Among those women with a successful initial fitting, the failure rate was less than 10% (8/81) at 3 months. Furthermore, 82.7% (67/81) of the patients were able to manage the pessary by themselves. Seven patients experienced vaginal erosion. There was no association of prolapse stage and the predominant prolapse compartment with pessary trial outcome. The average vaginal length of the patients with successful pessary use was 7.58 cm.

Conclusion: The ring pessary with support was successfully fitted in patients with advanced POP with a high success rate and few complications. Older patients were more likely to prefer the ring pessary with support due to its convenient use.

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Abstract Withdrawn

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The Outcome Laparoscopic Mesh Repair in Women with Pelvic Organ Prolapse: 2-Year Follow-Up Data



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Study Objective: To assess the outcome of introducing laparoscopic sacrohysteropexy and sacrocolpopexy for women with pelvic organ prolapse.

Design: Retrospective cohort study.

Setting: University (NHS) Hospital and Local (Private) Hospital

Patients: Patients undergoing laparoscopic polypropylene (Type1) mesh repair for utero-vaginal prolapse and post hysterectomy vault prolapse.

Intervention: Laparoscopic sacrohysteropexy and sacrocolpopexy was introduced in 2012 in this institution within the urogynaecology team and all patients undergoing these procedures between 2012 and 2014 with stage 3 or more compartment prolapse were reviewed using the hospital database and patients notes. The sacrohysteropexy cases involved using an inverted T mesh cut to size and the arms of the inverted T were sutured onto the cervix with prolene sutures once the broad ligament and utero-vesical space was opened. The sacrocolpopexy patients had an inverted Y shape mesh cut to size and sutured on to the anterior and posterior vaginal walls with monofilament PDS sutures. The sacral part of the mesh was either sutured or anchored to the sacrum with prolene or protac. Mesh was retroperitonealized in all cases. All patients were seen 4 months following surgery and subsequent follow up documented as necessary.

Measurements and Main Results: There were a total of 18 women that underwent these interventions. Patient and surgical characteristic are outlined in Table 1.

Conclusion: The medium term outcome up to 2 years following surgery for uterine and vault prolapse using mesh appears to be safe. The success of introducing any new surgical procedure within an institution relies on a team effort and appropriately trained individuals with a volume of patients to maintain those skills. There remains a failure rate of 20-25% with an overall reoperation rate of 17% in this cohort mainly in the uterine preserving surgery group.

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The Dilemma of Preventing Vaginal Vault Prolapse After Hysterectomy: A Comparison Study of Vaginal McCalls Culdoplasty versus Laparoscopic Uterosacral Plication



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Study Objective: The primary objective of our study was to compare McCalls culdoplasty (when performed along side vaginal hysterectomy) with laparoscopic uterosacral plication (when performed along side total laparoscopic hysterectomy) for prevention of subsequent vaginal vault prolapse. Secondary outcomes included inpatient stay and perioperative complications.

Design: Retrospective comparison study.

Setting: Two district general hospitals in Northern Ireland

The patient demographics, complications, recurrence, further surgery and length of follow up in study population

	Sacrohysteropexy (n=10)	Sacrocolpopexy (n=8)
Age (years)		
< 40	3 (30%)	0
40-50	1 (10%)	0
50-70	3 (30%)	5 (75%)
>70	3 (30%)	3 (25%)
Previous surgery	2 (20%)	8 (100%)
Early complications	0	0
Late complications	0	0
Recurrence of symptoms	2 (20%)	2 (25%)
Reoperations for same compartment prolapse	0	0
Reoperations for different compartment prolapse or other symptoms	3 (30%)	0
Duration of follow up		
6-12 months	5	3
>12 months	5	5

Patients: Patients were selected who had undergone either vaginal hysterectomy with McCalls culdoplasty, or total laparoscopic hysterectomy with uterosacral plication, addressing middle compartment pelvic organ prolapse. Two consultant gynaecologists between 2008 and 2014 performed operations.

Intervention: Both groups were reviewed and were followed up on a regional electronic care record to see if they re-attended anywhere for subsequent pelvic organ prolapse repairs.

Measurements and Main Results: A total of 143 patients were identified including 73 who had undergone total laparoscopic hysterectomy and uterosacral plication and 70 who had vaginal hysterectomy and McCalls culdoplasty.

There was no significant difference between BMI or parity. There were significantly more patients presenting with post hysterectomy vaginal vault prolapse in the group of patients who had undergone uterosacral plication compared with McCalls culdoplasty ($P=0.000394$).

Inpatient stay in the uterosacral plication group was significantly shorter mean 1.8 compared to 3.6 for McCall group (P -Value is < 0.00001). There was no significance in the perioperative complications between both groups ($P= 0.41$).

Conclusion: Both uterosacral plication and McCalls culdoplasty result in fewer subsequent vault prolapses than the predicated 30% incidence when hysterectomy is performed alone. The McCalls group had significantly fewer vault prolapses than the uterosacral plication group. The uterosacral plication group is associated with statistically significant shorter inpatient stay. There is no statistical difference in perioperative complications. Our study has shown that McCalls culdoplasty is a superior operation for prevention of subsequent vault prolapse following hysterectomy.

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Cystometrogram at the Time of Urodynamics. How Sensitive Is This Diagnostic Test?



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Study Objective: To determine the sensitivity of the standard multi-channel cystometrogram in women with Urinary Urgency Incontinence/Overactive Bladder (UII/OAB).

Design: Chart review of patients undergoing urodynamics for urinary incontinence.

Setting: Urodynamics Lab in a University-affiliated community hospital.

Patients: Women referred for urinary incontinence in 2014 - 2015 who had a clinical history of UII/OAB.

Intervention: All women in the Urodynamics Lab had a complete clinical history, examination as well as multi-channel urodynamics. CMG bladder and rectal pressures were measured with standard urodynamic catheters. All CMG studies were reviewed by a single, blinded physician observer. The 2010 International Urogynecological Association (IUGA)/International Continence Society (ICS) definition for CMG-positivity was applied. Women who had a history of isolated UII/OAB or mixed incontinence were treated with conventional pharmacotherapy consisting of anti-muscarinics and/or beta-3 agonists. Test sensitivity and 95% confidence intervals on the proportions were calculated for two alternative diagnostic test "gold standards". These were 1) a history of UII/OAB alone (UII/OAB Hx alone) or 2) a history of UII/OAB plus a response to conventional pharmacotherapy (UII/OAB + Rx response) .

Measurements and Main Results: During the study period, 80 women had a history of pure UII/OAB or UII/OAB plus stress incontinence (mixed incontinence). Treatment response, in terms of reduced urgency incontinence was noted in 70% (95% CL 56-80%) of these women. Using the first gold standard, UII/OAB Hx alone, the CMG had a sensitivity of 46% (95% CL, 35-57%). With the second gold standard,

UII/OAB + Rx response, the CMG had a sensitivity of 49% (95% CL, 33-64%).

Conclusion: Overall, 70% of women with a history of urge incontinence had a positive response to pharmacotherapy. The CMG sensitivities determined in this study of 46% and 49% respectively would question the utility of this investigation in treatment decision-making.

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Surgery for Stress Incontinence – A Novel “Needleless” Single-Incision Sling System: Results of 50 Patients



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Study Objective: To evaluate the safety and efficacy of a single incision mid-urethral sling which requires no retro-pubic or groin needle passage for the treatment of female stress urinary incontinence(SUI).

Design: A retrospective evaluation of 50 patients who were treated for SUI by placement of the Needleless Sling System.

Setting: Data from this summary includes all subjects who were treated with the Needleless sling from September 2007 until November 2014. at Feni pvt hospital

Patients: All patients who underwent treatment for stress or mixed urinary incontinence with the Needleless sling with or without concomitant procedures were included in the study. A review was performed and data was collected on the pre-operative evaluation, including history and physical and urodynamic studies.

Intervention: The sling is made by OT Nurses of a 11.4 cm x 1.2 cm, 100% monofilament macroporous polypropylene with 2.2 cm wide Pocket Positioning Anchors' on both ends. The pockets allow the device to be introduced with a standard forceps instrument thereby eliminating the need for sharp needle introducers . The pockets provide firm anchoring in tissue and also facilitate intra-operative repositioning.

Measurements and Main Results: Fifty patients were follow-up after 12 weeks, the patients were directly questioned if they were completely dry, and if not, what percent dry they would use to describe their symptoms. No intra-operative complications were seen except two case of vaginal mesh exposure 02 yrs post-operatively. These results are consistent with reported success rates of the TOT and TVT type slings . The complication rate of 4% is also consistent with reported complication rates of the TOT and TVT .

Conclusion: The Needleless sling is a single incision tension-free sling that shows very promising clinical results.

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The Effectiveness of Prophylactic Sacrospinous Ligament Fixation After Vaginal Hysterectomy



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Study Objective: Several vaginal vault suspension techniques have been designed to be performed concomitant to a vaginal hysterectomy in order to prevent a subsequent prolapse of vaginal apex. Sacrospinous Ligament Fixation is one of the most commonly performed approaches. The aim of this study is to evaluate anatomic cure and complication rates of prophylactic sacrospinous ligament fixation after vaginal hysterectomy.

Design: It is a retrospective and descriptive study.

Setting: This study was conducted at Gazi University Hospital.

Patients: Sixty-five sexually active women underwent prophylactic sacrospinous ligament fixation after vaginal hysterectomy during the reconstructive surgical treatment of stage 2 or 3 uterine prolapse between January 2010 and April 2015.

Intervention: Anatomic cure and complication rates were assessed postoperatively. The post-surgical follow-up period was 18 ±6 months.

Measurements and Main Results: An objective anatomic cure was reported for 90.7 % of patients, and significant improvement of all prolapse symptoms was observed following surgery. Anatomic recurrence of apical prolapse occurred in six patients (9.3%). Further, seven cases (10.7 %) of anatomic recurrence of anterior compartment defects occurred according to the relevant definition. The rates of postoperative dyspareunia and stress urinary incontinence were 20 % and 23 %, respectively.

Conclusion: Prophylactic Sacrospinous Ligament Fixation adjunct to vaginal hysterectomy for preventing subsequent vaginal apex prolapse provides a high anatomic cure rate with acceptable postoperative complication rates.

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Catheterization Rate After Trial of Void in Patients Undergoing Non-Urogynecologic Elective Surgery and Concomitant Midurethral Sling



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Study Objective: To compare the catheterization rate after trial of void (TOV) in patients who had midurethral sling (MUS) to those scheduled for elective non-urogynecologic surgery and concomitant sling (MUS+X).

Design: This is a retrospective cohort study of patients with MUS at the time of non-urogynecologic surgery.

Setting: All surgeries were performed at an academic-affiliated hospital.

Patients: Patients missing TOV documentation and those who had apical repair were excluded. We defined non-urogynecologic surgery as any non-apical surgery performed by a general gynecologist or other specialty including plastic, colorectal and general surgery. Subjects were divided into two groups: MUS+X or solitary MUS.

Measurements and Main Results: 60 patients were included in final analysis, with 30 patients in each group. Mean age, parity and BMI were 53.9, 2.0, and 29.2, respectively. Types of surgery performed in the MUS+X group are listed in Table 1. There was no difference in TOV pass rate between groups (p=0.14). TOV failure rates were 30.0% (n=9) and 14.7% (n=5) for the MUS+X and MUS group, respectively. No significant difference was noted for TOV failure rates and postoperative day performed (p=0.42). Average LOS for MUS+X patients was 1.3 days. Mean length of stay was 2 days for patients who had laparotomy (n=11), compared to 0.84 days for those undergoing minimally invasive surgery (n=19), with the median being 2 days for laparotomy and 1 day for minimally invasive surgery (p=0.04).

Conclusion: There was no significant difference between catheterization rates when a non-urogynecologic procedure was performed with concomitant MUS. No significant correlation was observed for TOV pass rate and postoperative day on which TOV was performed. As expected, length of patients in the MUS+X group had longer hospital stay. Length of stay was further increased in patients undergoing open procedures. This study investigates a novel question on TOV pass rates in a population not previously observed.

Voiding Trial Data by Surgical Procedure for Both Gynecologic and Non-Gynecologic Surgeries

Type of Surgery	Number (%)	TOV on POD0	TOV on POD1	Failed TOV
Abdominoplasty	6 (20.0)	2 (33.3)	4 (66.7)	2 (33.3)
• + Umbilical hernia repair	• 1 (3.3)	0 (0.0)	1 (100)	0 (0.0)
Hernia repair	4 (13.3)	3 (75.0)	1 (25)	0 (0.0)
• Inguinal	• 2 (6.7)	2 (66.7)	0 (0.0)	0 (0.0)
• Epigastric	• 1 (3.3)	1 (33.3)	0 (0.0)	0 (0.0)
• Umbilical + Inguinal	• 1 (3.3)	0 (0.0)	1 (100)	0 (0.0)
Rectopexy	2 (6.7)	0 (0.0)	2 (100)	0 (0.0)
Other	3 (10.0)	2 (66.7)	1 (33)	0 (0.0)
• Foreign body	• 1 (3.3)	1 (50)	0 (0.0)	0 (0.0)
• Cholecystectomy	• 1 (3.3)	1 (50)	0 (0.0)	0 (0.0)
• Cholecystectomy + BSO	• 1 (3.3)	0 (0.0)	1 (100)	0 (0.0)
Hysterectomy (+/-BSO)	10 (33.3)	4 (40)	5 (50)	7 (70)
• RLH	• 4 (13.3)	2 (50)	2 (50)	3 (75)
• TLH	• 5 (16.7)	2 (50)	2 (50)	3 (60)
• SCH	• 1 (3.3)	0 (0.0)	1 (100)	1 (100)
Hysterectomy (+non-GYN)	3 (10.0)	0 (0.0)	3 (100)	1 (33)
• TLH	• 1 (3.3)	0 (0.0)	1 (100)	1 (100)
• TAH	• 2 (6.7)	0 (0.0)	2 (100)	0 (0.0)
Other GYN	• 2 (6.7)	0 (0.0)	2 (100)	0 (0.0)
• Laparoscopic myomectomy	• 1 (3.3)	0 (0.0)	1 (100)	0 (0.0)
• Vaginal septum repair	• 1 (3.3)	0 (0.0)	1 (100)	0 (0.0)

TLH=total laparoscopic hysterectomy; RLH=robotic laparoscopic hysterectomy; SCH=supracervical hysterectomy; TAH=total abdominal hysterectomy

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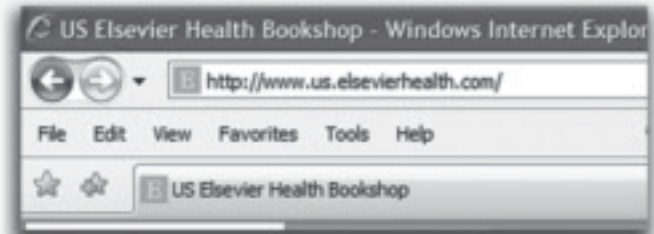


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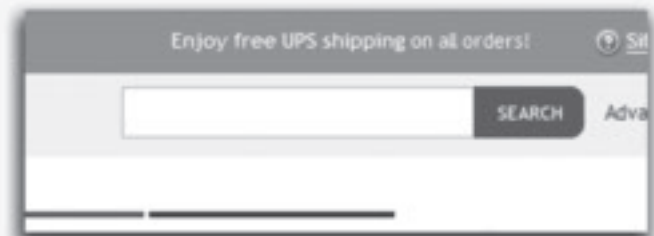
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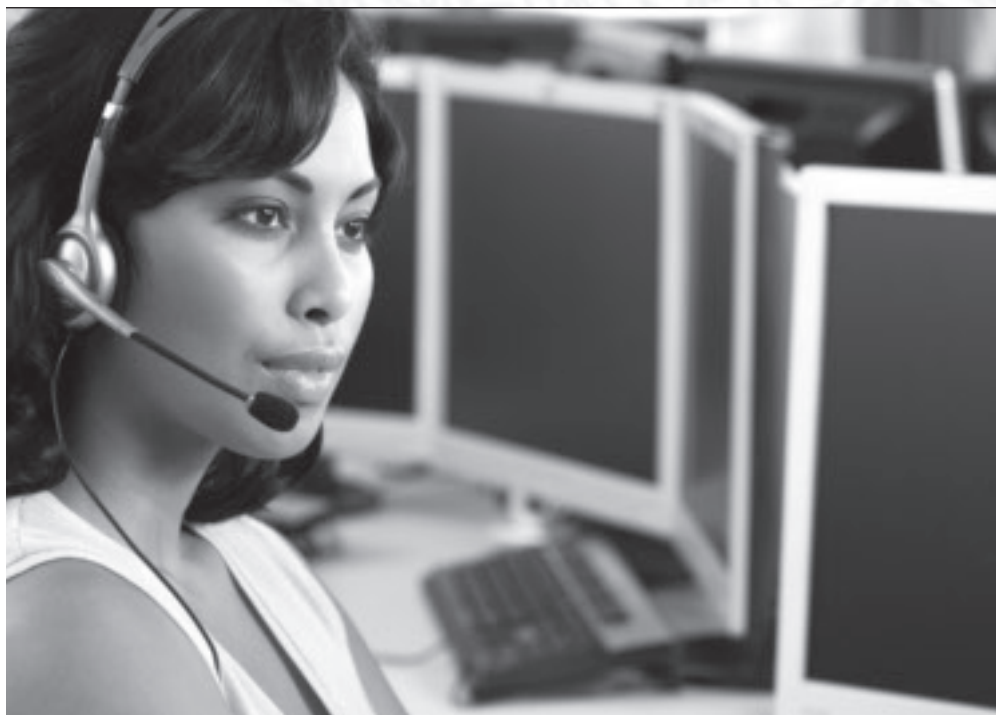
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