Oral Presentation 01

A RANDOMIZED, DOUBLE-BLIND COMPARISON OF BUPIVICAINE CONTAINING SALINE WITH SALINE ONLY FOR HYDRODISSECTION ON VOIDING FUNCTION AND PAIN CONTROL IN THE POSTOPERATIVE INTERVAL FOLLOWING PLACEMENT OF TENSION-FREE VAGINAL TAPE

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Objectives: To compare the proportion of successful postoperative voiding trials and postoperative pain control when 1/8% bupivicaine containing saline versus saline only is utilized for hydrodissection in the Space of Retzius while placing tension-free vaginal tape (TVT) midurethral slings.

Materials and Methods: This is a prospective, randomized, double-blinded trial. Sixty consenting patients undergoing TVT placement as the only pelvic floor procedure in day- surgery were randomized to receive either bupivicaine containing saline or saline alone such that subjects, surgeons, and research assistants who interacted with subjects were blinded to treatment. Proportions of subjects with a successful postoperative voiding trial along with measurements of postoperative pain and analgesic use were compared using Student's t test, Pearson's chi-square, and Mann-Whitney U. The study was powered to detect differences in voiding trial success from an estimated 55% to greater than 90% with $p<0.05$ and 0.8 power using 25 subjects per group. Additional subjects were allotted to allow for dropouts.

Results: Thirty subjects were allocated to each group using sealed envelopes. One subject was excluded after randomization into the saline only group when a second pelvic floor procedure was performed intraoperatively. The treatment groups did not differ in height, weight, BMI, age or preoperative post-void residual ($p > 0.47$, Student's t tests) nor numbers of pregnancies, vaginal deliveries, c-sections, and gynecologic surgeries ($p > 0.24$, Mann-Whitney U tests). Groups did not differ in duration of anesthetic (p=0.54), volume of hydrodissection fluid (p=0.83), estimated blood loss (p=0.18), and postoperative interval to start of voiding trial (p=0.10). Use of additional pain medications during this interval did not differ (p=0.09) with 83% of those receiving saline only requiring medications compared to 63% of those receiving bupivicaine containing saline. The VAS score (0-100), a measure of degree of postoperative pain at the time of the voiding trial, did not differ between groups (34 in saline only group versus 39, p=0.49). The percentage of subjects who passed the postoperative voiding trial did not differ (66% for those using saline only versus 47%, p=0.14). The post-void residual did approach significance (140mL in those using saline only versus 225mL, p=0.050). The median duration of catheter use in patients failing the initial voiding trial was 1 day in both groups. Additional data obtained at follow-up visits is pending completion for the last 11 subjects, but appears likely to not differ.

Conclusion: Bupivicaine did not significantly diminish postoperative pain following placement of a TVT sling. It did not increase the risk of failing a postoperative voiding trial. The post-void residual between the two groups was not significantly different. A difference of 85mL is clinically important. Prudence suggests that in the face of these results, saline alone be preferred over bupivicaine containing solutions for hydrodissection.

Key Words: postoperative voiding trial, retropubic sling, bupivicaine, pain control

Oral Presentation 02

BASELINE URODYNAMIC PREDICTORS OF TREATMENT FAILURE ONE YEAR AFTER MIDURETHRAL SLING SURGERY

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Objectives: To determine whether preoperative urodynamic study (UDS) variables, specifically urethral function tests, predict objective or subjective failure after mid-urethral sling surgery.

Materials and Methods: Pre-operative UDS variables and post operative continence status were analyzed from stress incontinent women participating in a randomized trial comparing retropubic to transobturator midurethral slings. Objective failure was defined by positive standardized stress test or ≥15 ml on 24-hour pad test or retreatment for stress urinary incontinence (SUI). Subjective failure criteria were self-reported stress symptoms or leakage on 3-day diary or retreatment for SUI. Logistic regression was used to assess associations between covariates and objective failure controlling for treatment group and clinical variables (age and concommitant surgery). Receiver operator curves (ROC) were constructed for relationships between objective failure and measures of urethral function.

Results: Objective continence outcomes were available at 12 months after randomization from 565 of 597 (95%) women. More women failed by subjective criteria compared to objective criteria (243 vs. 123) and only 15 women failed by objective measures only. No urodynamic variable was significantly associated with subjective failure on multivariate analysis. In bivariate analysis for predicting objective failure, of the 17 variables evaluated, the only measures that had p values less than 0.05 were: USI (Urodynamic Stress Incontinence), VLPP (Valsalva Leak Point Pressure), MUCP (Maximum Urethral Closure Pressure), Delta pabd@Qmax and Delta pdet@Qmax. In bivariate analysis, for every 10 cm H2O increase in VLPP there was a 7% reduction in objective failure rate (OR 0.93, 0.87–0.99), and for every 10 cm H20 increase in MUCP there was a 13% decrease in objective failure rate (OR 0.87, 0.81–0.94). Detrusor overactivity did not predict subjective or objective failure. VLPP and MUCP were the only urodynamic variables consistently associated with objective failure on multivariate analysis. No specific cut-point was determined for best predicting failure for VLPP or MUCP by receiver operator curves; the lowest quartile (VLPP of <86 cm H2O and a MUCP of <45 cm H2O) conferred an almost two fold increase in odds of objective failure regardless of sling type [OR with 95% CI 2.32 (1.24, 4.32) for VLPP and OR 1.93 (1.06, 3.50) for MUCP.

Conclusion: Women enrolled in a clinical trial of retropubic and transobturator midurethral slings with either a VLPP or MUCP in the lowest quartile are nearly 2-fold more likely to experience objective failure one year after surgery.

Key Words: stress incontinence, urodynamics, midurethral sling, stress incontinence surgery, maximum urethral closure pressure, leak point pressure

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Toby Chai: Principal Investigator –Grant
Stephen R. Kraus: Consultant - Research Grant

Odds Ratios of Objective Failure from multivariate analysis

	VLPP		MUCP	
Variable	**OR(95% CI)**	**p-value**	**OR(95% CI)**	**p-value**
Delta Pabd@Qmax	1.09 (0.98, 1.21)	0.10	1.09 (0.98, 1.20)	0.11
Delta Pdet@Qmax	0.82 (0.63,1.07)	0.15	0.76 (0.59, 0.97)	0.03
VLPP VLPP≤25th percentile vs. VLPP >25th percentile	2.32 (1.24,4.32)	0.008	—	—
MUCP MUCP≤25th percentile vs. MUCP>25th percentile	—	—	1.93 (1.06,3.50)	0.03
Treatment: TMUS vs. RMUS	1.33 (0.73, 2.40)	0.35	1.27 (0.74, 2.17)	0.39
Concomitant Surgery: No vs. Yes	1.08 (0.52,2.18)	0.83	1.77 (0.91, 3.44)	0.09
Age(/10years)	1.30 (1.00,1.69)	0.05	1.34 (1.05, 1.72)	0.02

The VLPP model is unadjusted by MUCP(and vice versa)

Oral Presentation 03
TEN-YEAR FOLLOW-UP AFTER THE TENSION-FREE VAGINAL TAPE PROCEDURE (TVT)

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Objectives: The tension-free vaginal tape (TVT) procedure was described in 1996 and introduced commercially in Europe in 1997. Long-term results are important when assessing new operations, and the long-term outcomes of mesh and tape insertions are unclear. The present study aimed to evaluate objective and subjective efficacy 10 years after the TVT. Secondary outcomes were late complications, the reoperation-rate related to the TVT-procedure and prevalence of overactive bladder (OAB) symptoms.

Materials and Methods: 209 patients who underwent a TVT procedure at the two participating units between 1999 and 2001 were invited for follow-up. All patients underwent a standard retropubic TVT procedure as per the original description; 42% had concomitant procedures. All patients had undergone preoperative clinical and urodynamic assessment. Evaluation at 10 years included history and clinical examination, cystoscopy with assessment of residual urine and filling to 300 ml, a cough stress test, an interview with questions on pad use, and the self-administered Incontinence Outcome Questionnaire. The study protocol was approved by the institutional ethics committee.

Results: In the interim, 21 patients died and 3 were bed-ridden, resulting in a study population of 188 women. 98 patients (52%; mean age 67 years, range 47–88) were available for clinical or interview follow-up. A complete work-up including cystoscopy was possible in 78, interview data were obtained from additional 20 patients. The mean duration of follow-up was 115 months (range 102–130).

At 10 years, the clinical stress test was negative in 82% (64/78), slightly positive in 14% (11/78) and strongly positive in 4% (3/78). Subjectively, 62% (61/98) of patients considered themselves "cured", 26% (25/98) "improved", 6% (6/98) "unchanged", and 6% (6/98) "worse". 17% of patients used >1 pad/day. 4/98 (4%) had been reoperated in the interim: cutting of tape (n=2), re-TVT (n=1), resection of a tape found in the bladder at 3 years (n=1). One asymptomatic vaginal erosion was seen at 10 years and managed conservatively.

Preoperatively 57/98 patients (58%) reported urgency symptoms. 38 of these 57 (67%) were free of OAB symptoms at follow-up. Conversely, 7/41 (17%) patients without urgency preoperatively reported urgency at 10 years.

Conclusion: These data indicate satisfactory objective and subjective cure rates 10 years after TVT placement. There does not appear to be a substantial rate of long-term or delayed erosions. The objective continence rate exceeded the self-assessed cure rate (82% vs. 62%). Interestingly, patients with mixed urinary incontinence preoperatively were frequently free of urgency whereas the rate of de novo urgency was 17%. The reoperation-rate was low (4%). Limitations of the study include lack of a control group and a modest follow-up rate, which we are trying to increase.

Key Words: TVT, incontinence surgery, stress urinary incontinence, long-term follow-up

Oral Presentation 04
ADVERSE EVENTS IN THE TOMUS TRIAL

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Objectives: We describe the frequency of complications among women randomized to retropubic (RMUS) (n=298) or transobturator (TMUS) (n=299) midurethral sling over a period of up to two years.

Materials and Methods: The design and primary outcomes of TOMUS have been previously published. The definition, reporting, and classification of adverse event (AE) reporting were standardized across the nine clinical sites. A modified Dindo et al complication scale was used; severe AEs (SAEs) were defined as those which required a surgical, endoscopic or radiologic intervention. Quality control for Dindo categorization was done by 2 of the 5-person investigator complication work group, all of whom were blinded to reporting site and randomization assignment were responsible for quality control of the Dindo categorization. The entire work group adjudicated categorization discrepancies. Analysis included bivariate associations of AE with clinical and demographic variables; AE frequency was stratified by concomitant surgery.

Results: 166/597 (28%) women experienced at least one AE: 225 unique AEs were reported with 55 (24%) classified as serious AE (SAEs). Prior UI surgery [1.73 (1.05–2.84)], history of UTI [2.30 (1.22–4.35)], longer operative times [1.006 (1.003–1.010)] and increased blood loss [1.005 (1.003–1.007)] were significantly associated with AEs. The most common SAEs were intra-operative vaginal epithelial perforation (n=19) which did not differ by randomized group and intra-operative bladder perforation (n=15) which occurred more commonly in the RMUS group (TMUS v RMUS 0% vs. 5.0%, p<0.0001). The most common AEs were neurologic symptoms (weakness, numbness in pelvis/legs /thighs) (n=44) and UTIs (n=38). Post-operative neurologic symptoms were more common in the TMUS group (TMUS v RMUS; 9.4% vs. 4.4%, p=0.02). The overall frequency of SAEs or AEs did not differ significantly when MUS was performed alone (n=446) compared to cases with concomitant surgery (n=151). However, an SAE related to postoperative mesh (n=12) occurred exclusively in the MUS alone group; with 9 being post-operative vaginal mesh exposure in the RMUS group. Post-operative UTI was more common in the concomitant surgery group compared to MUS alone group (9.9% vs. 4.3% respectively, p=0.01). Occurrence of any AE/SAE was not associated with increased surgical failure in either group.

Conclusion: Approximately 25% of women undergoing TOMUS mid-urethral sling procedures experienced at least one AE. Complication patterns differed by surgical approach, with bladder perforation and post-operative mesh complications occurring more commonly in the RMUS group and neurological symptoms occurring more commonly in the TMUS group. Concomitant surgery increases the risk of UTI in both surgical groups. Surgeons may use our findings when discussing complications of midurethral sling procedures with their patients who are candidates for these procedures.

Key Words: Urinary Incontinence, Midurethral Sling, Surgical Complication

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Michael Albo: Investigator -Salary; Investigator - Grant support
Toby Chai: Principal Investigator -Grant

Oral Presentation 05
DELIVERY OF HUMAN MESENCHYMAL STEM CELLS TO PROMOTE PELVIC FLOOR REGENERATION IN MICE

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Objectives: Many animal studies have demonstrated improved mechanical function in pelvic organs receiving stem cell therapy through injections or scaffold transplantation; this is the first study where a new delivery method is investigated.

Human derived Mesenchymal Stem Cell (hMSC)-seeded microthreads will enhance targeted cell delivery to damaged regions of the pelvic floor, resulting in improved mechanical function, and possibly reducing recurrence, by regeneration of damaged tissue.

A new deployable suture material for the female pelvis that will adjust to physical and anatomic properties of the damaged vagina and supporting structures and compare this suture material to non-seeded microthreads for vaginal cuff closure in SCID mice.

Materials and Methods: Four groups of four SCID mice were induced a pelvic floor defect. These mice underwent hysterectomy with upper vaginectomy. Subsequently, the vaginal cuff was closed as follows: Half were sutured with hMSC seeded microthreads, half with un-seeded microthreads used as controls. The design involves euthanasia and testing at four different

time points, 24 hours, 7 days, 14 days and 28 days. Our sutures were composed of a fibrin and collagen scaffold loaded with human mensenchymal stem cells. By using fibrin-based biomaterials as a biopolymer for the fabrication of our microthreads, this scaffolding material will undergo fibrinolytic biodegradation in the pelvic tissue theoretically leaving a large cohort of hMSCs in the paravaginal tissue with the goal of promoting connective tissue regeneration. To increase the quantity of cells on microthreads, the stem cell loading process involved the following dynamic seeding method: Following sterilization, bundles of two collagen and two fibrin microthreads were placed in a 4cm segment of Silastic tubing. Each piece of tubing was injected with 100 μL of media containing 100,000 hMSC cells in suspension. The tubes were then rotated 24 hours in an incubator. The hMSCs delivered to newly repaired mice vagina are tracked by immunohistochemistry using an antihuman nuclei monoclonal antibody. Finally, the animals are euthanized and we characterize the mechanical function and histology in the extracted animal vaginal tissue. A subset of extracted tissue is mechanically loaded in uniaxial tension to generate stress-strain curves.

Results: To date, the first group of mice was euthanized 24 hours after the operation. The microthread bundles showed no sign of mechanical failure during suturing and retained their bundled structure when implanted. By immunohistochemistry, the presence of transplanted hMSC was detected in the periphery of an intact microthread bundle with minimal inflammatory reaction. Uniaxial mechanical testing revealed slightly lower stress-strain curve when compared with sham operated animals.

Conclusion: hMSC can be easily transplanted into mice vagina using this novel 'living' sutures technique. The transplanted cells can survive at least 24 hours and the tissue is able to retain its physical properties. Additional results of immunohistochemistry and mechanical testing will be reported. This delivery method of mesenchymal cells to the damaged pelvic floor holds promise for future use in humans.

Key Words: Prolapse, Stem Cells, Mice, Sutures

Oral Presentation 06
NATURAL ORIFICE VAGINAL SACROCOLPOPEXY (NOVAS): A CADAVER FEASIBILITY STUDY

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Objectives: Our primary objective was to determine the feasibility of a vaginal approach to sacrocolpopexy using a cadaver model. Secondary objectives were to measure the distance from the vaginal introitus to the sacral promontory as well as the distance of the sacral sutures to other vital structures such as the common and internal iliac artery and vein, and ureters. Additionally we sought to develop specific retractors to optimize visualization of the sacrum through the vagina.

Materials and Methods: Fourteen fresh-frozen cadavers were used for this study. In all cadavers, distance from the vaginal introitus to the sacral promontory was measured. In the first 5 cadavers, both transperineal and transvaginal (TVSC) approaches were attempted. The remaining 9 underwent a transvaginal approach which included 4 that underwent concomitant vaginal hysterectomy and 5 who were status-post hysterectomy and had apical entrance into the peritoneal cavity. Specialized instruments were developed to optimize visualization of the sacrum and facilitate performance of the procedure. Dissection of the peritoneum overlying the sacral promontory down to the level of S2 was carried out using laparoscopic instruments. Following placement of the sacral sutures (via a prototypic fixation device) measurements of the fixation elements in relationship to the aortic bifurcation, the common and internal iliac vessels as well as to the ureters were documented. The fixation elements were placed transvaginally and their position was confirmed abdominally.

Results: The transvaginal approach was found to be easier and more consistent with current techniques. Full or partial completion of the TVSC was accomplished in 8 of the 9 cadavers. One cadaver had an unknown previous Koch pouch that did not allow for entrance into the peritoneal cavity. In the successful cases, the mean distance from the vaginal introitus to the sacral promontory was 14.6cm (12–16.5). The mean distance from the sacral sutures to the aortic bifurcation was 5.2cm (6.5–9.5), to the common iliac artery 3.5 cm (2–4), to the internal iliac artery 3.25cm (3.5–6), to the middle sacral artery 1.75cm (1.5–2.5) and to the ureters was 3.5cm (2–4). The position of the sacral sutures was found to be at the level of S1-2 consistently rather than the promontory. Using the specialized retractor made access to the sacrum consistently reproducible. The biggest challenge was clearing the small bowel out of the operative field. However the only bowel injury encountered was in the one cadaver with an unknown Koch pouch and the injury occurred upon entrance into the peritoneal cavity.

Conclusion: Vaginal approach to sacrocolpopexy has been successfully accomplished in a cadaver model. Specific measurements demonstrate a safe distance from the sacral sutures to other vital structures. Placement of the sacral fixation elements was consistently at the level of S1-2 which is more consistent with the originally described procedure. The development of specialized retractors was a key factor to accomplishing the procedure. Natural orifice surgery is becoming more mainstream. The further development of this procedure may offer our patients an even less invasive surgical approach for vaginal vault prolapse.

Key Words: Sacrocolpopexy, vaginal, natural orifice

Oral Presentation 07
EVALUATION OF ENERGY INDUCED VAGINAL INJURY DURING LAPAROSCOPIC HYSTERECTOMY IN A SWINE MODEL

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Objectives: To analyze the histopathologic effects of various energy sources on the vaginal cuff during a laparoscopic hysterectomy in a swine model.

Materials and Methods: The colpotomy incision at laparoscopic hysterectomy in the swine model was performed was performed via scalpel, ultrasonic cutting and coagulation (Harmonic Scalpel ™), monopolar energy, or bipolar energy (Bipolar PKS™ Plasma J-Hook™ or PKS™ Lyons™ Dissecting Forceps). Vaginal specimens were subsequently harvested from 13 swine, fixed in formalin, and histologic sections were stained with hematoxylin and eosin (H&E) and Masson's trichrome. The distal margin of the vaginal resection, performed with a scalpel during tissue harvesting, was used as a reference with which to compare energy-related tissue effect. Histopathologic tissue damage was assessed and quantified by board certified gynecologic and veterinary pathologists who were blinded to the energy source.

Results: The tissue damage was described as a progressive division between damaged and healthy tissue identifiable by a front of myocyte vacuolation and loss of normal collagen architecture. Injury on the H&E stains was difficult to measure due to the subtlety of the tissue changes. Tissue injury was most apparent on Masson's Trichrome-stained sections which showed clear demarcation and accentuation of the myocytes, fibroblasts, and connective tissue. This allowed for more consistent quantitative measurements of tissue damage.

The mean degree of injury measured microscopically on the trichrome-stained sections was 0±0 μM (scalpel, n=22), 782±359 μM (Harmonic™, n=7), 2015±1423 μM (monopolar, n=8), and 3010±1239 μM (bipolar, n=7). When comparing the significance of each injury distance, using scalpel as the reference, all were significant ($p<0.001$). Using Harmonic™ as reference, bipolar ($P=0.003$) and monopolar ($p=0.08$), Mann-Whitney U Test.

Conclusion: The swine vagina demonstrated tissue damage secondary to all energy sources, with Harmonic™ showing the least injury and bipolar energy associated with the greatest extent of injury. The identification and degree of tissue damage was most apparent on Masson's trichrome-stained slides and future use of this stain may be an important adjunct in the evaluation of tissue damage secondary to various energy sources. The swine model may be a useful tool in further studying how various energy sources relate to vaginal healing after minimally invasive hysterectomy.

Key Words: Hysterectomy, Laparoscopy, Swine, Energy Source, Vagina, Histology

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Oral Presentation 08
TREATMENT STRATEGIES FOR PELVIC ORGAN PROLAPSE: A COST-EFFECTIVENESS ANALYSIS

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Objectives: Pelvic organ prolapse (POP) is a common condition that significantly impacts quality of life for many women. Additional analysis

comparing non-surgical and surgical treatment approaches to apical POP could yield useful information about the relationships between quality of life, treatment complications and the costs of care. This study compares the relative cost effectiveness of treatment alternatives for post hysterectomy pelvic organ prolapse.

Materials and Methods: A Markov decision analysis model was developed to represent the relationships between potential health states and probabilistic events that follow from each treatment alternative to obtaining months of quality adjusted life over one year. The model included: 1) event probabilities 2) costs and 3) utilities for outcomes occurring for a baseline (hypothetical) case of a healthy 65 yo woman, post hysterectomy with ≥ stage 3 apical prolapse wishing to preserve coital function. Treatment choices included: 1) expectant management 2) pessary or 3) surgical management- a) vaginal reconstructive surgery (VRS) ; b) traditional/open abdominal sacrocolpopexy (ASC); and c) robotic-assisted ASC. Probabilities for events following each decision alternative were identified from a review of published studies. Direct costs of each surgical procedure were estimated using the 2007 Healthcare Cost and Utilization Project Nationwide Inpatient Sample. Sensitivity analysis was conducted to determine whether the results depended on specific estimates of patient utilities for pessary use, probabilities for complications and other events, and estimated costs.

Results: Using the baseline values for each estimated component, only two decision alternatives were found to be cost effective: pessary use, and vaginal reconstructive surgery (Figure). Pessary use achieved 10.4 quality adjusted months, at a cost of $10,000 per patient. Vaginal reconstructive surgery obtained 11.4 quality adjusted months, at $15,000 per patient. Other treatment alternatives were dominated, in that they achieved fewer quality adjusted months at greater cost than the two most efficient alternatives. Sensitivity analysis of the model demonstrated that the relative efficiency and/or order of the results obtained from the model changed for only five estimated components: 1) probability of POP complication, 2) probability of surgery following pessary, 3) utility of pessary use, 4) probability of late complications for VRS, and 5) the proportional cost estimate for robotic-assisted ASC as a percentage of the median total hospitalization charge for patients with ASC.

Conclusion: This analysis indicates that pessary use and vaginal reconstructive surgery are the most cost effective treatment alternatives for treating post-hysterectomy vaginal prolapse. Choosing appropriate treatment strategies for POP and other quality-of-life conditions involves experience, scientific evidence and increasingly, knowledge of costs. In an era of diminishing resources, we would advocate for more research to blend patient-centered outcomes with cost analyses, thereby helping clinicians make informed, effective treatment decisions with their patients.

Key Words: pelvic organ prolapse, pessary, cost-effectiveness, pelvic organ prolapse surgery

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Oral Presentation 09

USING COGNITIVE TASK ANALYSIS TO UNDERSTAND THE CRITICAL COMPONENTS OF PERFORMING VAGINAL HYSTERECTOMY

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Objectives: Recent trends in learning surgical skills are focusing less on how trainees learn the salient steps of a procedure and focus more on how trainees learn "higher order" decision-making and surgical judgment. Cognitive task analysis (CTA) is a qualitative analysis technique that uses in-depth interviews to determine the critical steps and decision points of a procedure. The objective of this study is to identify the discrete steps, decision points, and common errors a surgeon may encounter when performing vaginal hysterectomy (VH) to aid in learning this common procedure.

Materials and Methods: Expert gynecologic surgeons were interviewed using audio and video-recorded, private, semi-structured qualitative methods by an investigator trained in a type of CTA referred to as 'critical-decision methods.' Probe questions were based on a video recording of a VH that the surgeon watched during the interview with the goal to gain insight into the expert's cognitive processes during critical portions of the procedure. Specific cognitive processes elicited included sensory cues, decision-making points, and identification of potential errors. Previous studies have demonstrated that interviewing three expert surgeons is sufficient for CTA. Transcribed interviews were coded and analyzed using qualitative research (COREG) standards, and the data was used to create checklists and a decision tree of the salient procedural steps, critical decisions, and potential errors of the procedure. Steps of a VH as described in traditional textbooks were triangulated to information obtained during our critical-decision method interviews.

Results: Four experienced surgeons' underlying thought processes were elicited using CTA probe questions. Consistencies were found among the 4 surgeons, including sequence of steps, use of similar visual and tactile cues, and potential errors and complications that can occur while performing a VH. Although all surgeons mentioned similar potential errors, there were differences in the management of the errors, especially the appropriate time in the procedure when the complication should be addressed. Discrepancies between surgeons were due to personal style or due to their experiences during their postgraduate training. Using the CTA technique, a VH procedural checklist was created that included 22 discrete steps, along with a decision tree incorporating these steps, 15 critical decision points, 11 common errors, and strategies to prevent errors (Figure). Several decision points and errors were missing from the common textbook descriptions that were otherwise repeatedly noted in the interviews.

Conclusion: It is feasible to use CTA to create a procedural checklist and a decision tree illustrating the discrete steps, critical decision points, and common errors for VH. Important components, particularly decision points and common errors with their prevention strategies, are missing from traditional gynecologic surgical textbooks. This decision tree can be used as a teaching or assessment tool for learning the critical steps and higher order decision-making required during VH.

Key Words: vaginal hysterectomy, surgical education, cognitive task analysis, critical-decision methods

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Oral Presentation 10

A POPULATION-BASED COHORT STUDY TO DETERMINE THE RISK OF SUBSEQUENT OOPHORECTOMY AMONG WOMEN WITH AND WITHOUT HYSTERECTOMY

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Objectives: Evidence suggests that premature loss of ovarian function caused by bilateral oophorectomy performed before natural menopause is associated with premature death, cardiovascular disease, dementia, and osteoporosis. While 20–50% of women have an oophorectomy during hysterectomy, the risk of oophorectomy after a hysterectomy is unknown. Our objective was to compare the incidence of subsequent oophorectomy among women who had a hysterectomy in the community.

Materials and Methods: Using the data resources of the Rochester Epidemiology Project, we tracked the incidence of oophorectomy (through November 2008) in all women who had a hysterectomy for benign indications from 1965–2002 and women who did not have a hysterectomy, matched for age and duration of follow up. Women who had a bilateral oophorectomy at hysterectomy were eliminated from analysis. A stratified Cox proportional hazards model compared the cumulative incidence of subsequent oophorectomy in cases and matched controls. We also calculated both the cumulative incidence of an oophorectomy and of subsequent oophorectomy after unilateral versus bilateral ovarian preservation at the time of hysterectomy with the use of product-limit methods; comparisons were evaluated using a Cox model. Associations were summarized using the hazard ratio (HR).

Results: The cohort comprised 6,067 cases (mean age at hysterectomy ("index date"), 43.7y) who underwent hysterectomy with preservation of one (n = 560) or both ovaries (n = 5507) and 6067 non-hysterectomy controls (mean age at index date, 44.3y). Cases and controls were followed for a median of 18.8 and 18.5 years respectively. Prior hysterectomy was not associated with having a subsequent oophorectomy (HR 1.09, p=0.31). Up to 30 years after the index date, the cumulative incidence of a subsequent oophorectomy was comparable in cases and controls (Table 1). Among women who had hysterectomy, women with one ovary preserved had a higher cumulative incidence of subsequent oophorectomy (i.e., 2.1% at 2 years and 8.2 % at 30 years) compared with women with both ovaries preserved (i.e., 0.5% at 2 years and 7.9% at 30 years); this association was significant after adjusting for age (HR=1.7, 95% CI=1.2–2.4, p=0.005).

Conclusion: While the incidence of a subsequent oophorectomy was not significantly higher after a hysterectomy, women who had a hysterectomy

with unilateral oophorectomy were at an increased risk for a subsequent oophorectomy than women who had a hysterectomy alone. Further analyses are required to ascertain if this risk was influenced by the indication for hysterectomy.

Key Words: hysterectomy, oophorectomy, incidence

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Adil E. Bharucha: Investigator - Grant support

TABLE 1 - Cumulative Incidence of subsequent oophorectomy

Group	Number of patients with a subsequent oophorectomy	Cumulative incidence of subsequent oophorectomy (%)				
		2	5	10	20	30
Hysterectomy case (N=6067)	315	0.9	2.1	3.7	6.6	10.1
Non-hysterectomy control (N=6067)	290	0.7	1.4	2.7	6.0	9.9

Oral Presentation 11
CORRELATION OF POPQ POSTERIOR COMPARTMENT MEASURES WITH DEFECATORY DYSFUNCTION

INTRODUCTION & BACKGROUND

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Objectives: Symptoms of stool trapping and splinting are presumably associated with defects in posterior vaginal support that create pockets in which stool becomes stuck. These defects are sometimes perineal distortions (perineoceles) in the absence of posterior vaginal bulging (rectocele). The objective of this study was to evaluate the relationship between Pelvic Organ Prolapse Quantification (POPQ) items pb and Bp with defecatory dysfunction.

Materials and Methods: New patients to an academic urogynecology practice between September, 2007 and May, 2010, inclusive, were the subjects of this retrospective chart review. Subjects were ≥18 years old and had a minimum of 7 responses for the 8-question Colorectal Distress Inventory (CRADI-8) subscale of the Pelvic Floor Distress Inventory (PFDI) 20. Splinting was identified by an answer of "at least somewhat" to question 4 ("Do you ever have to push on the vagina or around the rectum to have or complete a bowel movement?") of the PFDI 20, and stool trapping was identified by an answer of "at least somewhat" to question 8 ("Do you feel you have not completely emptied your bowels at the end of a bowel movement?"). Rectocele was defined as POPQ point Bp >−0.5, and perineocele was defined as pb >3. The relationships between splinting and stool trapping with rectocele and with perineocele were determined using chi squared tests. Correlations between points pb and Bp with splinting and stool trapping were determined using Pearson's correlation coefficients. CRADI-8 scores were compared between women with and without rectocele and perineocele using Student's t tests.

Results: Of 1,824 women, complete data were available for 1,013 (55.5%) subjects (mean age 56.6 ± 15.3 yrs., median 56.2). 37.0% had perineoceles, and 16.8% had rectoceles. More women with than without rectocele expressed bother associated with splinting (50.0% vs. 25.3%, respectively, p<0.001). There was a trend toward more bother in women with than without perineocele (33.4% vs. 27.5%, p=0.052). Similarly, stool trapping was more common in women with than without rectocele (57.2% vs. 39.8%, respectively (p<0.001), and a similar but not statistically significant trend was seen with perineocele (46.3% vs. 40.5%, respectively, p=0.077). Point Bp was directly and significantly correlated with both splinting and stool trapping. There were no correlations between bp and these symptoms. CRADI-8 scores were higher, suggesting more bother, in women with rectocele than in women without (26.6 ± 20.9 vs. 18.9 ± 19.0, respectively, p<0.001), but were similar in women with and without perineocele (20.6 ± 19.0 vs. 20.0 ± 20.0, respectively, p=0.660).

Conclusion: Rectocele is associated with symptoms of splinting and stool trapping. While there is a trend toward these symptoms with perineocele, the association is not statistically significant. Women with rectocele but not those with perineocele have more distress on the CRADI-8 than women without these problems. The POPQ Bp point, but not the pb measurement, predicts symptoms of defecatory dysfunction. Distal perineal defects associated with defecatory dysfunction may not be adequately described by the POPQ exam.

Key Words: POPQ, Rectocele, Perineocele, Defecatory dysfunction, Splinting, Stool trapping

Oral Presentation 12
COMPARISON OF BLINDED AND UNBLINDED POP-Q EXAMS IN A RANDOMIZED CONTROLLED TRIAL

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Objectives: To compare Pelvic Organ Prolapse Quantification (POP-Q) exams between blinded and unblinded examiners in a randomized controlled trial, to determine if there is surgeon bias present when performing unblinded exams.

Materials and Methods: This is an ancillary study of a double-blinded randomized clinical trial of vaginal mesh or no mesh for advanced Stage 2–4 pelvic organ prolapse. This ancillary study compared postoperative blinded POP-Q exams done by a faculty urogynecologist, fellow, nurse practitioner or resident, to unblinded exams done by the patient's surgeon in the trial. Blinded and unblinded POP-Q exams were performed at 3 months and 1 year. Statistical analysis was performed using chi-square and Friedman tests, Spearman correlations, and scatterplots. A significance level of 0.01 was used due to the large number of tests performed.

Results: Sixty-five patients were in the trial with approximately 130 blinded and 130 unblinded POP-Q exams during the study period. There was no tendency for the unblinded exam measurements to be higher or lower than blinded exam measurements for individual POP-Q points or for POP-Q stage (p= 0.011–1.0). Similar results were obtained with sub-analysis of the 2 study groups (mesh or no mesh) in the trial. However, correlations between unblinded and blinded exam measurements were low to moderate, ranging from 0.29–0.78. For the 64 cases with both blinded and unblinded 3-month POP-Q overall staging, the blinded 3-month overall recurrence rate was 45.3% (29/64) compared to 39.1% (25/64) based on unblinded staging (McNemar test, p = 0.34). For the 59 cases with both blinded and unblinded 1-year POP-Q overall staging, the blinded 1-year overall recurrence rate was 69.5% (41/59) compared to 54.2% (32/59) based on unblinded staging (McNemar test, p = 0.004).

Conclusion: Use of unblinded POP-Q overall staging would have resulted in severe underestimation of 1-year overall recurrence.

Key Words: POP-Q, blinded, unblinded, exam

Oral Presentation 13
VALIDATION OF THE ACTIVITIES ASSESSMENT SCALE IN WOMEN UNDERGOING PELVIC RECONSTRUCTIVE SURGERY

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Objectives: Improvement in day-to-day functioning is an important outcome after surgery. The Activities Assessment Scale (AAS) is a 13-item, valid, reliable and responsive postoperative functional activity scale originally validated in men undergoing hernia surgery.(1) The objective of this study is to evaluate the validity, reliability and responsiveness of the AAS in women undergoing vaginal surgery for pelvic organ prolapse and stress urinary incontinence.

Materials and Methods: Study participants included 169 consecutive women enrolled in the OPTIMAL trial, a randomized trial comparing sacrospinous ligament fixation to uterosacral vault suspension with and without perioperative pelvic floor muscle training in women with Stage 2–4 prolapse and stress urinary incontinence. All participants completed a self-administered questionnaire that included the AAS, the SF-36, and a single

item rating of functional activity at baseline, and 2 weeks and 6 months after surgery. At 2 and 6 months post-op, patients compared their functional ability to that before surgery on a 5-point Likert scale ("much worse" to "much better"). Internal reliability of the AAS was evaluated on baseline data using Cronbach's alpha. Construct validity and responsiveness were examined in statistical analyses of cross-sectional and longitudinal data using Pearson's correlation coefficient and t-tests. The AAS is scored from 0 to 100 with higher scores indicating better functional ability.

Results: 163 of 169 study participants (96%) completed the AAS and SF-36 at baseline and 2 weeks and 145 (86%) completed both questionnaires at 6 months. At baseline, the mean+SD AAS was 87+ 17.3 (range 25 to 100). Functional activity declined from baseline to 2 weeks post-op (mean change −4.5; 95% CI −7.6 to −1.42) but significantly improved above baseline levels at 6 months (mean change +10.9; 95% CI 7.8 to 14.0). Internal reliability of the AAS was excellent (Cronbach's Alpha = .93). Convergent validity was demonstrated by a correlation of .59–.60 between the AAS and the SF-36 Physical Functioning Scale ($p<.0001$ for all time points) while divergent validity was shown with low correlations between AAS and other SF-36 subscales. Patients who reported a decline in functional activity from baseline to 2 weeks showed an effect size of −1.49 in the pre- to post-operative change of the AAS score. Similarly, subjects who demonstrated improvement in the SF-36 Physical Functioning scale from 2 weeks to 6 months had an effect size of .71 in the change of the AAS score.

Conclusion: The AAS is a valid, reliable and clinically responsive measure that can be used to evaluate physical functioning in women after pelvic reconstructive surgery.

1. McCarthy M, Jr., Jonasson O, Chang CH, Pickard AS, Giobbie-Hurder A, Gibbs J, et al. Assessment of patient functional status after surgery. J Am Coll Surg 2005;201(2):171–8.

Key Words: Pelvic Organ Prolapse, Functional Activity, Outcome Measures, Questionnaire

Oral Presentation 14
A RANDOMIZED, SHAM-CONTROLLED TRIAL OF POSTERIOR TIBIAL NERVE STIMULATION FOR THE TREATMENT OF ACUTE POSTOPERATIVE VOIDING DYSFUNCTION

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Objectives: To determine whether posterior tibial nerve stimulation (PTNS), a form of electrical neuromodulation, is effective in improving voiding function among patients with a failed trial of void after urogynecologic surgery.

Materials and Methods: Patients undergoing Urogynecologic surgery with an unsuccessful trial of void (TOV, defined as voided volume of less than 200 cc immediately after 300 cc retrograde saline instillation) were offered enrollment. Patients randomized to PTNS received 30 minutes of treatment using an acupuncture needle just above the medial malleolus; patients enrolled in the sham arm received identical therapy, but using non-conductive cables. After treatment, the TOV was repeated. The primary outcome was a successful TOV and discharge without catheter; the secondary outcome was assessment of change in voiding efficiency (defined as voided volume divided by total volume).

Results: Eighty-four women were enrolled in the study, with 42 women randomized to each group. Antecedent surgeries included TVT or TOT slings, hysterectomy, vaginal repairs and/or vault suspension procedures, and these did not differ between groups. Anesthesia type, blood loss, and time from surgery to TOV were not different between groups; no patients experienced intraoperative complication. There was a trend toward higher successful repeat TOV rates among PTNS patients (50% compared with 31%, $p = .08$); however, statistical significance was not achieved. Improvement in voiding efficiency among PTNS patients was also not statistically significantly higher than among sham patients (28% versus 23% improved voiding efficiency, $p= .52$). There were no treatment-related complications in either group. PTNS patients were more likely to correctly guess their treatment allocation, and had higher treatment-related discomfort, though treatment-related pain scores were very low in both groups (0.55 versus 0.14 on a scale of 0–10, respectively; $p = .03$). One patient in the PTNS group had a successful TOV, followed by secondary urinary retention after discharge.

Conclusion: Among women with acute postoperative voiding dysfunction following urogynecologic surgery, PTNS neuromodulation was not statistically superior to sham treatment. The study may have been underpowered due to an unexpectedly high rate of improvement observed in the sham treatment group.

Key Words: Neuromodulation, Voiding Dysfunction, Urinary Retention, Sham-controlled, Randomized

	PTNS (N=42)	Sham (N=42)	p-value
Age	53.8	56.4	.37
BMI	28.7	29.0	.76
Anti-incontinence surgery	29 (69%)	32 (76%)	.54
Prolapse repair and/or hysterectomy	28 (66.7%)	34 (81%)	.10
EBL	149.9	191.7	.11
Time from surgery to TOV (hours)	13.9	27.4	.0017
Pain from surgery (0–10)	2.45	1.57	.04
Successful TOV after intervention	21 (50%)	13 (31%)	.08
Improvement in voiding efficiency after intervention	28%	23%	.52
Pain from treatment (0–10)	0.55	0.14	.03

Oral Presentation 15
THE ASSOCIATION OF AGE, MEDICAL COMORBIDITIES, AND FUNCTIONAL STATUS WITH 30 DAY MAJOR POSTOPERATIVE COMPLICATIONS FROM GYNECOLOGIC SURGERY

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Objectives: To determine the association of age, medical comorbidities (cardiac, pulmonary, renal, and liver), and functional status with 30 day major postoperative complications in women undergoing gynecologic surgery.

Materials and Methods: This project involved analysis of the 2005 to 2008 ACS NSQIP participant use data files. The American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) is a national program for surgical quality improvement collecting uniform data on over 105 variables, including: preoperative characteristics, surgical information, and 30 day postoperative complications. We grouped women into 6 age categories: ≤ 40 years, >40 to ≤50 years, >50 to ≤60 years, >60 to ≤70 years, >70 to ≤80 years, and >80 years old. Our primary outcome was composite 30 day major postoperative complications including: death, cardiac arrest, myocardial infarction, stroke, coma >24 hrs after surgery, pneumonia, sepsis, septic shock, prolonged mechanical ventilation >48 hours, unplanned intubation, pulmonary embolism, deep vein thrombosis, deep wound surgical site infection SSI, organ space SSI, wound dehiscence, blood transfusion, and return to the operating room. Logistic regression models were conducted to further explore the associations of age, medical comorbidities, functional status, and potential confounders with 30 day postoperative morbidity. Variables were identified for potential inclusion in the final model based on univariate analysis ($p <.1$). Variables were added to the model in a stepwise fashion utilizing forward and backward selection ($p \leq.05$). Adjusted Odds Ratios (AOR) and 95% confidence intervals (CI) were calculated.

Results: A total of 10,840 women were included in our final analysis. The overall prevalence of composite 30 day major postoperative complications was 2.25%. This included (not exclusive categories): death (.18%), cardiac arrest (.08%), myocardial infarction(.03%), stroke (.03%), coma >24 hrs after surgery (.01%), pneumonia (0.22%), sepsis (.49%), septic shock (.21%), prolonged mechanical ventilation >48 hours (.21%), unplanned intubation (.29%), pulmonary embolism (.22%), deep vein thrombosis (.16%), deep wound SSI (.41%), organ space SSI (.61%), wound dehiscence (.42%), blood transfusion (.23%), and return to the operating room (1.62%). After controlling for emergency procedures, general anesthesia, operative time, procedures for gynecologic cancer, unintentional weight loss, and preoperative

platelet values, pulmonary disease (AOR=2.3, 95%CI (1.15,4.59)), liver disease (AOR=7.55 (3.91,14.53)), and functional status (AOR=4.21, 95% CI (2.10,8.45)) were associated with the increased occurrence of 30 day major postoperative complications. Age, cardiac disease, and renal disease were not significant predictors of 30 day major postoperative complications (p=0.29, .37, and .99, respectively).

Conclusion: Major postoperative complications following gynecologic surgery are rare. Preoperative predictors of major postoperative complications included pulmonary disease, liver disease, and functional status.

Key Words: gynecologic surgery, postoperative complications, morbidity

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Maria M. Ciarleglio: Nothing to disclose
Elisabeth A. Erekson: Nothing to disclose
Terri R. Fried: Nothing to disclose
Sallis O. Yip: Nothing to disclose

Oral Presentation 16

LOWER URINARY TRACT INJURIES AT THE TIME OF A HYSTERECTOMY IN WOMEN WITH TWO OR MORE CESAREAN DELIVERIES

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Objectives: To evaluate the rates of lower urinary tract injuries in women with 2 or more prior Cesarean deliveries undergoing a hysterectomy for a benign indication.

Materials and Methods: Women undergoing a hysterectomy at Grady Memorial Hospital between January 1, 2000 and December 31, 2009 were identified. Demographic, operative and postoperative data were reviewed. Women undergoing a hysterectomy for benign indications who had 2 or more prior Cesarean deliveries (CD) were compared to women who had not undergone a prior Cesarean delivery. Categorical variables were analyzed with Chi-square or Fisher's exact test while Student's t-test or Mann-Whitney U test was used for continuous variables. Logistic regression was used for multivariate analysis.

Results: During the study period, 3002 hysterectomies were performed. A total of 2267 women met the inclusion criteria (309 women with $\geq$ 2 CD, 1958 women with no prior CD). Women with multiple CD had significantly more pelvic adhesions (64% vs 32%), greater operative blood loss (653 ± 34 vs 519 ± 10 mL) and longer operative times (178 ± 4 vs 157 ± 2 minutes); all $P < 0.001$. They were also more likely to require a transfusion, develop an abdominal wound infection or acquire a urinary tract infection. Women with multiple prior CD were at greater risk for having an incidental cystotomy (OR: 3.99, 95% CI: 2.55–6.24) but not ureteral injury (OR: 1.05, 95% CI: 0.31-3.60). After controlling for potential confounders, women with multiple CD were still more likely to have an intraoperative bladder injury (OR: 12.98, 95% CI: 6.22–27.12).

Conclusion: Women with multiple prior Cesarean deliveries who undergo hysterectomies for benign indications are at increased risk for unintentional bladder traumas. They are also more likely to require a transfusion and develop a urinary tract or abdominal wound infection. Additionally, their hysterectomies are generally more difficult as evidenced by the greater intraoperative blood loss and longer operative times.

Key Words: Hysterectomy, Cystotomy, Cesarean delivery

Oral Presentation 17

MINIMALLY-INVASIVE SURGERY FOR HYSTERECTOMY: EVOLVING TRENDS OVER 20 YEARS AT A TERTIARY CARE, COMMUNITY TEACHING HOSPITAL

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Objectives: To describe changes in rates of different types of hysterectomy during the 20 year time period from 1989 to 2009 at a tertiary care community teaching hospital

Materials and Methods: This is a retrospective analysis of types of hysterectomies performed for benign disease during five different years at five-year intervals (1989, 1994, 1999, 2004, 2009) at a large community teaching hospital. Hospital discharge data was reviewed to identify all hysterectomies performed during the first six months of the each year of the study. Patient charts were reviewed and patient characteristics, indication(s) for hysterectomy, intraoperative and postoperative data and surgeon characteristics (i.e. generalist, subspecialist) were noted. Hysterectomies performed for malignancy, suspected malignancy, or post-partum hemorrhage were excluded.

Results: Types of hysterectomies included: abdominal (AH), vaginal (VH), laparoscopically-assisted vaginal (LAVH), total laparoscopic (TLH), laparoscopic supracervical (LSH) and robotic-assisted (RH). Hysterectomy rates by year were as follows: 1989: AH-77%, VH-23%; 1994: AH-60.6%, VH-24.1%, LAVH-15.3%; 1999: AH-63.5%, VH-25.9%, LAVH-7%, TLH-1.2%, LSH-2.4%; 2004: AH-55.5%, VH-25.6%, LAVH-1.7%, TLH-3.3%, LSH-13.9%; 2009: AH-35.2%, VH-22.8%, LAVH-6.8%, TLH-6.8%, LSH-14.8%, RH-13.6%. Overall, the AH rate decreased from 77% to 35.2% during the timeframe of the study, while the rate of minimally-invasive surgery (MIS) approaches increased from 23% to 64.8%. The introduction of various newer MIS techniques did not decrease the rate of VH. The majority of AH, LSH and RH were performed by generalists, while the majority of VH, LAVH and TLH were performed by fellowship-trained specialists.

Conclusion: The introduction of newer MIS techniques for hysterectomy resulted in a significant reduction in the rate of abdominal hysterectomies without reducing the rate of vaginal hysterectomies. Laparoscopic supracervical hysterectomy and robotic hysterectomy were the techniques utilized most often by generalists as MIS alternatives to abdominal hysterectomy.

Key Words: vaginal hysterectomy, hysterectomy, minimally-invasive surgery, laparoscopically-assisted hysterectomy, robotic hysterectomy

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Charles E. Miller: Grant Research
Michael B. Noone: Product Development - consulting fee; surgical instruction, surgical teaching fee

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Oral Presentation 18

EFFECT OF MESH WIDTH ON VAGINAL APICAL SUPPORT AFTER ABDOMINAL SACROCOLPOPEXY

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Objectives: To evaluate the effect of polypropylene mesh width on the strength of vaginal apical support after abdominal sacrocolpopexy.

Materials and Methods: After IRB exemption was obtained, a total hysterectomy followed by an abdominal sacrocolpopexy was performed on 10 unembalmed cadavers. Separate 1 cm width pieces of polypropylene mesh were attached to the anterior and posterior vaginal walls and the sacral promontory. Using a mechanical pulley system, 1, 2, 3, and 4 kilogram (kg) weights were sequentially applied to the vaginal cuff and the total distances moved were recorded. The testing protocol was repeated for 2 cm and 3 cm wide pieces of mesh. A second set of each mesh width was distracted in a tensiometer, and the maximum load reached at failure was recorded. Data were analyzed using repeated measures analysis of variance through a random effects model, and Tukey-Kramer adjustment for multiple testing. $P<0.05$ was considered statistically significant.

Results: Mean (SD) age and BMI of cadaver specimens were 81 ± 15 years and 23 ± 4kg/m2, respectively. Total distances moved stratified by mesh width and weight load are shown in the Table. For every added kilogram, the distance moved increased for all three mesh widths, reaching a plateau at 3 kg. For each load tested, the distance moved was greatest for the 1 cm mesh, followed by the 2 cm mesh, with the 3 cm mesh moving the shortest distance. The 1 cm width mesh ruptured during loading with 4 kg in 3/10 cadavers, and with 3 kg in 1/10 cadavers. Neither the 2 cm nor the 3 cm width mesh ruptured in any of the cadavers tested. During instron testing, mean (SD) force at failure in Newtons (N) for 1, 2, and 3 cm widths were 52.9 ± 8.7, 124.4 ± 8.4, and 201.2 ± 14.2, respectively ($P<0.001$).

Conclusion: In a cadaver model, increasing mesh width is associated with less apical descent and higher loads at failure when subjected to tensile forces. Results from this study suggest that mesh width may impact the performance of polypropylene, and care should be taken when trimming for use during sacrocolpopexy.

Key Words: Abdominal sacrocolpopexy, Polypropylene mesh, Cadaver study, Tensile strength

Load (Kg)	1 cm	2 cm	3 cm
1	2.44 ± 0.74	1.68 ± 0.58*	0.97 ± 0.53†
2	3.92 ± 1.00	2.44 ± 0.48*	1.53 ± 0.48†
3	4.77 ± 1.53	3.21 ± 0.62*	2.33 ± 0.43†
4	4.63 ± 0.82	3.67 ± 0.77*	2.73 ± 0.42†

Mean (SD) Total Distances (cm) Moved by Mesh Width and Applied Weight (*P < 0.01, †P<0.001, compared with 1 cm mesh width)

Oral Presentation 19
ANATOMIC RELATIONSHIPS OF THE PUDENDAL NERVE BRANCHES: ASSESSMENT OF INJURY RISK WITH COMMON SURGICAL PROCEDURES

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Objectives: To objectives of this study were to further characterize the distribution of the pudendal nerve branches, specifically their relationship to the perineal membrane, and to provide an assessment of direct injury risk with commonly performed surgical procedures, including anti-incontinence slings and vaginal mesh procedures.

Materials and Methods: Detailed dissections of the pudendal nerve were performed in nine unembalmed and four embalmed female cadavers using perineal, gluteal and transabdominal approaches. The pudendal nerve was followed from its origin in the posterolateral wall of the pelvis to its termination in the perineum. The relationship of the nerve and its branches to the ischial spine, pudendal canal, perineal membrane, clitoris and external anal sphincter, ischiocavernosus, bulbocavernosus, superficial transverse perineal and striated urethral muscles was described. The typical path of a midurethral sling trocar was followed in five unembalmed specimens and the relationship of the trocar to the perineal membrane was noted. Photographs of each dissection were taken and histologic confirmation of nerve tissue was performed in selected branches.

Results: In all 13 dissections, the clitoral and perineal branches of the pudendal nerve coursed superficial or caudal to the perineal membrane. The dorsal nerve of the clitoris was consistently found between the ischiocavernosus and the perineal membrane along its course from the medial aspect of the ischial tuberosity to the clitoral region. In all 13 dissections, the perineal nerve contributed branches to the ischiocavernosus, bulbocavernosus and superficial transverse perineal muscles. Branches of the perineal nerve innervated the muscles from their superficial surface. In 3 of the dissections, small branches of the perineal nerve were noted to perforate the perineal membrane from its superficial surface and course deep toward the lateral and retropubic aspects of the urethra. The inferior rectal nerve traversed the ischioanal fossa in variable patterns from the medial aspect of the ischium. In 4 pelvic sides, the inferior rectal nerve did not enter the pudendal canal. In all five specimens, the midurethral sling trocar was noted to pass cephalad to the perineal membrane. Nerve tissue that was obtained during gross dissection was confirmed histologically in selected specimens.

Conclusion: Considerable variation exists in the distribution of the pudendal nerve branches in the perineum. The dorsal nerve of the clitoris and the perineal nerve branches were consistently found caudal to the perineal membrane. As such, there should be no risk of direct nerve injury with procedures that involve passage of needles and/or mesh cephalad to the perineal membrane, such as midurethral slings. Nerve branches to the striated urethral muscles, which are found just cephalad to the perineal membrane, may be susceptible to injury by such procedures. Given the variability of distribution of the inferior rectal nerve within the ischioanal fossa, any procedure that involves blind passage of needles or material through this space may carry significant risk of direct injury to this pudendal nerve branch.

Key Words: nerve injury, pudendal nerve, perineum

Oral Presentation 20
EXTERNAL ANAL SPHINCTER REPAIR FOR FECAL INCONTINENCE: LONG-TERM EFFECT ON SYMPTOM SEVERITY, QUALITY OF LIFE, AND ANAL SPHINCTER SQUEEZE PRESSURES

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Objectives: To determine the long-term changes in fecal incontinence (FI) severity, general and condition-specific quality of life (QOL), and ano-rectal manometry (ARM) changes in women with FI who were treated with external anal sphincter (EAS) repair.

Materials and Methods: Case series of women with FI who underwent EAS repair. Participants completed questionnaires in an IRB-approved database at the Genito-Rectal Disorders Clinic between 1/1/2003 and 4/1/2009. All participants had a defect of the EAS identified by physical exam and/or endoanal ultrasound. Demographics and clinical information was abstracted from participant charts. Questionnaires were sent to participants at least one year after EAS repair and included the Fecal Incontinence Severity Index (FISI), Modified Manchester Health Questionnaire (MMHQ), the Patient Global Impression of Improvement (PGI-I) and the Short Form-12 (SF-12) which includes the Mental Component Survey Score (MCS) and Physical Component Survey Score (PCS). Participants were also asked to return for ARM assessment. Changes in questionnaire scores and ARM measures were compared using paired t-tests.

Results: 104 women underwent surgery during this time period and 74/104 (71%) responded; 54/74 (73%) had preoperative questionnaires. 25/74 (34%) had preoperative and postoperative ARM. The mean±SD length of follow-up for participants (n=54) was 31.3 ± 18.9 months (median 32.0; range 12.2–86.9). Demographic and other variables are in Table 1. There were no differences in age, race and number of vaginal deliveries among responders and non-responders. Scores on questionnaires and ARM measures are in Table 2. The mode and median PGI-I score (n=67) was 2 indicating perceived "much better" symptoms.

Conclusion: In women with fecal incontinence who were at least 1-year post-external anal sphincter repair, fecal incontinence severity and condition-specific quality of life are improved. Patients perceive that their condition is much better after external anal sphincter repair. More data are needed to confirm long-term ano-rectal manometry findings after external anal sphincter repair.

Key Words: Fecal incontinence, anal sphincter, sphincter repair, sphincteroplasty, anal manometry

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Holly E. Richter: Consultant, Consultant Fee - Grant Research, Grant Consultant

TABLE 1. Demographics and variables (n=54)

Caucasian / African-American*	46 (85%)
	7 (13%)
Age mean± SD (range: 24–84)	49.2 ± 13.4
BMI mean±SD (range: 18.7–54.4)	29.6 ± 8.4
Vaginal Deliveries median (range: 1–9)	2
Overlapping Sphincteroplasty*	21 (39%)

* missing data for 1 subject

TABLE 2. Pre-EAS Repair and Post-EAS Repair Questionnaire and ARM Measures in Women with FI

Questionnaires	Pre-EAS Repair	Post-EAS Repair	P value
MMHQ (range 0–100). n=54	46.7 ± 22.2	28.4 ± 24.3	p < 0.01
FISI (range 0–61) SF-12 - MCS (range 0–100). n=39	32.5 ± 13.2	22.6 ± 15.4	p < 0.01
SF-12 - MCS (range 0–100). n=53	37.7 ± 7.9	38.1 ± 7.7	p = 0.82
SF-12 - PCS (range 0–100). n=53	45.4 ± 11.7	47.4 ± 12.2	p = 0.06
ARM measures	Pre-EAS Repair	Post-EAS Repair	P value
Rest EAS pressure (mmHg). n=25	25.6 ± 15.4	31.5 ± 12.6	p = 0.02
Squeeze EAS pressure (mmHg). n=25	53.4 ± 25	71.8 ± 29.1	p < 0.01

Tips & Tricks 01
CIRCUMUMBILICAL (OMEGA) INCISION USE IN LAPAROENDOSCOPIC SINGLE SITE (LESS) GYNECOLOGIC SURGERY

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Objectives: The Omega incision was initially described by pediatric surgeons to provide a larger skin incision while maintaining excellent cosmetic results. We compared an inverted Omega circumumbilical incision to a vertical intraumbilical skin incision for peritoneal access during laparoendoscopic single-site gynecologic surgery.

Materials and Methods: During a 2 year period from 5/2008 – 5/2010, 124 patients underwent single incision laparoscopic gynecologic surgery. We retrospectively examined the preoperative BMI, type of skin incision at laparoscopic entry, and outcomes such as wound infection or seroma formation, requirement of antibiotics, and granuloma formation in these patients. Outcomes were documented at 6 week postoperative visits and by any additional necessary office or emergency room visits. Statistical analyses were performed where appropriate.

Results: Sixty-four patients underwent single incision laparoscopy using an inverted omega circumumbilical incision during the study period. Sixty patients had a vertical intraumbilical skin incision. Procedures performed included hysterectomy, excision of endometriosis, sacral colpopexy, myomectomy, treatment of ectopic pregnancy, and oophorectomy. All surgeries were completed laparoscopically, with one case of additional incision for placement of the morcellator device. There were no intra-operative complications. Multichannel laparoscopic ports were used for all cases. Mean BMI was 28.3 +/−6.2. The mean BMI was significantly lower in the Omega incision patients 27.2 +/−6.4 vs. 29.6 +/−5.7 in the vertical incision patients (p=0.04). No patients in either group were treated for an umbilical incision infection or seroma. There were no significant differences in intraoperative or postoperative complications, wound complications, postoperative antibiotic use, or 6 week patient satisfaction between the 2 incision types.

Conclusion: Laparoendoscopic single site surgery in gynecology is feasible, well tolerated, and results in essentially no scar for many benign gynecologic conditions. Use of the circumumbilical inverted Omega incision allows for placement of multichannel ports, provides a site for specimen removal, and potentially enhances cosmesis in this patient population.

Key Words: laparoscopic hysterectomy, single incision laparoscopy, laparo-endoscopic single site surgery, new technology

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Kevin J. Stepp: Consultant, speaker, Investigator - Research support

Tips & Tricks 02
LAPAROENDOSCOPIC SINGLE-SITE SURGERY SUPRACERVICAL HYSTERECTOMY: TECHNIQUE AND INITIAL REPORT

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Objectives: Laparoendoscopic single-site surgery (LESS) is a novel minimally invasive surgical approach with promising preliminary results in gynecology. Currently, there are no reports in the literature on LESS supracervical hysterectomy. The study aim was to determine the feasibility and optimal surgical technique for morcellating and extracting the uterus with LESS supracervical hysterectomy.

Materials and Methods: A retrospective, single institution analysis of women who had a supracervical hysterectomy performed by LESS. Patients underwent a single 1.5–2.0 cm umbilical incision utilizing a "Hasson" entry technique and cases were performed with a multichannel single port. Preoperative cervical screening and endometrial sampling were utilized to rule out malignancy in all cases. Uteri were morcellated and extracted using a variety of techniques.

Results: Twelve patients underwent a LESS supracervical hysterectomy +/− BSO. The median patient age was 45 years (range 33–47) and median BMI was 29.2 (range 19–5.9). All cases were performed for benign indications, with the most common being menorrhagia and leiomyomata (n=10). Uteri were extracted using one of three techniques: placing a morcellator through the single port device and a 5 millimeter (mm) laparoscope through the cervix (n=6, 50%); positioning the morcellator through the cervix and a 5 mm laparoscope through the single port (n=2), or via manual morcellation under direct visualization through the single port (n=3). Median uterine weight was 244 grams (range 104–458). Median EBL was 150cc (range 100–500 cc). Median operative time was 66 minutes (range 59–152). There were no perioperative complications noted and 40% of patients were discharged the day of the procedure.

Conclusion: We describe the initial report of LESS supracervical hysterectomy and demonstrate its feasibility and safety. Because a standard morcellator can be easily accommodated through many single port devices, LESS supracervical hysterectomy allows for extraction of large uteri without the requirement of transcervical morcellation or for enlarging a muscle-splitting abdominal port site. However, prospective studies are needed to confirm these results and demonstrate whether LESS supracervical hysterectomy offers any benefits over that of a conventional laparoscopic approach.

Key Words: Supracervical hysterectomy, Single Port Laparoscopy, LESS, Laparoendoscopic Single-Site Surgery

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Amanda Nickles Fader: Course Director/Speaker – Honorarium

Tips & Tricks 03
SIDE DOCKING THE DAVINCI 'S' ROBOT MADE SIMPLE

E. B. Greenberg, C. Vermes. *ObGyn, Baystate Medical Center, Springfield, MA*

Objective: Side docking a daVinci robot provides many benefits over traditional docking between the legs. This is a tip to allow OR staff to efficiently and reproducibly position the daVinci S robot for side docking in gynecologic surgery.

Description: With the increased use of side docking the daVinci Robot, we have attempted to create a simple, but precise way to provide placement guidelines in regards to the bed and Robot positioning.Currently broad based descriptions are available that will allow general placement of the robot, however, the actual success has been based on trial and error.

These errors result in lengthy docking time. This reproducible method allows experienced and inexperienced OR staff to quickly position the robot for side docking in gyn surgery.

Conclusion: The ability to side dock the daVinci S robot efficiently will save time and improve function due to proper positioning allowing for maximum functioning of the robotic arms. This presentation outlines our technique for marking the floor and docking the robot.

Key Words: robotic surgery, da Vinci robot, daVinci surgery

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Elliot B. Greenberg: Teaching, Proctor, and Speaker Honoraria

Tips & Tricks 04
NOVEL ONE-PORT LAPAROSCOPIC PROCEDURE FOR INTERVAL PLACEMENT OF INTRAPERITONEAL CHEMOTHERAPY CATHETER UNDER DIRECT VISUALIZATION

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Objective: To describe a novel one-port technique for interval placement of intraperitoneal (IP) chemotherapy ports under direct visualization.
Description: An open laparoscopic approach is used to place a 5-mm trocar and laparoscope just superior to the umbilicus. A 5cm incision is made in the anterior axillary line to the midclavicular line over the lower ribs for the port reservoir. A pocket is created by dissecting the subcutaneous tissue to the level of the fascia superior to the incision. The port is then fit into the pocket to ensure proper fit. Once proper fit has been achieved the port is removed and the catheter is tunneled approximately 8cm infero-medially from the pocket towards the umbilicus using the metal tunneling device included in the port kit. The peritoneum is then pierced using the tunneler and the catheter is introduced into the peritoneal cavity under direct observation using the laparoscope. The tunneler is then passed through the peritoneal cavity toward the camera and threaded through the laparoscope trocar as the camera is withdrawn. Once the tunneler is above the anterior abdominal wall skin surface, the trocar sleeve is removed and the tunneling device grasped on the surface and pulled completely through. The catheter is then cut from the introducer and allowed to fall back into the peritoneal cavity through the umbilical trocar site. The laparoscope is reinserted through the umbilical trocar site and catheter placement is confirmed. The port is then secured to the fascia and the catheter is tested for patency. Once the catheter is functioning properly, the trocar is removed and the incisions are closed.
Conclusion: This technique offers an additional minimally invasive technique for interval placement of IP chemotherapy ports in select patients.

Key Words: Intraperitoneal Chemotherapy, Chemotherapy Port, Ovarian Cancer

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Tips & Tricks 05
PRIMARY RE-CLOSURE OF EXPOSED MID-URETHRAL SLING WITHOUT EXCISING MESH

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Objective: The objective of this "tip and trick" is to report on a minimally invasive corrective procedure for patients who had a mid-urethral sling complicated by mesh exposure. A series of 5 patients were successfully treated by primary re-closure of the vaginal mucosa, without excising any mesh material.
Description: We perform the procedure in the operating room under conscious sedation. Antibiotics are given prior to initiation of procedure. The mucosal edges around the exposed mesh are infiltrated with half percent bupivacaine with epinephrine. The edges are then mobilized with sharp dissection to provide adequate tissue re-approximation. The defect is then closed in two layers, with delayed absorbable suture. Cystourethroscopy is routinely preformed at the end of the procedure. No postoperative antibiotics are used.

We identified five women in our practice that underwent the described primary re-closure of vaginal mucosa after mid-urethral sling mesh exposure. The mean age of the patients at time of initial sling placement was 49 years old (range 41–55 years old). Median parity was 2, ranging from 0 to 4, and median BMI was 25.1, ranging from 20.8–38.1. Median time between initial sling placements to diagnosis of exposure was 140 days, ranging from 36 to 2273 days. Two of the exposures were midline and 3 were lateral. The mean post re-closure follow up time was 265 days, ranging from 24–2066 days. At the time of their last follow up appointment, all exposures were successfully treated with this technique. All but one of the five patients used vaginal estrogen preoperatively, with two patients continuing to use vaginal estrogen postoperatively. Three of the five patients underwent more than 7 months of conservative management of mesh exposure prior to the re-closure procedure.
Conclusion: This is an innovative approach to dealing with the complication of mesh exposure following mid-urethral sling procedures.

Key Words: Mesh Exposure, Sling Exposure, Mesh complication

Tips & Tricks 06
MINIMIZING COMPLICATIONS ASSOCIATED WITH MESH-AUGMENTED VAGINAL RECONSTRUCTIVE SURGERY - TIPS AND TRICKS

H. J. Cholhan, F. R. Baxter, T. B. Hutchings. *Women's Continence Center of Greater Rochester, Rochester, NY*
Objective: To enumerate and expound on a host of pre-, peri- and post-operative strategies to minimize complications associated with polypropylene-based vaginal reconstructive surgical techniques, including so-called mesh kits.
Description: We will identify and review in detail all pre-, peri- and post-surgical steps that pelvic reconstructive surgeons can employ to lessen the risks and complications associated with "mesh kit" usage during transvaginal pelvic reconstructive surgeries.

Topics to be covered will include:
1)preoperative identification of candidates at increased risk for healing complications;
2)preoperative vaginal tissue preparation;
3)intraoperative technique tips and tricks to minimize tissue trauma and risks for post-operative incisional healing misadventures (infection, granulation tissue formation, mesh exposure/erosion); these tips and tricks will include:
-selection of incision shape, direction, dimensions, depth
-identification of proper tissue plane of dissection
-ways to protect adjacent structures (i.e., bladder, rectum)
-ways to minimize nerve and vascular injury
-ways to lessen peri-operative operative site infection and other predisposing factors to incisional healing problems
-ways to avoid post-surgical vaginal dysfunction and dyspareunia
4)post-operative vaginal care and restrictions
5)need for careful post-operative follow-up and vigilance for early signs of trouble
Conclusion: Based on their experience of over 600 cases, the authors conclude that by adhering meticulously to a series of steps and surgical techniques before, during and after vaginal reconstructive surgery, complications associated with the usage of currently available polypropylene-based "mesh kits" can be effectively minimized.

Key Words: mesh complications, mesh kits, vaginal mesh

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Hilary J. Cholhan: Speaker, Independent Contractor, Teaching – Honoraria

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Tips & Tricks 07
TECHNIQUES FOR COMPLETE EXCISION OF VAGINAL MESH IMPLANTS

R. S. Bercik, S. O. Yip. *Obstetrics, Gynecology, and Reproductive Sciences, Yale School of Medicine, New Haven, CT*
Objective: The purpose of this study was to determine the success rate of complete mesh removal using our technique. We demonstrate dissection using fine sharp scissors known as Jameson scissors, the use of an illuminated suction/irrigation device to visualize obscured tissue planes and the use of traction to develop tissue planes.
Description: We performed a review on all patients who came to our institution from Jan1, 2006 to May 31, 2010 at the Yale New Haven Hospital who underwent surgical excision of vaginal mesh based on International Classification of Diseases, Ninth Revision (57295). A total of 40 patients were retrieved and amongst them, 11 of those that had complete mesh removal were included in the analysis.

A total of 11 patients had complete mesh removal. Average age of patients was 56 years with an average parity of 2. The meshes that were removed included 5 Prolift meshes, 4 Perigee meshes, 2 combined Apogee and Perigee mesh and 2 IVS tapes. 4 patients had prior surgery to release the mesh or excise the erosion site. 5 patients had prior hysterectomy. 1 patient had mesh trimmed in the office.

Indications for mesh removal include dyspareunia (5/11), husband's complaining of feeling mesh (1/11), pain with defecation (2/11), urinary retention (1/11) and symptomatic cystocele (1/11). Intraoperative estimated blood was average 86cc with range of minimal blood loss to 400cc. Total of 7/11 patients had final resolution of their initial complaint. Only 6 patients had complete pelvic organ prolapse quantification score and only 1/6 demonstrated recurrence of prolapse. No patients experienced visceral injury, infection, or blood transfusion.
Conclusion: Most patients will have resolution of their initial complaint and the recurrence rate of prolapse is low. Complete mesh removal is a technically difficult procedure, but when performed with the correct technique it is feasible with few complications.

Key Words: prolapse, mesh complications, mesh removal

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Richard S. Bercik: Speaker, preceptor – Honoraria

Oral Poster 01
CURRENT LEIOMYOMA-ASSOCIATED HOSPITALIZATIONS AND INPATIENT SURGERIES WITH PREDICTIONS FOR THE FUTURE

M. Wechter[1], E. A. Stewart[3], E. R. Myers[2], R. Kho[4], J. M Wu[2]. *[1]Gynecology, Mayo Clinic Florida, Jacksonville, FL; [2]Gynecology, Duke University, Durham, NC; [3]Gynecology, Mayo Clinic Minnesota, Rochester, MN; [4]Gynecology, Mayo Clinic Arizona, Scottsdale, AZ*

Objectives: Given the high prevalence and resulting health care impact of symptomatic uterine leiomyoma, we used recent U.S. inpatient data to estimate leiomyoma-related hospitalizations and surgery rates, including differences by race and age. We then predicted the magnitude of leiomyoma-related inpatient care for the ensuing 40 years.

Materials and Methods: We used the 2007 Nationwide Inpatient Sample to estimate hospitalizations and inpatient surgeries for uterine leiomyomas in U.S. women aged 15 to 54, stratified by 5-year age groups and by black and white race. Using these estimates, in combination with U.S. Census Bureau population projections, we predicted leiomyoma-related hospitalizations and surgeries from 2010 to 2050 by decade.

Results: In 2007, 355,135 women were hospitalized for leiomyomas (rate of 42 per 10,000 women) with 65% undergoing hysterectomies and 11% having myomectomies. Black women had increased rates of hospitalization, hysterectomy, and myomectomy (3.5X, 2.4X, 6.8X,) compared to white women. In black women, hospitalization and hysterectomy rates were highest between ages 40–44; whereas in white women, rates for hospitalization and hysterectomy were highest in the 45–49 year age cohort. Myomectomy was most common between ages 35–39 years in both black and white women. For future projections, the overall number of leiomyoma-related hospitalizations is predicted to reach 437,874 in 2050, representing a 23% increase from 2007. The number of hysterectomies is predicted to increase by 20% (from 231,861 in 2007 to 278,420 in 2050) with an increase of 22% in black women and 8% in white women. Myomectomies are predicted to increase by 31% (from 37,483 in 2007 to 49,154 in 2050) with a 26% increase in black women and a 21% increase in white women.

Conclusion: Inpatient care and major surgery for uterine leiomyomas remains substantial despite advances in treatment options. Assuming stable rates of hospitalization and surgery, the projected burden of inpatient care for leiomyomas will increase significantly by 2050, which will differentially impact black versus white women. These predictions may serve to inform surgeon availability, healthcare policies, and resource allocation for the provision of care for women with fibroids.

Key Words: hysterectomy, leiomyoma, myomectomy, prevalence, hospitalization

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Elizabeth A. Stewart: Clinical Trial Investigator - Salary Support; Honorarium Consultant

Oral Poster 02
UTILITY OF ROUTINE PREOPERATIVE ENDOMETRIAL ASSESSMENT IN WOMEN UNDERGOING PELVIC FLOOR REPAIR

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Objectives: The increasing use of laparoscopy for pelvic floor repair has raised concern over inadvertent dissemination of an unsuspected malignancy during uterine morcellation, prompting some physicians to adopt uterine screening tests in asymptomatic women. We aimed to determine the incidence of uterine malignancy incidentally diagnosed at the time of pelvic floor repair.

Materials and Methods: Following IRB approval at the four study sites, we reviewed records of all patients who had undergone surgery for pelvic organ prolapse (POP) and/or urinary incontinence (UI) that included hysterectomy during January 2004 to December 2009. Abstracted data included preoperative diagnoses, vaginal bleeding history, hormone use, preoperative endometrial assessment (biopsy + ultrasound) and surgical pathology. SPSS (Version 18.0 for Windows, Chicago, IL) was used for data analysis.

Results: The 707 women were racially diverse: Caucasian (79%), African American (11%), Asian (3%), and Hispanic (7%). Patients had a mean age of 56±11 and a mean BMI of 28±6. Most (64%) were postmenopausal, and 7% were taking hormone replacement therapy. Five percent had postmenopausal vaginal bleeding. The pre-operative endometrial biopsy rate was 8.4%; six biopsies showed endometrial hyperplasia, the remaining 55 were benign or atrophic. The pre-operative pelvic ultrasound rate was 8.9% (N=63). 21 patients underwent both ultrasound and endometrial biopsy preoperatively. Route of surgery included vaginal (58%), abdominal (23%) and laparoscopic with/without robotic assistance (18%). Four cancers (0.6%) were found, including three grade 1 endometrioid adenocarcinomas with either no myometrial invasion or invasion to less than 1/3 of myometrial thickness and one grade 2 endometrioid adenocarcinoma with invasion to ½ the width of the myometrium. All four undetected cancer patients were asymptomatic and postmenopausal; only one used systemic hormone replacement. Three undetected cancer patients had undergone pre-operative screening with endometrial biopsy (1), pelvic ultrasound (1) or both (1). Most (97.1%) final pathologic diagnoses were benign. The remaining findings included: simple hyperplasia without atypia (1.4%), simple hyperplasia with atypia (0.3%), complex hyperplasia without atypia (0.1%) and complex hyperplasia with atypia (0.1%).

Conclusion: Women who undergo hysterectomy during POP/UI surgery rarely have undetected uterine cancer. Although all of the women with unsuspected cancer were asymptomatic, three underwent preoperative screening that failed to identify existing uterine pathology. It is likely that the low prevalence of undetected uterine cancer in asymptomatic patients planning POP/UI surgery renders endometrial biopsy and/or pelvic ultrasound unsuitable screening tests in this population.

Key Words: Prolapse, Hysterectomy, Laparoscopy, Malignancy, Incidental

Oral Poster 03
ATTITUDES TOWARD HYSTERECTOMY IN WOMEN SEEKING CARE FOR UTEROVAGINAL PROLAPSE

A. C. Frick, M. D. Barber, M. R. Paraiso, B. Ridgeway, J. E. Jelovsek, M. D. Walters. *Obstetrics and Gynecology, The Cleveland Clinic, Cleveland, OH*

Objectives: Uterovaginal prolapse is one of the most common indications for hysterectomy in the U.S. However, it is unclear whether the addition of hysterectomy to pelvic organ prolapse (POP) surgery is necessary for effective cure of this condition. Little is known about POP patients' attitudes toward hysterectomy. The objective of this study is to investigate the attitudes toward hysterectomy in women seeking care for POP.

Materials and Methods: Women referred to our academic Urogynecology practice for evaluation of POP who had no indication in the electronic medical record of previous hysterectomy were mailed surveys prior to their first clinic visit. The questionnaire included the Pelvic Organ Prolapse Distress Inventory (POPDI-6), the Control Preferences Scale (CPS) to evaluate preferences for medical decision making, and questions regarding patients' perception of the impact of hysterectomy on a woman's health, social life and emotional well-being. Additional items presented hypothetical scenarios and assessed women's attitudes toward hysterectomy at the time of POP surgery when presented with different counseling messages from her surgeon.

Results: 134 questionnaires were mailed and 79 returned (59.8%). 60 surveys were completed by subjects without prior hysterectomy, while 19 women replied that they had a history of hysterectomy and per the instructions did not fill out the survey. Among non-hysterectomized participants, the mean age was 60.4 (range 25–87). 76% were postmenopausal and 88% were non-Hispanic white. 86% were sexually active or desired future sexual activity. Kegel exercises and pessaries were used by many participants (32 and 17%, respectively), while 35% reported no current treatment. 33% anticipated surgical intervention following their evaluation. Table 1 presents women's perceptions of the impact hysterectomy would have on their mood, pain, quality of life, sense of femininity, body image and sexual satisfaction. When presented with a scenario in which the participant receives preoperative counseling that the success of surgery is similar with and without hysterectomy, 66% indicated they would decline a hysterectomy. In an alternative scenario in which the physician counsels that the hysterectomy-based

procedure is "probably more successful", 52% preferred a hysterectomy if it offers any benefit, while 33% only wanted a hysterectomy if offers a "substantial benefit", and 16% would avoid a hysterectomy even if it offers a large benefit. According to the CPS, 66% of participants prefer an active role in medical decision making, whereas 30% desire a collaborative role, and only 4% prefer to be passive.

Conclusion: Many women with POP prefer to retain their uterus at the time of surgery in the absence of a substantial benefit to hysterectomy. These findings should provide further impetus to investigate the efficacy of uterine-sparing procedures to help women make informed decisions regarding POP surgery.

Key Words: Prolapse, Hysterectomy, Attitudes

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Marie Fidela R. Paraiso: Advisory Board – Honoraium

Women's Perceptions of the Potential Impact of Hysterectomy

	Mood	Pain	Quality of life	Sense of femininity	Body image	Sexual satisfaction
Improve	10 (20)	20 (36)	25 (47)	0 (0)	5 (9)	9 (18)
Worsen	10 (20)	2 (4)	6 (11)	10 (19)	5 (9)	8 (16)
No Change	31 (61)	14 (25)	22 (42)	42 (81)	44 (81)	33 (66)

Data presented as n (%).

Oral Poster 04
PREOPERATIVE SCREENING STRATEGIES FOR BACTERIAL VAGINOSIS PRIOR TO ELECTIVE HYSTERECTOMY: A COST COMPARISON STUDY

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Objectives: The American College of Obstetricians and Gynecologists (ACOG) recommends preoperative screening and treatment for bacterial vaginosis (BV) prior to elective hysterectomy to prevent vaginal cuff infection. A review of published literature suggests that (1) in the absence of surgical site infection prophylaxis, women with BV have a higher rate of cuff infection than those without BV; and (2) the overall incidence of cuff infection is lower with surgical site infection (SSI) prophylaxis. With standard SSI prophylaxis, the impact of BV on the rate of vaginal cuff infection is not known. The purpose of this study is to estimate the cost and effectiveness of three strategies for women who are to undergo hysterectomy, assuming standard SSI prophylaxis: (1) Test all patients for BV with wet mount; treat with metronidazole if positive (TT strategy); (2) Treat all patients preoperatively with oral metronidazole (TA); (3) Neither test nor treat patients for BV (TN). For comparison purposes, a fourth strategy is also examined: (4) No SSI prophylaxis, no testing or treatment for BV (NP).

Materials and Methods: A decision model was created using TreeAge Pro© software. Parameter estimates including rate of cuff infection without SSI (10%), prevalence of BV (0.27), sensitivity (0.83) and specificity (0.70) of wet prep, cure rate of standard treatment for BV (81%), efficacy of SSI to prevent cuff infection (0.49) and relative risk of cuff infection with BV (2.3) were obtained from the published literature. Costs of wet mount and treatment were obtained using Medicare reimbursement data, wholesale drug costs and the Agency for Healthcare Research and Quality Nationwide Inpatient Sample database for 2008 (*http://hcupnet.ahrq.gov/*). Extensive sensitivity analyses were performed to account for uncertainty in model parameters.

Results: In the base case, the least costly and most effective strategy was TA, with a cuff infection rate of 4.0% and mean cost of $568. The TT strategy was also relatively inexpensive, with a mean cost of $575 and a 4.2% cuff infection rate. TN and NP were both more expensive and resulted in higher rates of cuff infection than the other options (dominated strategies). In sensitivity analysis, TT became the least expensive strategy when the cost of treating a cuff infection was less than $11,000, when the relative risk of cuff infection in the presence of BV was less than 1.9, when the overall cuff infection rate without antibiotics was less than 7.9%, and when the overall prevalence of BV was less than 21%. Changes in the expected impact of BV on the efficacy of prophylactic antibiotics in preventing cuff infection did not significantly change the order of preferred strategies.

Conclusion: Based on this model, the optimal strategies to control risk of cuff infection after hysterectomy in the context of standard SSI are to test and treat for BV if positive and to treat all patients empirically for BV; strategies ignoring BV status are less effective and more expensive. This model suggests that consideration should be adding oral metronidazole to standard SSI prophylaxis prior to hysterectomy.

Key Words: Cost Analysis, Decision Trees, Surgical Wound Infection, Preoperative care, Postoperative complication, Bacterial vaginosis

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Laura J. Havrilesky: contracted research - research and salary support

Oral Poster 05
SYMPTOMATIC RECTOCELE REPAIR: LONG-TERM EFFECTS ON SYMPTOM SPECIFIC DISTRESS AND IMPACT ON QUALITY OF LIFE

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Objectives: To determine long term changes in symptom specific distress and impact on quality of life outcomes in women that have undergone repair of a symptomatic rectocele.

Materials and Methods: Women undergoing rectocele repair at our institution between 2006 and 2009 were identified. Minimum follow-up time was one year post-surgery. Participants that underwent concomitant surgery, other than midurethral sling, were excluded. Participants were sent the Pelvic Floor Distress Inventory (PFDI-20) and Pelvic Floor Impact Questionnaire (PFIQ-7). We identified responders who had completed preoperative PFDI-20/PFIQ-7. Total and subscale scores were compared using paired t-test. Baseline demographic and clinical information was abstracted from the participant charts.

Results: 113 women were identified who underwent repair of a symptomatic rectocele with or without concomitant midurethral sling and 70/113 (62%) responded. 40/70 (57%) had completed preoperative questionnaires. Mean+SD time from surgery was 27.3 ± 9.1 months (median 26.3, range 14.6–47.0). Demographic, physical examination and surgical information are presented in Table 1. There were no differences in age, race, number of vaginal deliveries and baseline CRADI-8 and CRAIQ-7 between the responders and non-responders. Significant improvements were seen in all measures and in all subscales (Table 2).

Conclusion: Patients who underwent posterior compartment defect repair had long-term sustained improvements in posterior compartment symptom-specific distress and symptom specific impact on quality of life. This information can help counsel our patients regarding the benefits of repair of symptomatic posterior compartment defects.

Key Words: rectocele, prolapse, rectocele repair, posterior repair, colporrhaphy

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Holly E. Richter: Consultant Fee/GrantResearch

TABLE 1. Descriptive Statistics (n=40)

Caucasian African-American Other	37 (92.5%) 1 (2.5%) 2 (5%)
Age mean±SD (range: 33-84)	60.4 ± 12.1
BMI mean±SD (range: 19.1-40.0)	28.6 ± 5.0
POPQ median point BP	0
Vaginal Deliveries median	2
Medications median (range: 0-15) HRT	5
Hormone Replacement Therapy	19 (47.5%)
Tobacco Use	9 (22.5%)
Prior Hysterectomy	35 (87.5%)
Concurrent TVT or TOT	24 (60%)
Prolift	7 (17.5%)

TABLE 2. Preoperative and Postoperative Questionnaires

	Preoperative Scores		Follow-up Scores		Differences in Scores	
Item	n	Mean ± SD	n	Mean ± SD	n	Mean (95% CI)
PFDI-20 (range 0–300)	39	152.0 ± 67.4	40	100.2 ± 79.9	39	54.6 (33.8, 75.3)
CRADI-8 (range 0–100)	39	46.6 ± 28.2	40	30.4 ± 26.6	39	16.1 (7.7, 24.6)
PFIQ-7 (range 0–300)	37	125.4 ± 89.9	38	28.4 ± 33.9	36	54.4 (28.7, 80.0)
CRAIQ-7 (range 0–100)	38	47.4 ± 33.4	39	28.4 ± 33.9	37	18.1 (8.9, 27.4)

Oral Poster 06
CHANGES IN SEXUAL FUNCTION FOLLOWING VAGINAL RECONSTRUCTIVE SURGERY

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Objectives: To evaluate changes in sexual function among women undergoing vaginal reconstructive surgery, including descriptions of barriers to sexual activity, and to determine if a Visual Analog Scale (VAS) form of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire-12 (PISQ-12) is more responsive to changes in sexual function after surgery than the Likert form.

Materials and Methods: This was a planned secondary analysis of a vaginal anatomy study. All women undergoing vaginal reconstruction between October 2008 and December 2009 were asked to participate. Preoperatively, patients completed a survey to determine if they were sexually active. If sexually active, they completed a questionnaire containing a PISQ-12 in Likert and (1-5) and VAS format (0-10) and identified any factors interfering with sexual activity (ie partner problems, low desire, pain). Those not sexually active completed 2 questions: identify all barriers to sexual activity and the single most bothersome barrier. At 6-months post operation, participants were mailed a postoperative survey. Sexually active participants completed the PISQ-12 in the Likert and VAS form and answered questions regarding avoidance of intercourse due to a short/narrow vagina, the need for postoperative vaginal dilation or surgery for pain/scarring in the vagina, and identified factors interfering with sexual activity. Those not sexually active answered the 2 questions regarding barriers to sexual activity.

Results: Ninety-two women (mean age 63.7 years) completed the preoperative survey and 44 (47.8%) were sexually active. Low desire (34.1%), vaginal bulge (34.1%) and vaginal pain (20.5%) were the top 3 factors interfering with sexual activity. Among those not sexually active, partner problems (85.4%), low desire (22.9%) and vaginal bulge (22.9%) were the top 3 barriers, with partner problems being the single most bothersome (79.2%). Mean PISQ-12 scores for the Likert and VAS forms were 33.6 and 81.7, respectively.

Postoperatively, 76 women completed the surveys and 40 (52.6%) were sexually active. Vaginal dryness (30.0%), low desire (27.5%) and partner problems (20.0%) were the top 3 interfering factors. Five (12.5%) sexually active women avoided sexual intercourse due to vaginal size and 2 (5.1%) required vaginal dilators. Among those not sexually active, partner problems (83.3%), low desire (22.2%) and other (22.2%) were the top 3 barriers, with partner problems being the single most bothersome barrier (75.0%). Mean postoperative PISQ-12 scores for the Likert and VAS forms were 34.1 and 84.1, respectively. A majority of patients (71.4% pre- and 55.0% postoperatively) preferred the Likert form. Four women were sexually active preoperatively and not postoperatively, and none indicated this was due to vaginal size/pain. Five women were not sexually active preoperatively and were postoperatively.

Conclusion: Pre- and postoperative PISQ-12 scores for both the Likert and VAS forms were nearly identical, indicating that vaginal reconstructive surgery has minimal impact on sexual function. Partner problems and low desire were the most common interferences and barriers to sexual activity. The VAS form of the PISQ-12 was not more responsive to changes in sexual activity.

Key Words: sexual function, vaginal surgery, prolapse, PISQ-12

Oral Poster 07
THE PREVALENCE OF ASYMPTOMATIC MICROSCOPIC HEMATURIA IN WOMEN WITH PELVIC ORGAN PROLAPSE

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Objectives: To determine the prevalence of asymptomatic microscopic hematuria in women with pelvic organ prolapse.

Materials and Methods: This is a retrospective chart review of all patients presenting to a single provider at an outpatient urogynecologic center with pelvic organ prolapse between 2008 and 2010. Patients were included in the study if they had documented prolapse on physical exam using the pelvic organ prolapse quantification system (POPQ). Microscopic hematuria was defined as at least 3 red blood cells per high power field (RBCs/HPF) on microscopic urinalysis from at least two specimens and negative urine cultures. Patients were excluded if they had gross hematuria, known urinary tract disease, or preexisting renal pathology including stones. Statistical analysis was performed using JMP 4.0.4 (SAS Inst, Cary NC).

Results: 541 patients met inclusion criteria. Mean age was 63.6 (+/− 13), mean BMI was 26.9 (+/− 5.1), and mean parity was 2.7 (+/− 1.4). A total of 111 (20.5%) patients had 3 or more RBCs/HPF with negative urine culture on at least one urinalysis. 47 (8.7%) patients were found to have microscopic hematuria on urinalysis from 2 specimens. On further workup no patients were found to have urologic malignancy and only one patient was diagnosed with a renal stone. All patients with microscopic hematuria had cystoceles on POPQ examination. In addition to having a cystocele, 36 (76.6%) had apical prolapse and 26 (55.3%) had a rectocele. On regression analysis there was no correlation between microscopic hematuria and type of pelvic organ prolapse, parity, BMI, use of anticoagulation, prior surgery on the urinary tract and objective vaginal atrophy. Those who were sexually active were less likely to have microscopic hematuria OR=.44 (p=.03) while those using some form of estrogen were more likely to have microhematuria OR 3.1 (p=.02).

Conclusion: The prevalence of asymptomatic microscopic hematuria in women with pelvic organ prolapse was 8.7% in our study. 20.5% had greater than 3 RBCs/HPF on one urinalysis. This is significantly higher than the 4.8% prevalence reported in women age 55 and older from the general population based on a single urine specimen. There is limited data addressing the prevalence of microscopic hematuria in women alone, and to date, there are no studies evaluating microhematuria in women with pelvic organ prolapse. It is plausible that repetitive motion of bladder mucosa due to mobility of an anterior vaginal prolapse can cause micro trauma to the urothelial lining resulting in hematuria. We propose that the prevalence of microscopic hematuria is greater in women with pelvic organ prolapse compared to the general population. A larger controlled trial is recommended to further evaluate our study findings.

Key Words: pelvic organ prolapse, prevalence, microscopic hematuria

Oral Poster 08
AN ANALYSIS OF PERIOPERATIVE AND REMOTE COMPLICATIONS WITH LAPAROENDOSCOPIC SINGLE-SITE SURGERY (LESS) IN GYNECOLOGY

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Objectives: Laparoendoscopic single-site surgery (LESS) is a novel minimally invasive surgical approach with promising preliminary results in gynecology. However, there are limited reports in the literature regarding complication rates as well as a theoretical concern of an increased risk for umbilical hernia with the LESS technique. The study aim was to determine the perioperative and remote complication rates in women who underwent LESS for both benign and malignant gynecologic conditions.

Materials and Methods: A retrospective, multi-institution review of patients treated with LESS by advanced laparoscopists was performed. All patients underwent a single 1.5–2.0 cm umbilical incision utilizing a

"Hasson" entry technique. Cases were performed with a multichannel single port. Umbilical fascial incisions were closed in a running fashion with delayed absorbable suture; the skin was closed using interrupted absorbable sutures. All patients underwent at least one post operative visit 4–6 weeks post operatively.

Results: 102 patients underwent LESS and had a median age of 48 years (range 27–87), and median BMI of 27 (range 17.8–48.9). 93% of cases were performed for benign indications, the remainder for gynecologic malignancy. Procedures performed included 73 (71.5%) total laparoscopic hysterectomies +/− bilateral salpingo-oophorectomy (BSO), 5 (4.9%) supracervical hysterectomies +/− BSO, 16 BSO alone (15.7%). Median EBL was 125cc (range minimal-700 cc). One patient had a preoperative umbilical hernia, which was repaired at the time of surgery. There were two (1.9%) cases with intraoperative complications (both cystotomies identified at the initial surgery). Five patients (4.9%) developed minor postoperative complications, including urinary tract infection (n=2), genitofemoral neuropathy (n=1) and incisional infection (n=2), and one patient developed a pulmonary embolus. Five patients (4.9%) were converted to laparotomy for malignancy (n=4) and/or adhesions (n=1). After a median follow up for 6 months, no patients developed a postoperative umbilical hernia.

Conclusion: When performed by advanced laparoscopists, LESS offers an even more minimally invasive alternative to conventional laparoscopy/robotics with low risks of both perioperative and remote complications. The theoretical increase in umbilical hernia rates after LESS appears to be unfounded. However, larger prospective and comparative studies are needed to confirm these results and demonstrate whether LESS offers significant benefits over that of conventional laparoscopy.

Key Words: Single Port Laparoscopy, Laparoendoscopic single-site surgery, LESS, Single Incision Laparoscopic Surgery

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Amanda Nickles Fader: Course Director/Speaker - Honoraria

Oral Poster 09
THE EFFECT OF CONCOMITANT OOPHORECTOMY ON THE PERIOPERATIVE OUTCOMES OF HYSTERECTOMY

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Objectives: Despite the growing controversy regarding prophylactic oophorectomy at the time of hysterectomy, its effects on the perioperative complications have never been studied. The purpose of this study is to evaluate whether concomitant adnexal removal has an impact on perioperative hysterectomy outcomes.

Materials and Methods: We established a retrospective cohort of all total and supracervical hysterectomies performed for benign conditions between November 1999 and August 2008 at our institution. In this ancillary analysis of that cohort, we evaluated baseline characteristics and co-morbid conditions between women who had concomitant adnexal excision and those who did not. We then examined the difference in operating time, rates of serious complications, and conversion to laparotomy. Serious complications were defined as complications that were either life threatening such as thromboembolic events or bleeding requiring transfusion, or those necessitating reoperation, which included visceral injury, urinary tract injury, and vaginal cuff dehiscence.

Results: Of the 1015 consecutive laparoscopic hysterectomies, 522 cases (51.4%) included concomitant adnexal removal. Among them, 390 (74.7%) and 123 (23.6%) underwent bilateral, and unilateral salpingooophorectomy, respectively, when 9 (1.7%) women had only salpingectomy. Subjects in the hysterectomy only group were younger, less likely to be postmenopausal, and more likely to have undergone a supracervical hysterectomy. The results were adjusted for age, cervical preservation, uterine leiomyoma as an indication, and previous uterine surgery. There was no significant differences in operating time, change in hemoglobin, urinary tract injury, or serious complications. Hospital stay longer than 1 day was significantly increased for women who had any type of adnexal removal (23.6 versus 14.2%, adjusted odds ratio 1.77, confidence interval 1.23-2.53)

Conclusion: Removal of adnexa at the time of laparoscopic hysterectomy does not increase the risk of serious peri-operative complications but may prolong hospitalization beyond the expected overnight stay.

Key Words: perioperative complications, hysterectomy, oophorectomy, laparoscopic hysterectomy, prophylactic oophorectomy

TABLE. Perioperative Complications and Outcome Measures

	Hysterectomy Only (n=493)	Hysterectomy with Concomitant Adnexal Removal (n=522)	Crude OR & 95% CI	Adjusted OR & 95% CI
Urinary tract injury	6 (1.2)	7 (1.3)	1.10 (0.37–3.31)	0.57 (0.16–2.00)
Bowel Injury	0	0	-	-
Cuff dehiscence	4 (0.8)	3 (0.6)	0.71 (0.16–3.17)	0.29 (0.05–1.79)
Thromboembolism	0	1 (0.2)	-	-
Transfusion	10 (2.0)	7 (1.3)	0.66 (0.25–1.74)	0.57 (0.19–1.68)
Febrile morbidity	6 (1.2)	4 (0.8)	0.63 (0.18–2.23)	0.63 (0.16–2.51)
Ileus	1 (0.2)	5 (1.0)	4.76 (0.56–40.87)	8.45 (0.93–77.07)
Exploratory laparotomy	2 (0.4)	3 (0.6)	1.42 (0.24–8.53)	1.00 (0.14–7.14)
Serious complications	21 (4.3)	19 (3.6)	0.85 (0.45–1.60)	0.62 (0.31–1.27)
Conversion to laparotomy	18 (3.7)	31 (5.9)	1.67 (0.92–3.02)	2.11 (1.09–4.08)
Readmission	21 (4.3)	16 (3.1)	0.70 (0.37–1.38)	0.65 (0.32–1.36)
Length of hospital stay>1 day	70 (14.2)	123 (23.6)	1.86 (1.35–2.58)	1.77 (1.23–2.53)
	Mean (Inter-Quartile Range)	Mean (Inter-Quartile Range)		
Operating time (min)	159 (120–200)	163 (123–202)	0.78	
Change in Hemoglobin (g)	−1.7 (−2.5 to −1.1)	−1.9 (−2.6 to −1.2)	0.28	

Oral Poster 10
THE EFFECT OF SURGICAL APPROACH ON POSTOPERATIVE RETURN TO BASELINE PHYSICAL ACTIVITY IN WOMEN UNDERGOING SACRAL COLPOPEXY

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Objectives: Faster recovery is a presumed advantage of robotic compared to traditional abdominal surgery. While patients who undergo minimally invasive surgery are discharged from the hospital faster and use less narcotic analgesia during admission, objective data on physical activity in the early post-operative period is lacking. The objective of this study was to determine if subjects undergoing robotic sacral colpopexy return to baseline physical activity faster than those who undergo this procedure via laparotomy.

Materials and Methods: Women undergoing sacral colpopexy by either the robotic (ROB) or traditional abdominal (ABD) approach were the subjects of this prospective cohort study. Women with concurrent posterior colpoperineorrhaphy were excluded because of the possible confounding affects of this painful procedure on early postoperative movement. Subjects wore Acitcal® Mini Mitter accelerometers (Phillips Respironics, Bend, OR), which measure amount and type of physical activity, for 7 days preoperatively and for the first 10 days after surgery beginning at 8 a.m. on post-operative day 1. Because pre- and postoperative data were collected, each subject served as her own control. Subjects also completed Short Form 36 (SF-36) questionnaires before surgery and again at their 1-month post-operative visit. Baseline accelerometer data were obtained by averaging 4 representative pre-operative days. The numbers of subjects reaching 50% of pre-operative activity by post-operative day numbers 5 and 10 were compared between groups for each of 5 physical activity parameters using Fisher's exact tests. Differences between pre- and post-operative SF-36 total and subscale scores were compared using paired t-tests.

Results: At postoperative day 5, 0/8 subjects in the ABD group achieved at least 50% of their total baseline activity compared with 4/27 (14.8%) in the ROB group (p=0.553). At day 10, 4/8 (50%) in the ABD group and 8/26 (30.8%) in the ROB group had attained at least 50% activity (p=0.410). The physical functioning (PF) scores of the SF-36 were significantly lower (p=0.007) after surgery than before in the ABD group, but there was no significant difference in the ROB group. For both groups, scores in the Role

Physical (RP), Bodily Pain (BP), and physical component summary (PCS) domains were significantly worse after surgery.

Conclusion: Accelerometer data, a sensitive and objective measure of physical activity, does not demonstrate faster return to baseline physical activity in women who undergo robotic sacral colpopexy compared to abdominal colpopexy in this prospective study. Our SF-36 results, however, suggest that abdominal colpopexy has a stronger negative impact on physical functioning than robotic colpopexy in the early postoperative period.

Key Words: Sacral colpopexy, Quality of life, Robotic surgery, Postoperative recovery, Physical activity

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Paul K. Tulikangas: surgical proctor, honoraria - speaker; unrestricted research grant

Oral Poster 11
COST ANALYSIS OF LAPAROSCOPIC VERSUS ROBOTIC SACROCOLPOPEXY IN A RANDOMIZED CONTROLLED TRIAL

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Objectives: Robotic-assisted laparoscopic sacrocolpopexy (RASC) has been widely adopted despite a paucity of data on the cost and cost efficacy of the approach. This study compares the costs incurred with RASC versus conventional laparoscopic sacrocolpopexy (LSC) from the time of surgery through the 6 week postoperative visit from a healthcare system perspective.

Materials and Methods: A single-center clinical trial was performed, randomizing 67 women with stage 2-4 post-hysterectomy vaginal apical prolapse to either LSC (n=32) or RASC (n=35). The primary outcome was operative time from incision to closure. Cost data was collected from the health system-wide cost-based accounting system for the surgery, hospitalization, and surgery-related care through the 6 week postoperative visit. Data included both technical and professional direct and indirect costs. The initial purchase and maintenance costs of the robot were incorporated in the technical indirect costs using depreciation modeling. Technical, professional and total costs were compared between RASC and LSC using 2-sided t tests.

Results: Operative time was a mean of 66 minutes longer for RASC when compared to LSC (95% CI 44–91, P=<.0001). Length of hospital stay was longer for RASC though this was not statistically significant (43 versus 34 hours, P=.07). The number of postoperative clinic visits in the 6 week postoperative period was similar between the groups (P=.51). Table 1 presents the costs for both RASC and LSC from surgery through the 6 week postoperative visit. RASC cost more than LSC, with a mean difference of $2196 (95% CI $660–$3732). RASC generated higher total direct costs than LSC (mean difference $1506, 95% CI $450–$2564). The discrepancy in cost was driven primarily by the difference in technical costs, as professional direct and indirect costs were similar between the two groups (P=.77 and P=.45, respectively).

Costs of Robotic versus Laparoscopic Sacrocolpopexy Surgery and Postoperative Care through the Six Week Postoperative Visit

	Laparoscopic Sacrocolpopexy (SD)	Robotic Sacrocolpopexy(SD)	P value
Technical			
Direct Costs	5109 (1380)	6657 (1496)	<.0001
Indirect Costs	4604 (914)	5494 (1049)	.0004
Professional			
Direct Costs	3215 (1133)	3133 (1152)	.77
Indirect Costs	1317 (1344)	1116 (658)	.45
Total			
Direct Costs	8070 (2086)	9577 (2246)	.006
Indirect Costs	5921 (1683)	6610 (1491)	.08
Total Costs	13,991 (2925)	16,187 (3370)	.006

Data represent US dollars.

Conclusion: From a healthcare system perspective, RASC is associated with significantly greater total costs compared to LSC within the first 6 weeks after surgery. This is largely attributable to differences in both technical direct and indirect costs.

Key Words: Sacrocolpopexy, Robotic, Laparoscopy, Cost Analysis

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Marie Fidela R. Paraiso: Advisory Board - Honoraium

Oral Poster 12
THE EFFECTS OF EXPERIENCE: LENGTH OF STAY, COMPLICATION RATES, AND OPERATIVE TIME CHANGES IN ROBOTIC HYSTERECTOMY

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Objectives: To characterize changes in peri-operative parameters and complications of robotic hysterectomy with increasing surgeon experience.

Materials and Methods: A retrospective review was conducted of all robotic assisted hysterectomies with or without bilateral salpingo-oophorectomy performed at a tertiary care center since the introduction of the Da Vinci Surgical System at the beginning of 2007 until December 31, 2009. Radical hysterectomies and hysterectomies with lymphadenectomy were excluded. Demographic and surgical data were abstracted from the electronic medical record utilizing a standardized data collection form. Comorbidities were classified according to the Charlson comorbidity index and post-operative complications were defined as described by Dindo et al. Outcomes of interest were operative time, length of stay (LOS) > 1 day, intra-operative complications including conversion to laparotomy, and any complication within 6 weeks of surgery. Linear and logistic regression models were fit to evaluate the relationships between these outcomes and time (i.e. experience). For each surgeon, time was defined as days from the first surgery each surgeon performed in the cohort. Models were adjusted for potential confounders including age, body mass index (BMI), Charlson index, uterine weight, number of prior abdominal surgeries, and surgeon.

Results: A total of 328 robotic hysterectomies was performed by 8 surgeons during the study period; 2 surgeons had 36 months of experience, 4 had 24 months, and 2 had 12 months. There were 64 hysterectomies performed in the first 6-month experience for all surgeons combined, and 57, 69, 50, 54, and 34 hysterectomies in each subsequent 6 months of experience. After adjusting for confounders, operative time significantly decreased with experience (p=0.003). For each additional 6-month period the mean operative time decreased by 0.12 hours, from 3.5 (SD 1.0) hours in the first 6 months to 2.7 (SD 1.2) hours in the last. There was a total of 110 (35.5%) patients with a LOS >1 day and the odds of a LOS >1 day significantly decreased with experience (p<0.001; Odds ratio=1.76 per each additional 6-months of experience). Proportions of patients with LOS >1 day were 48.4% and 14.7% in the first and last periods, respectively. There were 21 (6.4%) patients who had an intra-operative complication. After adjusting for uterine weight, there was a tendency for the odds of having an intra-operative complication to decrease over time, although this did not reach statistical significance (p=0.093); for every additional 6-month period there is a 1.29 times lower risk of having an intra-operative complication. Among the 328 patients, 102 (31.1%) had a post-operative complication within the first 6 weeks. However, the proportion with a complication did not change significantly over time (p=0.88).

Conclusion: Increasing experience correlates with decreased operative times and less patients with LOS >1 day. Intra-operative and post-operative complications do not change significantly with experience.

Key Words: hysterectomy, complications, experience, robotics, learning curve, Da Vinci

Oral Poster 13
DO PATIENT GOALS VARY WITH STAGE OF PROLAPSE?

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Objectives: To assess the relationship between stage of pelvic organ prolapse and self-expressed patient goals at initial urogynecologic evaluation.

Materials and Methods: After IRB approval, we asked all women presenting for initial evaluation of pelvic floor disorders to identify their goals for treatment. The questionnaires were distributed from February to June of 2010. Women were asked to list up to five treatment goals in an open-ended fashion prior to provider contact. Symptoms and demographic information were obtained from medical chart review. Patients were grouped according to stage of prolapse by the pelvic organ quantification exam (POP-Q) that was performed at their initial evaluation. Goals were grouped into nine main categories by investigators.

Results: One hundred fifty-one women were enrolled in the study and completed the questionnaire. The percentage of patients in the POP-Q stages 0, 1, 2, and 3 groups were 29%, 25%, 27%, and 19%, respectively. No patients had stage 4 prolapse. The majority (88%) of patients were Caucasian. The mean patient age increased with prolapse stage; women with stage 3 prolapse were on average 20 years older than those with no prolapse. Relief of urinary symptoms was the most common goal regardless of stage of prolapse, followed by lifestyle/general health goals. Though all of the POP-Q stage 3 patients experienced prolapse symptoms, only 60% of patients in this group stated that relief of prolapse symptoms was a treatment goal. Other common goals for patients with stage 3 prolapse included relief of urinary symptoms (64%), and daily activity/exercise (39%), and sexual function/activity (29%). In comparison, for patients with no prolapse, relief of urinary symptoms (59%), general health (39%), sexual function/activity (27%), and anorectal symptom relief (25%) were the most common goals.

Conclusion: Relief of prolapse symptoms is only one of many stated goals among patients with advanced prolapse. Resolution of urinary symptoms, ability to perform daily activities and sexual function goals are important to patients and may affect quality of life more than simple resolution of prolapse.

Key Words: pelvic organ prolapse, goals, stage

Patient characteristics and goals stratified by stage of prolapse

	POP-Q 0 N=44 N (%)	POP-Q 1 N=38 N (%)	POP-Q 2 N=41 N (%)	POP-Q 3 N=28 N (%)	P value
Age (years)—mean ± SD	41.6 ± 12.8	52.9 ± 12.3	58.3 ± 11.9	62.6 ± 10.2	<0.001
Self-described severity of pelvic floor condition					0.01
Mild	16 (42.1)	9 (23.7)	7 (18.4)	1 (3.6)	
Moderate	14 (36.8)	20 (52.6)	22 (57.9)	15 (53.6)	
Severe	8 (21.1)	9 (23.7)	9 (23.7)	12 (42.9)	
Self-described goal category					
Symptoms: urinary	26 (59.1)	32 (84.2)	20 (48.8)	18 (64.3)	0.01
Symptoms:anorectal	11 (25.0)	5 (13.2)	6 (14.6)	5 (17.9)	0.002
Symptoms: pelvic organ prolapse	2 (4.6)	1 (2.6)	6 (14.6)	17 (60.7)	<0.001
Daily activity/exercise	8 (18.2)	9 (23.7)	9 (22.0)	11 (39.3)	0.22
Sexual function/activity	12 (27.3)	4 (10.5)	11 (26.8)	8 (28.6)	0.20
General health/healing/ recovery	17 (38.6)	13 (34.2)	18 (43.9)	6 (21.4)	0.27
Information seeking/ treatment planning	9 (20.5)	3 (7.9)	9 (22.0)	3 (10.7)	0.24
Emotional/Anxiety Resolution	7 (15.9)	4 (10.5)	8 (19.5)	2 (7.1)	0.45

Oral Poster 14
ONE-YEAR ANATOMIC AND QUALITY OF LIFE OUTCOMES FOLLOWING THE ANTERIOR PINNACLE LIFT KIT PROCEDURE FOR THE TREATMENT OF PELVIC ORGAN PROLAPSE

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Objectives: To evaluate one-year anatomic, subjective and quality of life outcomes following pelvic reconstructive surgery using the Anterior Pinnacle Lift Kit.

Materials and Methods: We conducted a retrospective chart review of patients who underwent pelvic reconstruction using the Anterior Pinnacle Lift Kit (PLK) performed by one urogynecologist at our institution between February 2008 and August 2009. Data collected included any concomitant procedures performed, pre and one-year post operative POP-Q examinations and responses to validated quality of life questionnaires (PFDI, PFIQ, PISQ). Subjective evaluation at the one-year visit was based on the global assessment questionnaire.

Results: Sixty-seven patients underwent pelvic reconstructive surgery using the PLK during the 18 month period. Forty-three patients (64.2%) returned for the 1-year follow up visit and were included in the analyses. The mean age at the time of surgery was 61 (+/− 9.2) years and 43.4% had a hysterectomy prior to reconstructive surgery. All 43 patients underwent an anterior repair and sacrospinous ligament fixation (SSLF) using the PLK. Of those, 34 (79.1%) patients underwent combined anterior and posterior mesh augmented repairs while the remaining 9 (20.9%) patients were anterior-only repairs. Twenty-nine patients (64.4%) underwent concomitant sub-urethral sling procedures for urodynamically proven stress urinary incontinence (SUI). The median POP-Q evaluation at the 1-year follow up showed a statistically significant improvement compared to pre-operative measurements. These points were: anterior compartment (Ba): +2.50, −3.00 respectively ($p < .01$); posterior compartment (Bp): −0.50, −3.00 respectively ($p < .01$); vaginal apex (C): 0.00, −8.00 respectively ($p < .01$). Median responses of PFDI and PFIQ at 1-year follow up showed significant improvement compared to pre-operative scores. Median PFDI scores pre-operatively and at 1-year were 100 and 17.7 respectively ($p < .01$), while PFIQ scores were 46.3 and 0 respectively ($p<.01$). Fourteen patients (32.6%) were not sexually active at the time of surgery and only 13 patients completed pre and postoperative PISQ questionnaires. Of those, mean pre-operative and 1-year PISQ were 31.9 and 36.4 respectively ($p=.021$). At any point during the 1-year follow up, 7 patients (16.3%) complained of leakage of urine, 6 patients (13.9%) had recurrence of prolapse (defined as Stage II or greater) and 6 patients (13.9%) were found to have mesh erosions. Of all 43 patients who completed the subjective evaluation at the 1-year visit, 83.7% scored a 5 (marked improvement), while 100% said they would have the surgery again and would recommend the surgery to a friend.

Conclusion: There was a statistically significant improvement in both anatomic and quality of life outcomes at the 1-year postoperative visit following pelvic reconstruction using the PLK. All patients said they would have the surgery again and would recommend it to a friend. Most patients considered themselves markedly improved.

Key Words: synthetic mesh, pelvic surgery, pelvic floor lift kits

Oral Poster 15
TITLE: REFERRAL PATTERNS FOR TREATMENT OF MESH/GRAFT COMPLICATIONS; ARE THE PRIMARY SURGEONS REFERRING THEIR MESH COMPLICATIONS?

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Objectives: This study evaluates the referral patterns for the surgical management of mesh and graft complications to tertiary care centers. We hypothesize that the majority of patients referred to a tertiary care center were not referred by the primary surgeon who placed the mesh.

Materials and Methods: This is a retrospective case series of women requiring surgical revision of urogynecologic mesh between January 2004 and May 2009 at the University of Oklahoma Health Sciences Center and Vanderbilt University Medical Center. All of the women had mesh or graft complications following surgery for pelvic organ prolapse or urinary incontinence. Cases were identified by ICD-9 code 996.65 and CPT codes 57287, 57295, 57296, and 57426. Records were reviewed to determine the source of referral, as well as demographics, type of procedure, and type of complication. Categories of referral included: continuation of care at the tertiary center at which the mesh or graft was initially placed, referral from the outside surgeon who initially placed the mesh or graft, referral from a secondary healthcare provider not involved in the initial surgery and self-referral.

Results: We identified 176 women with a mesh or graft complication requiring surgical intervention. The mean age was 55, median gravidity was 2,

and median parity was 2. Referral patterns were as follows: 32% continued care at the tertiary care center where mesh or graft was initially placed, 19% referred from the outside surgeon who initially placed the mesh or graft, 43% from an outside secondary healthcare provider and 6% self-referrals. The indication for the surgical revision was as follows: 67.0% of the women had mesh or graft erosion or exposure, 34.7% pain, 32.4% dyspareunia, 30.1% recurrent urinary incontinence, 25.6% vaginal discharge, 23.3% vaginal bleeding, 15.3% recurrent pelvic organ prolapse, 6.8% recurrent urinary tract infection, 6.2% partner pain, 5.6% urinary retention, 4.5% mesh or graft infection, and 0.6% rectovaginal fistula. Many of the patients had more than one complication.

Conclusion: The majority (68%) of mesh/graft complications requiring surgical intervention at these two tertiary care centers were due to referrals from providers not involved in the initial surgery. Whether these women returned to the primary surgeon after the complication is not known, but these findings suggest mesh/graft complications may be under appreciated by the implanting surgeon. Most concerning is the delay to care of patients who are seen by multiple providers before reaching a specialist who can treat them.

Key Words: mesh erosion, mesh complications, pelvic organ prolapse surgery, graft complications, referral patterns, urinary incontinence surgery

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Mikio A. Nihira: consultant - honorarium

Oral Poster 16
A STAGED APPROACH TO SURGICAL TREATMENT OF PROLAPSE AND STRESS URINARY INCONTINENCE RESULTS IN FEWER MIDURETHRAL SLING PLACEMENTS BUT SIMILAR CONTINENCE AND SATISFACTION OUTCOMES

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Objectives: We previously showed that in a cohort of women with objectively demonstrable stress urinary incontinence (SUI) who had symptomatic prolapse repaired vaginally using Prolift™, a strategy of staging the midurethral sling (MUS) compared to performing MUS as a concomitant procedure (CP) resulted in no difference in the prevalence and severity of subjective SUI, or satisfaction at 12 months with 66% of women not pursuing the planned staged procedure (PSP). This analysis aimed to determine if the observed benefits of a staged MUS persisted 24 months after prolapse surgery.

Materials and Methods: Using a prospectively collected database of patients undergoing transvaginal prolapse repair with Prolift™, we identified women with 24-month outcome data who had baseline objective evidence of SUI on cystometrogram or urodynamics with or without prolapse reduction. Using intention to treat analysis, Fisher's exact test was used to compare subjective SUI between groups at baseline and 24 months. Change from baseline for UDI and UIQ as well as satisfaction with the overall surgical experience via visual analog scale were compared using t-tests.

Results: Data from 30/48 women with baseline SUI who were 24 months post-op were included in this analysis (12 CP, 18 PSP); 18 either had partial data or were lost to follow-up between 12 and 24 months. No differences in demographic, clinical, or quality of life variables existed between groups at baseline. We did not identify differences in continence outcomes, QOL or satisfaction between groups at 24 months (Table 1). Between 12 and 24 months after prolapse surgery 2 women in the PSP group pursued MUS in addition to the 8 women who pursued MUS within 1 year. At 24 months, 8/18 (44%) of PSP group had not pursued treatment for baseline SUI.

Conclusion: Staged treatment of SUI appears to result in similar continence and satisfaction outcomes 2 years after transvaginal prolapse repair with mesh when compared to concomitant MUS placement, despite 44% of women not pursuing a planned MUS. While more women pursued slings by 24 months than 12 months after surgery, a large proportion of slings may be avoided with the staged approach. Appropriately powered randomized controlled trials are needed to confirm this potential benefit.

Key Words: pelvic organ prolapse, midurethral sling, stress urinary incontinence, transvaginal mesh

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Halina M. Zyczynski: Contracted research, consulting, speaking

TABLE 1: Outcome Variables in Patients Completing 24 Month Follow-up (n=30)

		Planned Staged Procedure		Concomitant Procedure		
	Score		24-Months		24-Months	
Variable	Range	Baseline	Post-op	Baseline	Post-op	p-value
Subjective Stress Urinary Incontinence (SUI)	0–100%	43.8%	16.7%	33.3%	10.0%	0.99
Urinary Distress Inventory (UDI)	0–300	62.6	14.5	78.8	23.7	0.40
Urinary Distress Inventory (UDI) Stress subscale	0–100	14.2	4.8	23.5	7.6	0.23
Urinary Impact Questionnaire (UIQ)	0–400	58.0	12.8	62.5	14.4	0.68
Satisfaction with the Overall Surgical Experience	0–10	n/a	9.3	n/a	9.1	0.51

Note: The p-value comparisons were made between groups on 24-month outcome for subjective SUI and satisfaction with the overall surgical experience. Comparisons were made on change in score from baseline for UDI, UDI Stress Subscale, and UIQ. There was no difference at baseline between groups for any of the variables.

Oral Poster 17
DE NOVO STRESS URINARY INCONTINENCE AFTER NEGATIVE PROLAPSE REDUCTION URODYNAMIC TESTING FOR TOTAL VAGINAL MESH PROCEDURES: INCIDENCE AND RISK FACTORS

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Objectives: The primary objective of this study was to estimate the incidence of de novo stress urinary incontinence (SUI) after total vaginal mesh (TVM) procedures in women with negative pre-operative urodynamics (UDS) with prolapse reduction. Secondary objective was to identify associated risk factors.

Materials and Methods: A retrospective cohort study with a nested case-control study was performed by reviewing charts of women who underwent TVM procedures without mid urethral sling (MUS) following a negative preoperative UDS with prolapse reduction between 2005 and 2008. Post operative de novo SUI was defined as subjective complaints of SUI that was confirmed on standing stress (SST) or UDS within a 6 month post operative period. Patients who did not follow up for their 6 month post op visit were excluded from final analysis.

Results: Sixty patients were included in the final analysis (Fig 1). Fifteen (25%) patients were diagnosed with de novo SUI. Although no significant associated risk factors were identified, there was a trend for higher parity and better anterior wall support among women who developed SUI. Comparison between the two groups are shown in Table 1.

Conclusion: The incidence of de novo SUI after TVM procedures following negative preoperative prolapse reduction UDS in this cohort was 25%. A larger sample size may be necessary to determine if these trends in risk factors are significant.

Key Words: stress incontinence, vaginal mesh, de novo

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Douglass S. Hale: consultant, honorarium investigator, study cost; speaker and teaching honoraria

TABLE 1

Variable	De novo SUI (N=15)	No de novo SUI (N=45)	P value
Age	61.8 (9.4)	65.5 (8.2)	0.145
Parity	3.5 (1.2)	2.9 (1.2)	0.114
BMI	31.9 (9.8)	28.7 (4.8)	0.103
Smoker	0 (0%)	4 (8.9%)	0.564
Lung disease	3 (20%)	6 (13.3%)	0.678
Hysterectomy	10 (66.7%)	31 (68.9%)	1.0
Baseline C/o SUI	2 (13.3%)	5 (11.1%)	1.0
Baseline C/o MUI	5 (33.3%)	11 (24.4%)	0.516
C/o SUI or MUI	7 (46.7%)	16 (35.5%)	0.544
Baseline constipation	8 (53.3%)	16 (35.5%)	0.242
Baseline Aa	0.9 (1.8)	1.1 (1.7)	0.660
Baseline Ba	1.8 (2.4)	2 (2.4)	0.784
Baseline C	−1.1 (3.2)	−1.7 (3.8)	0.558
MUCP at MCC	76.2 (51.3)	70.2 (37.2)	0.629
MUCP at rest	92.6 (62)	82.5 (37.4)	0.450
Max urethral angle	77.1 (19.1)	65.9 (28.9)	0.165
Baseline UHM	14 (93.3%)	38 (84.4%)	0.666
Avg stage	2.5 (0.5)	2.6 (0.5)	0.505
Stage ¾	8 (53.3%)	27 (60%)	0.765
Previous UI Surgery	1 (6.7%)	7 (15.5%)	0.666
Post op Aa	−2.5 (0.6)	−2.2 (0.9)	0.234
Post op Ba	−2.7 (0.4)	−2.3 (0.8)	0.069

Student t-tests for the continuous measures and Fisher's exact tests for the categorical measures were performed. (SUI: Stress Urinary incontinence, MUI: Mixed urinary incontinence, MUCP: Maximum Urethral Closure Pressure, MCC:Maximum Cystometric Capacity, UHM: Urethral Hypermobility)

Oral Poster 18
STRESS URINARY INCONTINENCE AFTER ROBOTIC SACROCOLPOPEXY WITH AND WITHOUT CONCOMITANT MIDURETHRAL SLING

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Objectives: To determine the rates of de novo and persistent stress urinary incontinence (SUI) in women who underwent robotic sacrocolpopexy (RSCP) with or without midurethral mesh sling at two different surgical centers.

Materials and Methods: We performed a retrospective cohort study of women who underwent RSCP with (Group 1) or without concomitant midurethral sling (Group 2) between 2006 and 2010. Sling placement was based on the presence of urodynamic stress incontinence (USI). The primary outcome measure was any reported SUI at 3–6 months after surgery. Secondary outcomes included subjective reports of urinary urgency and/or frequency at 3-6 months after surgery.

Results: A total of 82 women were included, 49 from site A and 33 from site B. The overall rate of postoperative SUI was 31.7%, and 30.8% of these had a concomitant sling. There were no differences in baseline demographics between the two groups. Overall, the rate of postoperative SUI was lower in women who underwent RSCP with concomitant sling compared to those who underwent RSCP alone (18.6% vs. 46.2%, p = 0.007). The number of slings needed to prevent 1 case of de novo SUI was 3.6. There were no differences between the two groups for urinary urgency (22.7% vs. 34.6%, p=0.367), frequency (18.2% vs. 22.2%, p=0.99), or urge urinary incontinence (37.2% vs. 50.0%, p=0.246).

Conclusion: Women who underwent RSCP alone based on urodynamic testing were found to have a high rate of de novo SUI. Concomitant midurethral sling placement significantly reduced this risk.

Key Words: pelvic organ prolapse, urodynamic stress incontinence, midurethral sling, stress urinary incontinence, robotic sacrocolpopexy

Oral Poster 19
RECONSTRUCTIVE SURGERY FOR THE FEMALE GENITAL MUTILATION VICTIM: A CRITICAL INITIATIVE AGAINST FEMALE GENITAL MUTILATION IN SUDAN

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Objectives: The purpose of this study was to examine surgical outcomes, clients' acceptability, and satisfaction for reconstructive surgery for female genital mutilation victims.

Materials and Methods: This was a prospective study conducted at the Academy Teaching Hospital, Khartoum- Sudan from January 2005 to June 2010. 666 patients underwent surgery and completed the study protocol.

Results: The patients reported that they accepted the issue of the reconstructive surgery. The majority were very satisfied (86%), and the rest (14%) of the group were satisfied with the results of the surgery with regards to healing, shape of the vulva, disappearance of vaginal discharge and impact on sexual activity.

Conclusion: This study confirmed that reconstructive surgery for female genital mutilation victims can be performed to restore genital anatomy with a high degree of acceptance and satisfaction. The study affirms the patients' refusal to have female genital mutilation performed on their daughters. This gives an excellent opportunity for health promotion and an educational initiative to stand against female genital mutilation.

Key Words: Female Genital Mutilation, Reconstructive surgery, Health promotion, Educational initiative

Oral Poster 20
PERI-OPERATIVE BOWEL HABITS OF WOMEN UNDERGOING GYNECOLOGIC SURGERY

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Objectives: To describe peri-operative bowel habits of women undergoing gynecologic surgery.

Materials and Methods: This IRB-approved prospective study included women undergoing gynecologic surgery between September 2009 & July 2010. Prior to surgery, participants completed the Bristol Stool Chart(BSC), a validated instrument used to categorize stool consistency over the past 7 days. The BSC depicts stool characteristics consistent with transit categories: slow(BSC 1-2), normal(BSC 3-5) & fast(BSC 6-7). For 2 weeks after surgery, participants recorded daily medications, bowel movements(BM) & completed the BSC. We categorized BSC responses into slow, normal & fast. Procedure type was categorized as laparotomy(OPN), laparoscopy/robotic(LSC), vaginal & minor. SPSS Ver.17 was used for data analysis. Chi-square, Fisher's exact test, ANOVA, T-tests for independent samples & ordinal regression were used as appropriate.

Results: The cohort included 170 women with a mean age of 57±13. Most (85%) were Caucasian with 7% African American, 4% Asian & 4% Hispanic ethnicity. 67% had urogynecologic, 24% oncologic & 9% benign gynecologic surgery. Surgical case mix included minor procedures (37%), LSC (34%), OPN (18%) & vaginal (11%).

According to BSC classification, preoperatively, most (76%) patients had normal stool transit; 16% had slow & 8% fast transit, while first BM after surgery was normal transit in 48%, slow (32%) & fast (20%). Mean time to first BM after surgery was 2.8±1.4 days. Patient age was not associated with time to first BM (p=.10). Preoperative transit using BSC did not predict postoperative transit or time to first BM using ordinal regression analysis. Pre-operatively, stool transit did not differ in women undergoing different types of gynecologic surgery(Table). Post-operatively, stool transit and time to first BM differed by type of surgery with OPN patients taking the most time(Table).

Pre (p=.45) & post-operative (p=.123) stool transit did not differ between urogynecology, oncology & benign patients. 99/170 (58%) & 132/170 (78%) used narcotic & bowel medications (stool softeners and/or laxatives) after

surgery. Women having LSC & OPN were more likely than those having minor or vaginal surgery to use narcotics (79% & 80% vs 54% & 52%, p<.005). Narcotic use was not associated with BSC stool transit (p=.429), but was associated with slightly longer time to first BM (3.03±1.4 vs 2.43±1.4 days, p=.02). Mean time to first BM did not differ between those who used (2.83±1.4) & did not use (2.43±1.3) postoperative bowel medications (p=.31).

Conclusion: Return of bowel function, specifically stool transit and time to first BM, is longer after OPN than LSC or vaginal surgery and does not appear to be affected by preoperative stool transit or common postoperative bowel medications. Narcotic use delays first BM by approximately ½ day.

Key Words: gynecologic surgery, bowel function, Bristol Stool

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Linda Brubaker: research consultant – honorarium
Megan Tarr: Industry sponsored research, Research grant

	Minor (62)	LCS (58)	OPN (31)	Vaginal (19)	P Value* *transit & surgery
Preop Stool Transit (%)	Slow 16%	Slow 19%	Slow 10%	Slow 21%	.64
	Norm 73%	Norm 78%	Norm 80%	Norm 74%	
	Fast 7%	Fast 3%	Fast 10%	Fast 5%	
Postop Stool Transit (%)	Slow 44%	Slow 22%	Slow 26%	Slow 32%	.023
	Norm 45%	Norm 47%	Norm 45%	Norm 63%	
	Fast 11%	Fast 31%	Fast 29%	Fast 5%	
Days to 1st BM	2.1±1.3	3.0±1.2	3.8±1.4	2.7±1.1	<.0001

Oral Poster 21
TRAINING OB/GYN RESIDENTS TO OBTAIN INFORMED CONSENT UTILIZING STANDARDIZED PATIENTS

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Objectives: Post-graduate training of communication skills is frequently haphazard and non-uniform. Although all surgeons would agree that proper informed consent is a requirement prior to performing any elective procedure, this skill is not typically formally taught to surgical trainees.

Hypothesis: Implementation of an informed consent curriculum will improve trainees' knowledge, communication skills as assessed by a standardized patient as well as documentation skills.

Materials and Methods: Twenty-one OB/GYN residents were provided with a pre-test to assess their understanding of the general principles of informed consent as well as the particular laws regarding informed consent in the State of Oklahoma. Following the pre-test, residents obtained informed consent for abdominal hysterectomy on standardized patients (SPs) and subsequently documented their interaction. A checklist of expected informed consents elements such as description of surgical procedure and general and specific surgical risks was developed by the authors. These items were divided into the domains of: A) General information, B) General risks of surgical risk and C) Risks specific to abdominal hysterectomy. No specific instructions were provided to the residents as to how to document the consent other than to, "document in your standard fashion". Elements of informed consent were scored by the SPs. Documentation of informed consent was scored by three trained observers. Immediately after the trainees completed performing informed consent with the SPs, the trainees received a standard didactic lecture on the principles and practices of informed consent. Following the didactic training, trainees were asked to obtain informed consent from a different SP for abdominal hysterectomy. Two different scenarios as indications for hysterectomy were created (dysfunctional uterine bleeding and symptomatic leiomyomata) for the SPs. Residents were randomized to one or the other scenario as their pre and post didactic experience.

Results: Analysis revealed statistically significant differences in the number of residents that addressed the informed consent items pre (p<.01, $\eta 2$=.486) and post-intervention (p<.01, $\eta 2$=.489). All residents discussed the procedure and asked if the patient had any questions; most discussed the risks of bleeding, wound infection, and damage to adjacent organs, while few discussed the risk of hernia through the surgical incision or pelvic organ prolapse.

At post intervention, residents more frequently discussed the risk of death, potential for anesthetic complications, the role of different members of the surgical team and the alternative of not having surgery.

Conclusion: During a simulated encounter involving obtaining informed consent, OB/GYN residents at our institution consistently discussed and documented those elements that are the major risk factors and concerns for most surgical procedures. Post intervention, they more frequently discussed potential for death, anesthetic complications, the alternative of not having surgery and the role of different members of the surgical team.

Key Words: Informed consent, Surgical Education, Non-Technical Skills, Standardized Patient

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Mikio A. Nihira: consultant - honorarium

Oral Poster 22
DETECTING INJURY TO THE URINARY TRACT DURING BENIGN HYSTERECTOMY WITH INTRAOPERATIVE CYSTOSCOPY

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Objectives: To estimate the rates of injury to the lower urinary tract during hysterectomy for benign disease; evaluate the benefit of universal cystoscopy at the time of hysterectomy for benign disease.

Materials and Methods: A retrospective medical record review was conducted of all hysterectomies for benign indications in 2008 in Kaiser Permanente Northern California. Operative notes were reviewed to determine the route of hysterectomy (vaginal, laparoscopic, abdominal), and whether intraoperative cystoscopy was performed. Urogynecologic cases were defined as any case involving correction of pelvic organ prolapse or urinary incontinence, along with a concomitant hysterectomy. Injury to the bladder or ureter was defined as either immediately recognized with repair during hysterectomy procedure, or delayed recognition, with diagnosis of the injury after the hysterectomy procedure. Rates of genitourinary (GU) injury, urogynecologic procedures, and intraoperative cystoscopy were compared using Chi-square and Fisher Exact tests. Paired comparisons were made using the MULTTEST procedure.

Results: A total of 2669 hysterectomies were included in the analyses. There were 771 (28.9%) vaginal, 389 (14.6%) laparoscopic and 1509 (56.5%) abdominal hysterectomies. 443 (16.6%) of the hysterectomies performed as part of a urogynecologic procedure. Cystoscopy was performed in 639 (23.9%) of all cases. The overall GU injury rate was 2.3% (61/2669). Injury rates did not differ between routes of hysterectomy, with rates of 3.0%, 2.1% and 2.0% for vaginal, laparoscopic, and abdominal, respectively (p=0.31). Urogynecologic procedures did have a significantly higher GU injury rate of 4.5% (20/443) as compared to non-urogynecologic cases (1.8%, 41/2226; p=0.0006). Cystoscopy was performed in 75.9% of the urogynecologic cases, vs. 13.6% of the non-urogynecologic cases (p<0.0001). Table 1 describes the rates of immediate vs. delayed injury recognition, based on whether intraoperative cystoscopy was performed. The differences in cystoscopy utilization between the "Delayed" and the "Immediate" injury recognition groups were statistically significant (p<0.0001).

Conclusion: Rates of GU injury in this study are similar to those in the published literature. Urogynecologic procedures are more likely to result in GU injury, and intraoperative cystoscopy is recommended in hysterectomies performed as part of an urogynecologic procedure. Overall, intraoperative cystoscopy is associated with a significantly increased rate of recognition of immediate GU injury at the time of benign hysterectomy. Eleven patients in our cohort (all non-urogynecologic procedures) required a second surgery for unrecognized urinary tract injury when cystoscopy was not performed. Despite the relatively low frequency of injury in our non-urogynecologic surgery cohort, we feel that the morbidity associated with second operative procedures justifies routine intraoperative cystoscopy.

Key Words: hysterectomy, urogynecology, cystoscopy, urinary tract, benign, injury

GU Injury Recognition Rates With and Without Cystoscopy

	Delayed recognized GU Injury (N, column percent)	Immediately recognized GU injury (N, column percent)	No injury (N, column percent)
Cystoscopy (N=639)	2 (14.3%)	39 (83.0%)	598 (22.9%)
No Cystoscopy (N=2030)	12 (85.7%)	8 (17.0%)	2010 (77.1%)
Total (N=2669)	14	47	2608

Non-Oral Poster 23
STMN1 EXPRESSION IS NOT ASSOCIATED WITH KNOWN PROGNOSTIC FACTORS IN ENDOMETRIAL CARCINOMA

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Objectives: Stathmin 1 (STMN1), a known regulator of the microtubule cytoskeleton, has important function in cell cycle progression and cell migration. It is overexpressed across a broad range of human malignancies including breast, lung, ovarian and endometrial cancers and is associated with activation of the phosphatidylinositol 3-kinase (PI3K) pathway. The current study seeks to determine the association between STNM1 expression and known prognostic factors in endometrial cancer.

Materials and Methods: A tissue microarray (TMA) was constructed from core samples of 53 endometrial cancers. The TMA contained tumors of endometrioid and non-endometrioid histology as well as tumors of varying grade and stage. STMN1 expression was detected using standard immunohistochemical staining with polyclonal STMN1 antibody (#3352, Cell Signaling). A previously described staining index was calculated as the product of staining intensity (0-3) and extent of staining (0-absent, 1=focal, 2=diffuse) to score each sample. Pathologic parameters including histologic type, tumor grade, depth of myometrial invasion, lymph node status, and stage were obtained from the pathology reports. The association between STMN1 staining score and known prognostic indicators was assessed using independent sample T-tests and Spearman's rank correlation coefficient. $P<0.05$ was considered significant for all tests.

Results: Thirty-five endometrioid adenocarcinomas (66%) and 18 (34%) non-endometrioid tumors comprised the study group. Twenty-three (43%) were grade I, 20 (38%) were grade II, and 10 (19%) were grade III. The majority were early-stage (88% stage I and II). The STMN1 score ranged from 0 to 6 with a mean score of 2.7. No significant difference was found in the mean scores of endometrioid and non-endometrioid tumors (2.6 vs. 2.8, p=0.78), low/intermediate and high grade tumors (2.6 vs. 2.9, p=0.6), early and late staged tumors (2.7 vs. 2.2, p=0.4), or tumors with and without lymph node metastases (2.7 vs. 2.2, p=0.4). No significant correlation was found between the STMN1 score and the depth of myometrial invasion (rs =0.4).

Conclusion: In this study STMN1 expression did not have a significant association with known prognostic factors in endometrial cancer. Further studies to determine the correlation between STMN1 expression and other molecular genetic alterations (e.g., PIK3CA and PTEN) are needed to determine the utility of this putative biomarker.

Key Words: endometrial cancer, stathmin 1, stmn1, immunohistochemistry

Non-Oral Poster 24
A NOVEL APPROACH TO BIOMECHANICAL TESTING OF GRAFT REINFORCED REPAIRS USING THE RAT VENTRAL HERNIA MODEL: IS THERE A DIFFERENCE BETWEEN SUTURED AND GRAFT REINFORCED REPAIRS?

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Objectives: To evaluate the differences in the fatigue life of graft reinforced and suture plicated repairs under repetitive cycles of a physiologic load.

Materials and Methods: The study was approved by Mayo Institutional Animal Care and Use Committee. A 1.5 cm × 3 cm midline abdominal wall defect was repaired with 3.0 Polydiaxanone (PDS) in the control group and with Gynemesh, Surgisis, or Pelvisoft in an underlay, tension free method in the other three groups. 10 rats were randomly assigned to each of the 4 groups and were sacrificed after 90 days. Testing was initiated within 24 hours. Dumbbell-shaped specimens of 5-mm minimum width, including the graft-tissue interface, were attached to a custom cyclic tester that periodically loaded the specimen to a maximum of 4.9 N at 1 Hz in a saline bath. Specimens were tested to a maximum of 100,000 cycles. Number of cycles to failure was recorded. Failure was defined as the complete rupture of the specimen. Association between repair type and cycles to failure was evaluated using the Kaplan-Meier method and Cox proportional hazards models, with the latter fit with and without adjusting for the specimen width and cross-sectional area (width x thickness). Associations were summarized using the hazard ratio and corresponding 95% confidence interval.

Results: Number of specimen tested in the Gynemesh, Surgisis, Pelvisoft, and PDS groups was 7, 8, 8 and 10, respectively. The number of samples that survived 100,000 cycles in the Gynemesh, Surgisis, Pelvisoft, and PDS groups were 1,2,0, and 0, respectively and median survival was 24480, 7098, 1132.5, and 741 cycles, respectively. The overall association between different repair type and cycles to failure was not statistically significant (p=0.24), even after adjustment for specimen width (p=0.26). However, the association approached statistical significance after adjustment for cross-sectional area (p=0.11); in particular, the specimens repaired with Gynemesh were less likely to fail than the controls (adjusted HR=0.31, 95% CI 0.10-0.92, p=0.035).

Conclusion: Although we observed no statistically significant differences in the unadjusted fatigue life between the four groups, there was a trend toward Gynemesh having improved fatigue properties compared to control after adjusting for cross-sectional area. The variability in our measurements limited detection of significant changes and was mainly due to the soft tissue nature of the rat abdominal wall (no true fascia, only muscle) and the heterogeneity of sample thickness (which may be due to rat weight, characteristic of the fibrosis response or both). Future experiments using this testing method in a model more representative of human connective tissue may reduce variability and allow for physiologic comparisons between graft materials.

Key Words: tensile strength, Biomechanical properties, fatigue life, grafts

Non-Oral Poster 25
MAJOR MATERNAL 30 DAY POSTOPERATIVE COMPLICATIONS AFTER NONOBSTETRIC ANTENATAL SURGERY

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Objectives: To determine the prevalence of major maternal 30 day postoperative complications after nonobstetric antenatal surgery.

Materials and Methods: This project utilized the participant use data files from the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) from the years 2005 to 2008. The ACS NSQIP is a national program for surgical quality improvement collecting uniform data from participant hospitals on over 105 variables, including: preoperative characteristics, surgical information, and 30 day postoperative complications. Our target population included pregnant women, age 18 to 50 years old, undergoing nonobstetric antenatal surgery. Our primary outcome was composite 30 day major postoperative complications including: death, cardiac arrest, myocardial infarction, stroke, coma >24 hrs after surgery, pneumonia, sepsis, septic shock, prolonged mechanical ventilation >48 hours, unplanned intubation, pulmonary embolism, deep vein thrombosis, deep wound surgical site infection, organ space surgical site infection, wound dehiscence, postoperative blood transfusion, and return to the operating room. Procedural difficulty was captured by both work relative value units (RVUs) and operative time. Multivariable logistic regression was used to further explore the associations of preoperative variables (adjusted odds ratio (AOR) with 95% Confidence Intervals (CI)) with 30 day postoperative complications.

Results: A total of 1,312 women were included. The most common procedure preformed was appendectomy (n= 574, 43.8%) followed by cholecystectomy (n=332, 25.3%). The prevalence of composite 30 day major

postoperative complications was 5.79% (n=76). This included (not exclusive categories): return to the operating room within 30 days of index procedure (3.58%). sepsis (1.45%), organ space surgical site infection (.99%), pneumonia (.91%), prolonged mechanical ventilation >48 hours (.76%), wound dehiscence (.38%), unplanned intubation (.30%), septic shock(.30%), deep wound surgical site infection(.23%), postoperative blood transfusion(.23%), pulmonary embolism(.15%), and deep vein thrombosis(.15%). The following major 30 day postoperative complications did not occur: maternal death, postoperative cardiac arrest, myocardial infarction, stroke, and coma >24 hours after surgery. The following predictors of 30 day major postoperative morbidity were identified: age (AOR 1.39 (95% CI 1.16, 1.67)), preoperative cardiac disease (AOR 2.06 (95% CI .48, 8.78)), preoperative pulmonary disease (AOR 25.5 (95% CI 3.41, 190.5)), functional status (AOR 2.37 (95% CI .79, 7.12)), RVUs (AOR 1.03 (95% CI .98, 1.08), preoperative sepsis (AOR 2.28 (95% CI 1.34, 3.87)), and total operative time (1–2 hours vs. < 1hour, AOR 3.65 (95% CI 2.06, 6.47)).

Conclusion: The prevalence of major postoperative complications following nonobstetric antenatal surgery is low. Age, medical comorbidities, and procedural difficulty are predictors of major maternal postoperative comorbidities in nonobstetric antenatal surgery.

Key Words: postoperative complications, antenatal surgery, morbidity

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Non-Oral Poster 26
DO OBSTETRICAL PROVIDERS COUNSEL PREGNANT WOMEN ABOUT POSTPARTUM PELVIC FLOOR DYSFUNCTION?

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Objectives: We set out to assess prenatal counseling practices of obstetrical providers related to postpartum pelvic floor dysfunction (PFD) at centers with full urogynecology services.

Materials and Methods: After IRB exemption, we distributed a brief survey to obstetrical providers through urogynecology colleagues. The survey included questions about level of training and specialty, as well counseling practices related to common postpartum pelvic floor symptoms. Anonymous responses were collected online and through written surveys.

Results: We received 192 surveys from 28 institutions in 9 states. Among respondents, 50.5% were general OB/GYN attendings and 31.8% residents; the remainder included maternal fetal medicine (MFM) attendings (8.3%), midwives and nurse practitioners (7.8%), and MFM fellows (1.6%). The majority of respondents were female (78.6%). Eight respondents (4.4%) reported never performing their own prenatal counseling and eleven did not respond (5.7%); they were excluded from our analysis.

Among providers, 55% never discussed postpartum urinary incontinence and 73.4% never discussed postpartum fecal incontinence with nulliparous patients during prenatal counseling. Similarly, 51.4% never discussed anal sphincter laceration and 60% never counseled on postpartum dyspareunia. Among those who did not counsel nulliparous women on these PFD issues, the most common reason cited was lack of time (40%) followed by lack of sufficient information (30%), low incidence of PFD (16.3%), assumption that patients know PFD is part of normal pregnancy and delivery (16.3%), concern patients would elect for cesarean delivery (8.5%). For women who had prior deliveries, more than half of respondents (60.2%) never discussed PFD as a risk of vaginal birth after cesarean delivery (VBAC). With regard to instrument delivery, 21% of responders never discussed the risk of anal sphincter laceration.

Residents were significantly more likely than attendings to report never including PFD topics in prenatal counseling: urinary incontinence: 71.9% vs. 49.4% (P=0.008); fecal incontinence: 84.2% vs. 69.9% (P=0.05); anal sphincter laceration with vaginal delivery: 75.4% vs. 41.0% (P<0.001); dyspareunia: 80.7% vs. 52.4% (P=0.001); PFD as a risk of VBAC (P<0.001): 72.7% vs. 51.9%; anal sphincter laceration with instrument delivery: 33.9% vs. 15.7% (P=0.01). The only difference between male and female providers was that 65.1% of women reported never counseling on PFD as a risk of VBAC compared with 42.9% of men (P=0.02).

For women with a history of PFD, 29.9% of respondents never counseled women to have cesarean deliveries based on symptoms. Similarly, 31.9% never referred these women to physical therapy, and 28.1% never referred them to urogynecologists.

Conclusion: Prenatal counseling of PFD risk is lacking at all levels of obstetrical training, even in centers with active urogynecology divisions. Limitations of time and information are the most commonly cited obstacles. Although increased provider time is unlikely, it is possible to provide targeted education to both patients and providers on risk of postpartum PFD. Resident education on PFD risks should be a priority.

Key Words: Prenatal Counseling, Pelvic Floor Dysfunction, Postpartum Incontinence

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Michele R. Hacker: Member, Data Monitoring Committee, Consulting Fee

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Non-Oral Poster 27
LAPAROSCOPIC HYSTERECTOMY IN THE PRESENCE OF PREVIOUS CESAREAN DELIVERY: DOES THIS INFLUENCE THE CHOICE OF LAPAROSCOPIC HYSTERECTOMY APPROACH?

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Objectives: To determine whether previous cesarean delivery (PCD) influence the choice of laparoscopic approach to hysterectomy.

Materials and Methods: We analyzed 957 patients who underwent a laparoscopic supracervical (LSH, n=799), total laparoscopic (TLH, n=62), and laparoscopic assisted vaginal (LAVH, n=96) hysterectomy procedure for benign gynecological indications between January 2003 and December 2009. Of these, 227 (23.7%) had history of one or more PCD.

Results: Patients with PCD were significantly more likely to undergo LSH compared with LAVH (25.7% vs. 11.5%, OR 2.67, CI 1.40-5.10, P=0.001) but not compared with TLH (17.7%, P=0.22). Previous cesarean delivery did not impact the choice between LAVH and TLH (11.5% vs. 17.7%, P=0.35). Among patients with PCD, the number of PCD did not influence the choice of laparoscopic hysterectomy (LH) procedure [1 PCD (59% vs. 72.7% vs. 72.7%), 2 PCD (25.9% vs. 18.2% vs. 18.2%), > 3 PCD (15.1% vs. 9.1% vs. 9.1%) for LSH, LTH and LAVH respectively, P=0.81). Also among patients with PCD, the demographic variables (age, BMI, gravidity and parity) were not significantly different among the different LH approaches. Of all the indications for LH (endometrial hyperplasia, chronic pelvic pain, persistent cervical dysplasia, and presence of non-suspicious adnexal mass) only the presence of uterine fibroids (LSH 80%, TLH 54.5%, and LAVH 36.4%, P<0.0001) influenced the choice of LH approach. However, uterine weight was not different (LSH, TLH and LAVH [median (range) grams; 152.5 (5–1200) vs. 167 (81–1550) vs. 130 (55–460), P=0.48] respectively). The mean [(SD) mins], operating time was significantly higher with LAVH compared to LSH [194.8 (64.6) vs. 143.1 (71.0), P= 0.02] and TLH compared to LSH [189.7 (79.1) vs. 143.1 (71.0), p =0.045] but not between TLH and LAVH. The estimated blood loss and post-op morbidity (urologic, bowel and vascular injury as well as post-op fever and urinary tract infections) were similar between the LH approaches.

Conclusion: Previous cesarean delivery influenced the choice of LH approach, however, the number of PCD did not impact type of LH performed. The presence of uterine fibroids favors LSH even though uterine size was similar between the three groups. Both LAVH and TLH tended to take longer to perform.

Key Words: Laparoscopic hysterectomy, Cesarean delivery, Previous cesarean delivery

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Non-Oral Poster 28
NEW CHALLENGES IN DETECTING, GRADING, AND STAGING ENDOMETRIAL CANCER AFTER UTERINE MORCELLATION

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Objectives: Our aim was to evaluate the accuracy in diagnosing endometrial pathology after uterine morcellation.

Materials and Methods: After IRB approval, we obtained uterine specimens from 5 women undergoing total abdominal or vaginal hysterectomy without morcellation for benign indications and 5 from women undergoing total abdominal hysterectomy for endometrial cancers. The uteri were all received in pathology, processed, and fixed according to standard institutional protocols. A single investigator (CR) then morcellated all 10 uteri using a Gynecare Morcellex. A gynecologic pathologist (AS) blinded to specimen diagnosis reviewed each specimen and determined if a malignancy was present. If a malignancy was found, she attempted to stage the malignancy. She reported these findings in a typical pathology report and these were compared to the actual pathology reports.
Results: The pathologist was unable to correctly identify endometrial cancer in 1 of 5 specimens with known cancer. This specimen was interpreted as benign after morcellation despite the presence of a grade 1, stage 1A endometrial carcinoma. Additionally, several other important factors were missed on the morcellated specimens. Following morcellation, we were unable to identify lower uterine segment involvement of the cancer in two specimens while another was assigned a grade 1 tumor when if fact it was a grade 2. We were unable to stage any of the morcellated specimens. The pathologist could not identify and/or quantify depth of invasion in any specimen. Of the 5 uteri removed for benign indications, the final diagnoses were as follows: CIN I, leiomyoma and cervicitis, leiomyoma and CIN I, chronic cervicitis and another with chronic cystic cervicitis. Complex atypical hyperplasia was identified after morcellation in one specimen that had a pre-operative biopsy showing grade 1 endometrial adenocarcinoma.
Conclusion: We were unable to identify endometrial carcinoma in 20% of uterine samples after morcellation. Similarly, we were unable to determine the depth of invasion of cancer in any malignant specimen. The increasing use of laparoscopic supracervical hysterectomy and uterine morcellation will likely result in new challenges for gynecologic oncologists secondary to difficulty in detection, accurate grading, and staging of endometrial cancer.

Key Words: Morcellation, Endometrial Cancer, Staging, Laparoscopic Hysterectomy

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Kimberly Kenton: Proctor/Consultant - Honorarium

Non-Oral Poster 29
ENDOMETRIOSIS AFTER LAPAROSCOPIC SUPRACERVICAL HYSTERECTOMY WITH MORCELLATION OF THE UTERUS

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Objectives: The aim of this study is to compare the incidence of new onset endometriosis after laparoscopic supracervical hysterectomy (LSH) with morcellation of the uterus with traditional routes of hysterectomy without morcellation. Our hypothesis is that women undergoing LSH with morcellation are at increased risk of development of de novo endometriosis when compared to traditional routes of hysterectomy without morcellation.
Materials and Methods: Design: Retrospective case-control study
Methods: Chart reviews were performed to collect baseline demographic, clinical characteristics and pathologic diagnoses. Chi square analyses were performed to compare characteristics of the 2 groups.
Results: From January of 2006 through December of 2008, 277 LSH operations with morcellation were performed. The control group consisted of 187 hysterectomies performed either transvaginally or abdominally without morcellation during the same time period. Demographic and clinical characteristics of the 2 groups are presented in Table 1. 102 patients were excluded from analysis because of endometriosis being found at hysterectomy by either pathologic confirmation or gross visualization, 60(21.7%) in the LSH and 42(22.5%) in the control hysterectomy groups. Repeat operative procedures were performed for other benign indications including pain on 3.31% (12/362) of the remaining group. Of those patients undergoing repeat operative intervention, 60%(3/5) of the LSH patients and 28.6%(2/7) of the control hysterectomy group were found to have newly diagnosed endometriosis at the time of second operation. The rate of newly diagnosed endometriosis after hysterectomy was 1.4% (3/217) for the LSH group and 1.4% (2/145) for the control group. (Between group p=0.9980)
Conclusion: This data suggests a 1.4% rate of newly diagnosed endometriosis after prior hysterectomy. The incidence between the LSH with morcellation group and control group was not statistically significant. Continued observation of LSH with morcellation is necessary and further research is needed to delineate risk factors for development of de novo endometriosis after hysterectomy.

Key Words: morcellation, laparoscopic supracervical hysterectomy, endometriosis, LSH

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Holly E. Richter: Consultant Fee, GrantResearch

TABLE 1

DEMOGRAPHIC	ALL PATIENTS 464	LSH WITH MORCELLATION 277	CONTROL WITHOUT MORCELLATION 187	P-value LSH vs CONTROL
AGE	40.2 +/− 9.2	40.1 +/− 7.7	40.6 +/− 11.1	0.564
RACE BLACK / WHITE	49 (10.6%) 415 (89.4%)	27 (9.8%) 250 (90.2%)	22 (11.8%) 165 (88.2%)	0.4876
PT WEIGHT LBS	176.8 +/− 42.3	178.6 +/− 40.3	174.1 +/− 45.1	0.2670
PARITY 0 1 2 3 4 7	49 (10.6%) 114 (24.6%) 216 (46.5%) 67 (14.4%) 17 (3.7%) 1 (0.2%)	32 (11.6%) 68 (24.5%) 139 (50.1%) 31 (11.1%) 6 (2.2%) 1 (0.4%)	17 (9.0%) 46 (24.6%) 77 (41.1%) 36 19.3%) 11 (5.9%) 0	0.0287
Hysterectomy Type		277 (59.7%)	TVH 29 (6.3%) TAH 78 (16.8%) LAVH 50 (10.8%) DLAVH 30 (6.5%)	
SALPINGO- OOPHORECTOMY AT HYSTERECTOMY BSO USO NO	163 (35.1%) 50 (10.8%) 251 (54.1%)	93 (33.6%) 20 (7.2%) 164 (59.2%)	70 (37.4%) 30 (16.0% 87 (46.5%)	0.0029
HYSTERECTOMY EBL, ml	72.1 +/− 96.1	42.5 +/− 46.5	115 +/− 128.6	< 0.0001
HYSTERECTOMY COMPLICATIONS	18 (3.9%)	6 (2.2%)	12 (6.4%)	0.02
UTERINE WEIGHT, gm		112.5 +/− 71.3	147.5 +/− 140.0	0.0015
HYSTERECTOMY INDICATIONS: PAIN OR DYSMENORRHEA	309 (66.6%)	180 (65%)	129 (69%)	0.3700
ENDOMETRIOSIS FOUND AT F/U SURGERY		1.4% (3/217)	1.4% (2/145)	0.9980

Non-Oral Poster 30
ROBOTICALLY ASSISTED MANAGEMENT OF ADVANCED ENDOMETRIOSIS: SHORT TERM SURGICAL OUTCOMES

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Objectives: To report our single-center experience with robotic surgical treatment of advanced pelvic endometriosis.
Materials and Methods: We performed robot-assisted laparoscopic surgery on patients with advanced endometriosis between April 2008 and March 2010. We retrospectively collected information on patient demographics, total operative time, consol time, haematological parameters before and after surgery, PACU time and duration of hospital stay. Statistical analysis was performed using statistical software via paired Student's t test analysis.
Results: Fifty-one robot-assisted laparoscopic management of advanced endometriosis were performed over a 47-month period. All patients underwent surgical excision of all visible endometriotic spots with total laparoscopic hysterectomy (n=39), supracervical hysterectomy (n=3), ovarian cystectomy for endometriomas (n=7) and adhesiolysis (n=2). Both ovaries were removed in 39 patients, only one ovary was removed in 8 while both ovaries were preserved in only 4 cases. The histopathological diagnosis of the entire cohort was pure endometriosis in 38 patients while endometriosis was associated with fibroids in 13 patients. Median and range of the different surgical outcomes is shown in table 1. Median operative

time was 154 minutes (range 67–325). The median blood loss was 100 (range 20–400) mL. The postoperative H&H levels were comparable to the baseline values (p = 0.37). Median length of hospital stay was 1 day with only 2 patients stayed for 4 and 5 days respectively. All the procedures were completed successfully robotically with only one open conversion. One complication in the form of cuff cellulitis was reported. Spearman correlation showed that the OR time was not significantly correlated with the BMI, stage of the disease or the uterine weight.

Conclusion: Robotic management of advanced endometriosis appears to be a reasonably efficient and safe treatment option. Controlled trials are needed to determine the relative advantages of this approach compared to traditional laparoscopy.

Key Words: surgery, robotics, endometriosis

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Sangeeta T. Mahajan: Advisory Board - honorarium

Surgical outcomes of the study population

SURGICAL OUTCOMES	Overall (n=50	Stage III endometriosis (n=21)	Stage IV endometriosis (n=29)	p value *
Consol time (min), median (IQR)	154 (67)	149.5 (56)	154 (91)	.552
EBL (ml), median (IQR)	100 (100)	100 (150)	100 (100	270
Complications, intra-operative	2 (4%)	1 (4.8%)	1 (3.4%)	.999
PACU time (min), median (IQR)	80 (40)	80 (45)	80 (35)	.989
Hospital stay 1 day	48 (96%)	21 (100%)	27 (93%)	.503
Narcotic use Post -op	6 (12%)	3 (14.3%)	3 (10.3%)	.499

Non-Oral Poster 31
INCREASED EXPERIENCE OF THE PRIMARY ASSISTANT SURGEON RESULTS IN DECREASED OPERATIVE TIME EVEN IN A TRAINING INSTITUTION

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Objectives: To evaluate changes in length of robot-assisted laparoscopic myomectomy with increased surgical experience in the setting where the primary surgeon is a rotating urogynecology fellow assisted by the same urogynecology attending.

Materials and Methods: A retrospective chart review comparing the first 80 robot-assisted laparoscopic myomectomies versus the second 80 cases from 6/2006 though 8/2010. Demographic and surgical data was evaluated in relation to surgical length.

Results: There was a significant decrease in operative time between the first 80 robot-assisted laparoscopic myomectomies and the second 80 cases. The average surgical length dropped from 179.00 minutes (+/- 25.2) to 136.90 minutes (+/- 16.6). All other demographic and surgical parameters were similar between the two groups. (Table 1)

Conclusion: Increased experience of the primary assistant can lead to decreased operative time in robot-assisted laparoscopic myomectomies even when the primary surgeon is a urogynecology fellow with relatively little operative experience.

Key Words: experience, myomectomy, robotic surgery

Demographic and Surgical data

	First 80 cases (Sd. Dev)	Second 80 Cases (Sd. Dev)	p value
Duration of surgery minutes	179.00 (+/− 25.20)	136.9 (+/− 16.6)	0.05
Parity	0.25 (+/− 0.680.	0.21 (+/−0.63)	0.69
BMI	24.81 (+/− 6.54)	24.06 (+/!3.81)	0.77
EBL (cc)	293.06 (+/− 395.40)	298.78 (+/− 366.92	0.85
myoma weight (mg)	311.36 (+/−259.65)	330.88 (+/− 347.87)	0.42
Number of myoma	2.67 (+/− 1.95)	3.53 (+/−3.49)	0.15
EBL (cc)	293.06 (+/−395.40)	298.78 (+/−366.92)	0.51

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Charles J. Ascher-Walsh: Speaker – Honorarium

Non-Oral Poster 32
PAIN AND NARCOTIC REQUIREMENTS OF ROBOTIC VERSUS ABDOMINAL SACROCOLPOPEXY

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Objectives: To compare immediate post-operative pain levels and narcotic requirements of robotic sacrocolpopexy vs. abdominal sacrocolpopexy for vaginal vault prolapse.

Materials and Methods: We conducted a prospective feasibility study of 20 subjects undergoing robotic sacrocolpopexy for vaginal vault prolapse. Primary outcomes were in-house post-operative pain levels by numeric scale and intra- and post-operative narcotic requirements. Secondary outcomes included blood loss, operative time, length of stay, blood transfusion, pulmonary embolus, gastrointestinal or genitourinary tract injury, ileus, bowel obstruction, postoperative fever, wound infection, and 3 month POPQ measurements. Recruited subjects' data was compared to a matched group of subjects undergoing abdominal sacrocolpopexy using Mann-Whitney U statistic.

Results: There were no significant differences in age, race, BMI or prior prolapse surgery. Operative times in minutes 397 v. 338 (p=0.24) were similar between groups. Robotic sacrocolpopexy demonstrated decreased post-operative numeric pain ratings 1.4 v. 4.2 (P<0.001) and decreased post operative narcotic requirements in milligrams 5.6 v. 25.9 (P<0.001) when compared to abdominal sacrocolpopexy. Total narcotic requirements were also decreased in the robotic group 63.5 v. 130.5 (P=0.03). Robotic cases had significantly fewer days of hospitalization 1.8 v. 3.3 (P=0.001).

Conclusion: Robotic sacrocolpopexy demonstrated decreased post-operative numeric pain ratings and decreased post-operative narcotic requirements when compared with abdominal sacrocolpopexy. This translated to a significant reduction in hospital stay.

Key Words: Sacrocolpopexy, Robotic, Pain scale, Narcotic requirements

Non-Oral Poster 33
QUALITY OF LIFE OUTCOMES AFTER 100 DA VINCI ROBOTIC SACROCOLPOPEXY

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Objectives: Over the past fifty years the approach to sacrocolpopexy has evolved from an open abdominal, to laparoscopic and finally to a robotic approach. The da Vinci approach has been reported to have less blood loss, shorter length of stay when compared to an abdominal approach (1). Despite these reported benefits, no reported research was found on the quality of life after da Vinci sacrocolpopexy. The objective of this study was to compare pre-surgical and post-surgical quality of life outcomes pertaining to bladder, bowel and vaginal symptoms after da Vinci sacrocolpopexy.

Reference

1) Geller EJ, Siddiqui NY , Wu JM, Visco AG, 2008. Short-Term Outcomes of Robotic Sacrocolpopexy Compared With Abdominal Sacrocolpopexy. Obstet & Gynecol 112(6):1201–1206.

Materials and Methods: The sample used consisted of 100 patients who had daVinci sacrocolpopexy between October- 2007 and March-2010. The subjects were mailed the PFIQ-20 and two versions of the PFIQ-7. One version of the PFIQ-7 was to identify quality of life measures before the surgery. The second version was to identify quality of life measures after the surgery. Two additional questions were included in the mailings. The questions asked: "Overall, how do you feel in terms of your prolapse since your surgery?" and "Would you choose to have the surgery again?" In addition, there was a qualitative question that allowed the subject to elaborate on why they would not choose to have the surgery again.

Results: A total of 57 patients (57%) returned the surveys. The age range at the time of surgery was between 40 and 83 years old. The average BMI was 27.5. Using the Wilcoxon Signed-Rank test, a significant decrease in symptoms was found when comparing the pre-surgical summary scores of the PFIQ-7 (mean 58.98) to the post-surgical summary scores (mean 19.88)

(p<001). The pre-surgical mean bladder symptoms (mean 25.42) showed a significant decrease when compared to the post-surgical bladder symptoms (mean 10.37) (p<.001). Also, a significant decrease was found between the pre-surgical (12.33) and post-surgical (5.10) bowel symptoms (p=.007). Lastly, a significant decrease was found between the pre-surgical (21.89) and post-surgical (4.69) vaginal symptoms (p<.001). The result of the PFIQ-20 identified that 51.8% of the subjects had no complaints of vaginal prolapse symptoms following surgery, 30.4% had no colorectal symptoms, 26.8% had no urinary complaints. According to the added questions, 96.4% identified that they had improvement or marked improvement after the surgery. No patients reported to be worse or markedly worse after the surgery, and 94.7% reported that they would have the surgery all over again.
Conclusion: The results of this study show a significant increase in the quality of life (measured by a decrease in symptoms) after da Vinci sacrocolpopexy in all three areas assessed by the PFIQ-7: bladder, bowel and vaginal symptoms, as well as a significant overall improvement. In addition, an overwhelming amount of patients (95%) stated that they would have the surgery again.

Key Words: prolapse, quality of life, robotic surgery, sacrocolpopexy, daVinci surgery

Non-Oral Poster 34
THE IMPACT OF TRAINING RESIDENTS ON THE OUTCOME OF ROBOTIC-ASSISTED SACROCOLPOPEXY

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Objectives: The objective of this study was to evaluate the surgical outcomes of robotic-assisted sacrocolpopexy (RASCP) before and after the incorporation of hands-on training for urology and gynecology residents.
Materials and Methods: Forty-one patients underwent RASCP between December 2008 and March 2010 with one surgeon. RASCP was performed in the context of surgical repair of complex pelvic organ prolapse and, in some patients, stress urinary incontinence. The first 20 cases (group I) were performed exclusively by the attending surgeon. In the last 21 cases (group II), the urology resident performed a significant portion of the RASCP while the gynecology resident performed the supracervical hysterectomy when indicated. The primary outcome measure was vaginal vault support at 12-weeks postoperatively based on pelvic organ prolapse quantification (POP-Q) examination. Secondary outcomes included blood loss, operative time, and post-operative complications.
Results: Mean ± SD operative time for the entire surgery including RASCP was 282.3±51.3 min and median EBL was 83.1±50.4 mL. Patient demographics, stage of disease, prior prolapse and incontinence surgeries, menopausal status and associated co-morbidities did not differ between groups (P=NS). Surgical outcome measures including procedure time, PACU time, blood loss and intra-operative complications (table) were similar between groups. Follow up POP-Q evaluations demonstrated significant correction of all points on vaginal examination for both groups with a P value of <0.001 for all points.
Conclusion: This series demonstrates the technical feasibility and safety of RASCP for POP in a training-based clinical setting. Incorporation of resident training during RASCP allows teaching of robotic surgery techniques in an effective manner without prolonging operative time or affecting the overall surgical outcome.

Key Words: training, robotics, Sacrocolpopexy

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Sangeeta T. Mahajan: Advisory Board – honorarium

Surgical outcomes of the study groups

	Overall (n=41)	Group 1 (n=20)	Group 2 (n=21)	
Concomitant Procedures	36 (88%)	18 (90%)	18 (86%)	.999
Procedure time (min), median (IQR)	277 (65)	257 (53)	283 (86)	.708
PACU time (min), median (IQR)	97.5 (61)	90 (80)	110 (45	.444
EBL (cc), median (IQR)	50 (50)	75 (50)	50 (75)	.922
Intraoperative Complications Perforation (bladder)	6 (15%)	3 (15%)	3 (14%)	.948

Non-Oral Poster 35
ADOPTION OF ROBOTICS IN GYNECOLOGIC SURGERY: AN EARLY LOOK BACK

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Objectives: To describe the implementation of robotic gynecologic surgery at a tertiary care center and to determine incidence and severity of perioperative complications.
Materials and Methods: All gynecologic robotic procedures were identified through a departmental database in the Division of Gynecologic Surgery at a large tertiary care center from January 1, 2007 until December 31, 2009. All cases were reviewed using the electronic medical record and a standardized data collection tool. Patient demographic data, comorbidities, robotic procedure, operative data, intra-operative injury including bowel, bladder, ureteral, and vascular injuries, and conversion to laparotomy were recorded. Post-operative complications within the first 6 weeks were classified as described by Dindo et al. Proportions of the 3 most common procedures performed robotically were compared between years.
Results: A total of 566 robotic cases was eligible for study. In 2007, 3 surgeons were utilizing robotic assistance for gynecologic procedures. This number increased to 7 in 2008, and 8 in 2009. A total of 68, 164, and 334 robotic procedures were performed in these years respectively. Procedures consisted of simple hysterectomy (RSH) (N=328), hysterectomy with lymphadenectomy (RHL) (N=65), sacrocolpopexy (RSC) (N=51), myomectomy (N=29), radical hysterectomy with lymphadenectomy (N=21), radical hysterectomy only (N=15), and 57 other procedures. The proportions of RSH compared to all simple open and vaginal hysterectomies performed in 2007, 2008, and 2009 were 5.3%, 15.5%, and 22.0% respectively. The proportions of RHL compared to all hysterectomies with lymphadenectomy in these years were 2.8%, 4.5%, and 21.6% respectively. RSC also increased, being utilized for 19.6% of all sacrocolpopexies in 2007, 18.8% in 2008, and 64.3% in 2009. Overall intra-operative injury incidence for RSH, RHL, and RSC were 4.3%, 7.7% and 15.7% respectively. Cystotomies occurred in 3 (0.9%) of RSH cases, 5 (9.8%) of RSC cases, and none of RHL cases. There were ureteral injuries in 2 (0.6%) cases of RSH and none in the RHL and RSC groups. Bowel injury was noted in 9 (2.7%) of RSH cases, 2 (3.1%) of RHL cases, and 2 (4%) of RSC cases. There were 3 (4.6%) vascular injuries in the RHL group, 1 (2.0%) in the RSC group, and none occurred in the RSH group. Conversion to laparotomy occurred in 9 (2.7%), 15 (23.1%) and 6 (11.8%) patients in the RSH, RHL, and RSC groups respectively. Postoperatively among these 3 procedures, based on each patient's most severe complication, there were 38 complications not requiring intervention (Dindo grade I), 41 complications requiring pharmacologic intervention (Dindo grade II), 32 requiring surgical, endoscopic, or radiologic intervention (Dindo grade III), and 6 life-threatening complications requiring ICU management (Dindo grade IV). There were no deaths (Dindo grade V).
Conclusion: Robotic assistance is increasingly utilized for a variety of gynecologic procedures traditionally performed through laparotomy. Intraoperative injury is infrequent and severe post-operative complications within 6 weeks of surgery are rare.

Key Words: hysterectomy, complications, sacrocolpopexy, robotics, Da Vinci, injury

Non-Oral Poster 36
"MINI-ASC": AN ALTERNATIVE TO ROBOTIC SACROCOLPOPEXY

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Objectives: The purpose of this study is to describe initial outcomes of a new surgical technique: abdominal sacrocolpopexy via minilaparotomy (mini-ASC) using the Alexis® Wound Retraction System (Applied Medical Resources Corporation, CA).
Materials and Methods: A retrospective study was conducted of women undergoing mini-ASC utilizing a 5 cm Pfannenstiel incision and the small Alexis® retractor at our center between January 2008 and June 2010. Primary outcomes included OR time, EBL, length of stay (LOS), and inpatient narcotic use in oral morphine equivalents (OME). Vaginal support assessed by POP-Q constituted the secondary outcome. Outcomes were viewed in

parallel but not statistically compared to those from a retrospective cohort study by Geller et al.[1] in which robotic-assisted laparoscopic sacrocolpopexy (RALS) resulted in lower EBL (103±96 mL vs. 255±155 mL), shorter LOS (1.3±0.8 days vs. 2.7±1.4 days), and longer OR times (328±55 mins vs. 225±61 mins) compared to standard ASC.

Results: 17 patients met criteria for inclusion. Mean EBL was 141.2±148.4 mL, mean OR time was 152.1±48.7 minutes, and mean LOS 1.7±1.0 days (Table 1). When pain was not the primary contributor to LOS (n=15) the mean LOS was 1.4±0.6 days. Table 2 details outcomes for the 11 patients with both pre- and postoperative POP-Qs (mean follow-up 26 weeks).

Conclusion: Mini-ASC offers an alternative to RALS as it appears to yield anatomic results, EBL, and LOS similar to RALS with shorter OR times than that for RALS or standard ASC as reported by Geller et al.[1] Studies are needed to compare long-term outcomes, cost, and postoperative pain.

[1]Geller EJ, Siddiqui NY, Wu JM, and Visco AG. Short-term outcomes of robotic sacrocolpopexy compared with abdominal sacrocolpopexy. Obstet Gynecol 2008;112(6):1201-1206.

Key Words: abdominal sacrocolpopexy, surgical technique, minilaparotomy, robotic sacrocolpopexy

TABLE 1. Mini-ASC demographics and operative details

	All patients (n=17)	without SCH ± MUS (n=7)	with SCH (n=2)	with posterior repair and MUS without SCH (n=2)	with other surgery (n=6)†
Age	57.3±9.3	64.6±8.0	57.5±0.7	59.5±10.6	65.5±12.3
BMI (kg/m2)	26.8±5.6	24.9±3.8	33.9±8.1	31.2±6.8	25.1±4.8
EBL (mL)	141.2±148.4	100.0±57.7	300.0±141.4	62.5±17.7	162.5±216.7
OR Time (mins)	152.1±48.7	115.4±14.9	189.0±62.2	159.0±18.4	180.2±55.7
LOS (days)	1.7±1.0	1.7±1.1	1.5±0.7	1.0±0.0	2.0±1.3
Inpatient OME (mg)	89.6±69.0	77.6±51.1	120.0±77.8	65.0‡	101.5±109.8•
+ SCH	3 (17.6)	–	2 (100)	–	1 (16.7)
+ prolapse repair	2 (11.8)	–	–	2 (100)	–
+ MUS	5 (29.4)	1 (14.3)	–	2 (100)	2 (33.3)
Complications	4 (23.5)	2 (28.6)••	–	–	2 (33.3)•••

SCH, supracervical hysterectomy; MUS, midurethral sling Data are mean±standard deviation or n (%) †laparoscopic ventral hernia repair with mesh, inguinal hernia repair, MUS revision, mons liposuction, excision vaginal mesh, robotic sacrocolpopexy converted to mini-ASC ‡1 used PCA, dose unrecorded •2 used PCA, dose unrecorded ••cystotomy, pneumonia •••pulmonary edema, incisional neuropathy

TABLE 2. Operative outcomes

POP-Q	Preop	Postop	p†
C	0 (−7 to +4)	−9.8 (−7 to −11.5)	< 0.001
Aa	0 (−3 to +3)	−3 (−3 to 0)	0.001
Ap	0 (−2.5 to +4)	−3 (−3 to 0)	0.005
Ba	−2 (−3 to +1)	−3 (−3 to 0)	0.54
Bp	−1.75 (−3 to +1)	−3 (−3 to 0)	0.36

Data are median (range) †Student's t test

Non-Oral Poster 37
ABDOMINAL AND PERINEAL RECTOPEXY: A PROSPECTIVE ANALYSIS OF QUALITY OF LIFE AND OBJECTIVE CURE IN WOMEN UNDERGOING SURGERY FOR RECTAL PROLAPSE

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Objectives: To characterize pelvic floor symptom distress and impact, and sexual function in a cohort of women that underwent surgery for rectal prolapse, and to compare these outcomes in women undergoing abdominal versus transperineal approaches.

Materials and Methods: After IRB approval subjects were contacted to participate in a questionnaire follow-up study utilizing the Pelvic Floor Distress Inventory (PFDI-20), Pelvic Floor Impact Questionnaire (PFIQ-7), and the Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12). Demographic, medical, and surgical characteristics of female patients undergoing rectal prolapse procedures from 2004-2009 were reviewed. Comparing outcomes of surgical approaches, continuous variables were examined using Wilcoxon rank-sum test and Fisher's exact tests for categorical measures.

Results: Forty-five subjects underwent surgery; two patients were deceased at follow-up. Twenty-eight of forty-three (28/43) subjects (65.1%) responded to the questionnaires and 4/43 (9.1%) presented for physical examination. Patient demographics are noted in Table 1. Average time from original procedure was 3.9 ± 3.1 years. Twelve patients required reoperation; average time from second procedure is 2.6 ± 2.5 years. Median total PFDI, PFIQ and subscale scores, and PISQ scores for the overall population, as well as those undergoing an open rectopexy versus transperineal proctectomy, revealed no significant differences in total or subscale scores of the PFDI and PFIQ (Table 2). Of the 26 (60%) participants who answered the PISQ, 9 reported

TABLE 1 Select Baseline Sociodemographic and Clinical Characteristics

	Overall (n = 43)	Perineal (19)	Abdominal (24)	p-value
Age (years)	65 (45,89)	68 (49,90)	63.5 (34,86)	0.22
Race/Ethnicity: n (%)				
African American Caucasian	3 (7.0) 4(93.0)	0 (0) 19(100)	3 (12.5) 21(87.5)	0.24
Medical conditions: n (%)				
HTN DM CAD	21 (48.8) 4 (9.3) 7 (16.3)	11 (57.9) 3 (15.8) 2 (10.5)	10 (41.7) 1 (4.2) 5 (20.8)	0.36 0.31 0.44
Hysterectomy: n (%)	36 (83.7)	15 (79.0)	21 (87.5)	0.68
POP Surgery: n (%)	12 (27.9)	5 (26.3)	7 (29.2)	1.00
Most recent procedure type: n (%)				
Transperineal Abdominal	19 (44.2) 24 (55.8)			
Years since 1st procedure	3.2 (1.4,6.7)	2.8 (1.7,9.0)	4.4 (0.9,6.7)	0.11

TABLE 2: Symptom Specific Distress and Impact

Questionnaire	Approach	N	Mean ± SD	Median (interdecile range)	P-value
PFDI (total)	Transperineal Abdominal	9 19	91.3 ± 54.6 78.0 ± 60.2	87.5 (17.7, 168.8) 57.3 (15.6, 182.3)	0.54
UDI (urinary/ bladder distress)	Transperineal Abdominal	9 19	28.7 ± 19.8 25.4 ± 26.2	29.2 (0.0, 62.5) 16.7 (0.0, 70.8)	0.50
CRADI (bowel distress)	Transperineal Abdominal	9 19	38.5 ± 24.3 34.5 ± 26.1	40.6 (6.3, 71.9) 25.0 (9.4, 78.1)	0.67
POPDI (vagina/ prolapse distress)	Transperineal Abdominal	9 19	24.1 ± 24.9 18.0 ± 21.8	20.8 (0.0, 75.0) 12.5 (0.0, 58.3)	0.45
PFIQ (total)	Transperineal Abdominal	9 18	70.4 ± 76.0 48.1 ± 45.7	47.6 (0.0, 204.8) 38.0 (38.1, 109.5)	0.72
IIQ (urinary impact)	Transperineal Abdominal	9 18	22.2 ± 28.2 15.1 ± 18.3	0.0 (0.0, 71.4) 4.8 (0.0, 42.9)	0.96
CRAIQ (bowel impact)	Transperineal Abdominal	9 18	33.9 ± 32.9 27.0 ± 31.4	23.8 (0.0, 90.5) 19.0 (0.0, 76.2)	0.66
POPIQ (vaginal/ prolapse impact)	Transperineal Abdominal	9 18	14.3 ± 22.7 6.1 ± 10.4	0.0 (0.0, 61.9) 0.0 (0.0, 19.0)	0.49
PISQ	Transperineal Abdominal	0 9	31.2 ± 4.7	32.0 (23.0, 36.0)	N/A

sexual activity within the last month. All 9 had undergone an abdominal procedure.
Conclusion: After repair of rectal prolapse, there are few colorectal or other pelvic floor symptoms. Sexual activity and function appears to be higher in those women who underwent an abdominal repair. More robust prospective studies are needed to more fully characterize and understand issues associated with rectal prolapse repair.

Key Words: prolapse, rectal, QOL, questionnaire, comparison

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Ernesto Drelichman: Video preparation and consultation
Holly E. Richter: Consultant Fee/GrantResearch

Non-Oral Poster 38
THE IMPACT OF PREOPERATIVE BOWEL PREPARATION IN PATIENTS UNDERGOING VAGINAL RECONSTRUCTIVE SURGERY: A RANDOMIZED CONTROLLED TRIAL

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Objectives: The purpose of this study is to evaluate the effect of preoperative bowel preparation on the return of bowel function in patients undergoing vaginal pelvic organ prolapse repairs.
Materials and Methods: This is a prospective randomized controlled trial. Forty patients with a stage II or greater posterior vaginal wall prolapse, undergoing a vaginal pelvic organ prolapse repair were enrolled. Participants were randomized to either receive bowel preparation with liquid diet and a Fleets enema or no bowel preparation. Validated questionnaires including the PFDI, CRAIQ, WHOQOL-BREF, Wexner constipation score and bowel diary were completed 2 weeks before and after surgery. Postoperatively, pain levels and narcotic use were also logged. Time to first bowel movement and perioperative bowel habits were compared.
Results: There was no significant difference in the time to first bowel movement between the bowel prep and no bowel prep groups (2.9 ± 2.2 days vs. 2.8 ± 1.9 days; P= 0.886). There were also no differences noted between the groups in any scores on the validated questionnaires or in their bowel diary at 2 weeks post surgery. When evaluating the group as a whole, a significant change was seen in the postoperative PFDI score, suggesting improvement in this parameter following surgical treatment of their prolapse (P=0.027).
Conclusion: The use of preoperative bowel preparation does not affect postoperative return of bowel function, bowel habits, pain or quality of life. Bowel preparation may be an unnecessary intervention in preparing patients for vaginal prolapse repair.

Key Words: Pelvic Surgery, Bowel Preparation, Randomized Controlled Trial

Rachel N. Pauls: Consultant, Researcher clinical trial support, Scientific Advisory Board, stock options

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Non-Oral Poster 39
TREATMENT OF OBSTRUCTED DEFECATION DUE TO RECTAL INTUSSUSCEPTION AND RECTOCELE BY RESTORATION OF THE UTEROSACRAL LIGAMENTS AND THE RECTOVAGINAL FASCIA -A PROSPECTIVE STUDY

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Objectives: The aim of this study was to evaluate the potential of a combined uterosacral ligament and rectovaginal fascia restoration using polypropylene mesh for the treatment of obstructed defecation and rectal intussusception.
Materials and Methods: 83 patients with various degrees of vaginal vault descensus, clinical rectoceles and obstructed defecation were treated by insertion of a posterior polypropylene sling (syn: infracoccygeal sacropexy), reconstruction of the rectovaginal fascia using either traditional fascia plication (n = 36) or a polypropylene mesh (n = 47) and perineal body repair (n = 75). Prospective evaluation included pre- and postoperative standardized pelvic floor questions, pelvic organ prolapse quantification measurements, bowel function questionnaires, defecating proctogram, and patient satisfaction using a numeric scale.
Results: 83 patients have been treated between October 2001 and June 2010. The median follow-up was 39 months (range 2 – 96 months). Of the 83 patients with obstructed defecation and rectal intussusception, 78 (94 %) patients reported complete or partial normalization of defecation at all visits after surgery. Of the 57 patients who had both pre and post-operative proctograms, 56 (98%) showed resolution of rectal intussusception postoperatively. Pelvic organ prolapse quantification measurements showed significant prolapse reduction in 77 patients (93%). No major complications occurred.
Conclusion: We hypothesize that reconstructed uterosacral ligaments support the anterior rectal wall in the manner of a tent pole, preventing intussusception, and facilitating defecation. The operation is minimally invasive, and it avoids excision or fixation of the rectum.

Key Words: rectocele, rectal intussusception, obstructed defecation, uterosacral ligament restoration

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Non-Oral Poster 40
DOES SEXUAL ACTIVITY STATUS AFFECT PATIENT-SELECTED GOALS IN TREATMENT OF PELVIC ORGAN PROLAPSE?

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Objectives: Our objectives were to describe self-expressed goals of patients seeking care for pelvic organ prolapse and determine if goals differ in women who are sexually active and those who are not sexually active.
Materials and Methods: After obtaining IRB approval, consecutive patients presenting for an initial visit to Mount Auburn Urogynecology from February to May 2010 were invited to participate. Women were included if they had a presenting complaint of pelvic organ prolapse and at least POPQ stage I prolapse on physical examination. Consenting participants completed a questionnaire, which included demographic data and information regarding sexual activity and vaginal intercourse in the past year. Patients were also asked to list up to five goals they hoped to achieve through treatment of their pelvic floor condition. Prior to analysis, the investigators categorized these goals. Statistical analysis was performed using the SAS system. Comparisons were made using the independent samples t-test, Mann-Whitney U, Chi-square or Fisher's exact test as appropriate.
Results: Forty-three patients with pelvic organ prolapse completed the questionnaires. Twenty-three of 43 (54%) were sexually active. Women who were sexually active were younger (55.7 +/− 9.5y vs 66.5 +/− 12.5y; p=0.003) and more likely to be married (p=0.001) than those who were not sexually active. The two groups did not differ in vaginal parity or race. Sexually active women were more likely to report having had intercourse in the past year than non-sexually active women (p<0.001). Of the women that considered themselves sexually active 13% had not had vaginal intercourse in the past year and 17% of women that answered "no" when asked if they were sexually active did have intercourse in the past year. The two groups did not differ in prolapse stage or the number of goals listed. The goals most frequently listed by the patients were "other pelvic floor symptoms," not prolapse-specific symptoms. Also, non-sexually active women expressed sexual function/activity as a goal just as often as sexually active women. There were no other significant differences between the groups in stated goals.
Conclusion: Self-described sexual activity status is not an accurate evaluation of sexual activity or indication of desire for future sexual activity in women presenting with pelvic organ prolapse. Resolution of non-prolapse-specific pelvic floor symptoms is more frequently a goal in both sexually active and non-sexually active women that are seeking care for pelvic organ prolapse. Thus, more specific questions regarding sexual activity and goals for treatment are necessary to guide the appropriate counseling of these patients.

Key Words: Pelvic Organ Prolapse, Patient Centered Goals, Sexual Activity

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Michele R. Hacker: Member, Data Monitoring Committee, Consulting Fee

Non-Oral Poster 41
LOWER URINARY TRACT SYMPTOMS AND SEXUAL FUNCTION IN WOMEN UNDERGOING SURGERY FOR COLORECTAL DISORDERS

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Objectives: We conducted a 6-month cross-sectional study of women presenting to a university-based colorectal practice to determine the pre-and post-operative prevalence of lower urinary tract, bowel, and sexual dysfunction symptoms by validated questionnaires in women undergoing surgery for colorectal disorders.

Materials and Methods: Female patients with a diagnosis of a colorectal disorder undergoing surgery were identified and recruited as they presented to a university colorectal practice. Recruited subjects were given validated condition-specific questionnaires at their preoperative appointment and within 6 months postoperatively. Questionnaires included the Pelvic Floor Impact Questionnaire-short form 7 (PFIQ-7), Pelvic Floor Distress Inventory-short form 20 (PFDI-20), Pelvic Organ Prolapse-Urinary Incontinence Sexual Function Questionnaire-short form 12 (PISQ-12), and Female Sexual Function Index (FSFI).

Demographic information was collected including age, race, type of colorectal disorder, previous colorectal surgery, menopausal status, hormone replacement therapy use, previous chemotherapy or radiation therapy, and smoking status. The pre- and post-operative prevalence of lower urinary tract, bowel, and sexual dysfunction symptoms were extracted from condition-specific questionnaires. Wilcoxon signed-rank tests were performed to compare pre- and post-operative questionnaire scores.

Results: The majority of subjects (n=23) were caucasian (83%), approximately half were menopausal, and approximately 60% were sexually active. There were diverse colorectal diagnoses and surgical procedures represented.

The pre- and post-operative prevalence of symptoms were as follows(%): prolapse (20,5.6), anal incontinence (AI) solid stool (28.6,31.3), AI loose stool (52.4,43.8), flatal incontinence (57.1,43.8), rectal prolapse (28.6,5.9), urinary frequency (28.6,33.3), urge incontinence (14.3,22.2), stress incontinence (33.3,38.9), and dyspareunia (50,72.7).

Questionnaire data showed an improvement of prolapse subscale scores (POPIQ 20.6 v. 6.7, p=.04; POPDI 24.0 v. 10.5, p=.017) and colorectal subscale scores (CRAIQ 48.8 v. 25.9, p=.007; CRADI 44.7 v. 22.6, p=.02). Urinary subscale scores were not statistically different (UIQ 23.0 v. 7.6, p=.054; UDI 20.4 v. 20.0, p=0.23). Sexual function was improved with higher (less dysfunction) total FSFI scores (9.5 v. 18.0, p=.01) and lower (less dysfunction) PISQ-12 scores postoperatively (14.5 v. 9.5, p=.037).

Conclusion: In women with colorectal disorders, there is a high preexisting prevalence of sexual dysfunction, which, despite an increase in postoperative dyspareunia, is improved by sexual function questionnaire scores (FSFI, PISQ-12) after surgery. Prolapse and colorectal symptoms are also improved, however urinary symptoms are relatively unchanged, affecting approximately 1/3 of subjects. Patients in this study population would thus benefit from preoperative screening and evaluation for urinary incontinence so that a concomitant procedure could be offered at the time of their colorectal surgery.

Key Words: Colorectal, Sexual, Function, Lower, Urinary, Tract

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Karen Noblett: Procotor/consultant, Honorarium

Non-Oral Poster 42
POSTERIOR TIBIAL NERVE STIMULATION FOR THE TREATMENT OF IDIOPATHIC OVERACTIVE BLADDER IN WOMEN: A SYSTEMATIC REVIEW

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Objectives: Posterior tibial nerve stimulation (PTNS) is a percutaneous method of peripheral, afferent sacral neuromodulation that can be used in the treatment of overactive bladder (OAB). Although this therapy was first described in 1983 and received FDA approval in 2000 as in-office therapy for the treatment of OAB, its current use is limited. Recently published data suggests that PTNS may be an effective treatment modality for patients with OAB. The objective of this study was to systematically review the literature regarding efficacy of posterior tibial nerve stimulation for the treatment of idiopathic overactive bladder in women.

Materials and Methods: We searched MEDLINE/Pubmed, EMBASE and Cochrane databases from January 2000 - August 2010. We included all English language studies where 20 or more women completed therapy with PTNS for OAB. We included randomized controlled trials or observational studies reporting objective outcome measures with the use of either the Urgent PC or Stoller Afferent Nerve Stimulator (SANS) for PTNS. Studies were considered "good quality" for the use of PTNS in the female OAB population if results from objective measures were provided for ≥ 20 women and data were divided by symptoms of OAB, distinguishing between OAB with urge incontinence (OAB wet) or OAB without incontinence (OAB dry).

Results: Of the 136 identified articles, 70 articles remained for abstract review after excluding unrelated articles or non-English publications. Of these abstracts, 24 met criteria for full-text article review. Ultimately, data were abstracted from 17 full-text articles. There were several studies that reported results from the same cohort, and in these instances, the highest quality study was evaluated. None of the 17 studies met criteria for "good quality" despite the inclusion of four randomized controlled trials (RCT). Of the RCTs, the most rigorous was a trial of 220 subjects comparing PTNS versus a sham technique . This trial showed that the median number of incontinent episodes decreased from 3.0 to 0.3 for PTNS versus 1.8 to 1.0 in the sham group. However, the results were pooled for both men and women and for OAB symptoms (wet and dry OAB together) with only short-term results provided. Of all the articles reviewed, few studies included long-term follow up.

Conclusion: Very limited high-quality data exist regarding the use of posterior tibial nerve stimulation for idiopathic OAB in women. Additional trials with clearly characterized patient populations and longer duration of follow-up are needed to fully evaluate the efficacy of PTNS as treatment for idiopathic overactive bladder.

Key Words: Overactive bladder, sacral neuromodulation, Posterior Tibial Nerve stimulation, Urgent PC, Stoller Afferent Nerve Stimulator

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS
Cindy Amundsen: consultant

Non-Oral Poster 43
OUTCOMES OF SACRAL NERVE STIMULATOR IMPLANTATION IN OBESE WOMEN

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Objectives: To evaluate the outcomes of Interstim® sacral nerve stimulator (SNS) implantation for the treatment of refractory urinary urge incontinence or overactive bladder symptoms in an obese patient population.

Materials and Methods: After Institutional Review Board approval, a retrospective review of patients who underwent SNS procedures by a single urogynecologic surgeon from 11/2004–3/2010 was performed via the electronic medical record. All patients underwent at least the 1st stage Interstim® tined lead placement. The staged procedure for implantation was utilized, with the 2nd stage IPG implantation only performed if patients reported a >50% improvement in symptoms. All patients received perioperative antibiotic prophylaxis and a home regimen of oral antibiotics for 2 weeks postoperatively. Patient demographics, body mass indices (BMI), medical and neurologic histories, and preoperative incontinence and voiding dysfunction symptoms were recorded. Postoperative complications, device revisions or explantations, and follow up visits were also reviewed. Using the CDC definitions, BMI 25.0–29.9 was considered overweight and BMI ≥ 30.0 was considered obese.

Results: 109 patients underwent Interstim® stage 1 insertion. 22 patients did not meet criteria of 50% improvement in incontinence symptoms for stage 2 implantation. The mean BMI of the population was 33.3 kg/m2 (SD ± 8.1). Of the 109 patients, 60% of patients were obese, while 23% were overweight,

and only 17% were of normal weight. The average age was 56.3 years (range 24–88) and post implantation follow-up was a median of 11 months with a range of 1–61 months. There was a 9% rate of IPG site infection in this population which led to a 4.5% rate of explantation for infection. Of the 10 implant site infections, 5 were explanted and 5 resolved with antibiotics. Diagnosis of diabetes mellitus was present in 21% of patients, while neurologic diagnoses such as multiple sclerosis, cerebrovascular disease, and Parkinsons disease were present in 28% of patients. The cure rate in this population was 62% with 15% of patients requiring revision of the lead or IPG site and 17% of patients eventually requiring or requesting explantation of their IPG.

Conclusion: Sacral nerve stimulator implantation is an effective treatment option for refractory urinary urge incontinence and OAB in obese women. Cure rate in the obese population is similar to those of other normal weight populations. Our observed rate of explantation for infection is lower than many previously published reports, perhaps due to surgical technique of antibiotic irrigation in addition to IV and oral antibiotic prophylaxis in all patients. Given the high cost of the Interstim device and staged procedure, future studies are called for to identify factors that could decrease explantation rates.

Key Words: Obesity, urge incontinence, sacral neuromodulation, Interstim, sacral nerve stimulation

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Non-Oral Poster 44
TEACHING OF PELVIC ORGAN PROLAPSE QUANTIFICATION SYSTEM AMONG OBSTETRICS/GYNECOLOGY AND UROLOGY RESIDENTS IN THE UNITED STATES

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Objectives: The aim of the study is to compare teaching patterns regarding the Pelvic Organ Prolapse Quantification system (POPQ) among residents in Obstetrics/Gynecology (OGR) and Urology (UR) in the United States (US).

Materials and Methods: An anonymous online survey for all OGR and UR in the US was distributed by emailing their program directors or coordinators. Responses were collected in May and June 2010. Chi-square tests were used for frequency analysis.

Results: Ninety UR and 145 OGR agreed to answer the survey (estimated response rate of 9.3 and 3.2% respectively). Of them, 133 OGR (91.7%) and 75 UR (83.3%) completed the questions about POPQ teaching (p=0.05). Sixty percent (45/75) of UR and 78.9% (105/133) of OGR (p=0.006) reported to have used POPQ while 42.7% and 59.4% reported current use (p=0.03). The proportion of current/ever POPQ users was 71.1% and 75.2%, respectively (p=0.7). Twenty eight of 75 (37.3%) UR and 38 of 133 (28.6%) OGR did not know or specify what system they use (p=0.25). Interestingly, 37.9% of UR and 74.5% of OGR in the first half of their training reported having used POPQ (p=0.001) while 73.9% of UR and 89.7% of OGR in the second half did so (p=0.09).

In looking at many factors about training/teaching in the Urogynecology (Urogyn) field, we found that, per week, UR reported 3.4 hours of protected education time vs. 4.3 hours among OGR (p<0.001). There was no significant difference in the number of POP surgeries done, reported time dedicated to teaching about female POP, number of fellowship-trained Urogynecologists in the program or the number of times the residents recalled having read about POPQ. The opinions about the routine clinical and scientific usefulness of POPQ and the perceived difficulty in learning it did not vary among groups.

The most frequently reported teachers of POPQ among UR were Urology attendings (46/75=61.3%), residents (33/75=44%) and Urogyn attendings (28/75=37.3%); among OGR it was Urogyn attendings (82/133=61.7%), residents (65/133=48.9%) and Ob/Gyn attendings (48/133=36.1%). Twenty three of the 28 UR (82.1%) who reported having been taught by a Urogyn attending selected them as the best POPQ teacher while 26 of the 36 OGR taught by Urogyn fellows (72.2%) selected them as delivering the best POPQ teaching.

Informal casual teaching was the most frequently reported method for teaching in both groups (65.3 and 62.4%). OGR reported scheduled lectures and drawings as teaching methods more frequently (59.4% and 66.2%, p≤0.05). A video had only been used by 8.7% of the residents. The best methods were deemed to be teaching with a patient and with drawings by both UR and OGR.

Conclusion: In conclusion, OGR residents use POPQ more frequently than UR. This difference seems related to a greater exposure to it in the first half of residency since the proportion of current/ever POPQ users is similar. OGR residents reported to learn POPQ from scheduled lectures and drawings more often than UR. OGR get most of the teaching from Urogynecologists while UR get it from Urologists. Urogyn fellows are appreciated teachers among OGR. Teaching during physical exam and drawings were considered the best methods by both groups.

Key Words: POPQ, survey, resident education, teaching, Urology, Obstetrics and Gynecology

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Non-Oral Poster 45
POPQ POINT C IS NOT EQUAL TO POINT D AFTER HYSTERECTOMY

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Objectives: The Pelvic Organ Prolapse Quantification (POPQ) staging system states that after hysterectomy, point C (cervix or the leading edge of the vaginal cuff (hysterectomy scar) will be the same as point D. Point D represents the location of the posterior fornix at the level of the attachment of the uterosacral ligaments to the cervix. Patients with hypertrophic cervical elongation as the cause of prolapse will have preservation of the culdesac from uterosacral support with prolapse of the cervix. The objective of our study was to determine if point D is equal to point C after hysterectomy.

Materials and Methods: Retrospective chart review of 98 patients having undergone surgery for vaginal vault prolapse after hysterectomy between January 2008 till June 2010. Data collected included demographics, initial visit, operative report and postoperative visits. At the initial visit, the attending physician, a fellow training in Urogynecology or both examined the patient. Prolapse was staged using the POPQ staging system. Point D defined as the attachment of the uterosacral ligament to the posterior vaginal wall, and point C defined as the scar representing the vaginal cuff was measured in all patients. Patients were divided into 3 groups according to the type of prolapse (group A: anterior compartment, group B: posterior compartment or group C: complete). Demographics (age), means and medians of (points C, D, Aa, Ba, TVL) were assessed by analysis of variance (ANOVA) among the 3 groups. Relevant pairs of Aa, AP, C, or D measurements were assessed for the association by simple linear regression, and the predictive ability of one of these measurements (e.g. C) on another (e.g. D) was evaluated by the magnitude of the coefficient of determination (R-square) for each group.

Results: The mean age varies between groups, group A: 66 + 10, group B: 64.6+ 8, group C: 73 + 9. (P=0.003). Mean point C and D also varies significantly between groups, point C: group (A) −0.5 + 3, (B) −1.3 + 4, (C) 4 + 3. (P=0.0001). Point D: group (A) −5+1, (B) −1.6 + 3, (C) −1.3 + 2. (P=0.0001). For the anterior compartment prolapse and the complete prolapse patients, a significant association between point C and D was noted (P=0.01 and P=0.02 respectively). The predictive ability of point C on point D is poor for group (A) R-square=16%, group (C) R-square 17%.

Conclusion: Point C is not always equal to Point D after hysterectomy. It may represent a lack of culdoplasty at the time of hysterectomy, especially if done for Hypertrophic cervical elongation. Point C measurement is a poor predictor of point D. The assumption that Point C equals Point D is not valid.

Key Words: Prolapse, Hysterectomy, POPQ

Non-Oral Poster 46
THE EFFECT OF AGE, BODY MASS INDEX, AND PARITY ON PELVIC ORGAN PROLAPSE QUANTIFICATION STAGE

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Objectives: To evaluate the effect of age, body mass index (BMI), and parity on pelvic organ prolapse quantification (POPQ) measurements and stage.

Materials and Methods: Patients with pelvic organ prolapse presenting to a urogynecologic center over a 2 year period were evaluated. All patients underwent examination by the same experienced examiner and a complete POPQ was performed. Prolapse stage was determined by POPQ score. Patients were excluded if they were pregnant, had a prior hysterectomy or pelvic organ prolapse repair. Data was analyzed using Pearson's product-moment correlation.

Results: 317 patients met criteria for inclusion. Mean age was 63.2 +/− 11.8 years, mean BMI was 26.5 +/− 4.9, and mean parity was 2.6+/−1.3. In this cohort of patients, mean cystocele stage was 2.5, rectocele stage 0.8, and apical prolapse stage 1.9. On bivariate analysis, age and parity were positively correlated with cystocele stage (r= 0.37 p<.0001 for age and r= .13 p=.02 for parity). More specifically, age was positively correlated with worsening scores on points Aa (r=.14 p<.02), Ab (r=.35 p<.0001), C (r=.14 p=<.02) and Bb (r=.13 p=.02) while parity was only correlated with worsening scores on point Aa (r=.14 p=.014). There was no correlation between increasing BMI on POPQ data points or stage.

Conclusion: Increasing age and parity were significantly correlated with cystocele severity. The strongest correlation was found between increasing age and scores on point Ab. The effect of increasing parity was only seen on point Aa. Increasing BMI had not impact on POPQ data points or stage in our study.

Key Words: age, POPQ, BMI, parity

Correlation of age, BMI and parity to POPQ stage and data points

POPQ	Correlation Coefficient for Age	p value	Correlation Coefficient for BMI	p value	Correlation Coefficient for Parity	p value
Cystocele	0.35	<.0001	0.011	0.84	0.13	0.02
Rectocele	0.1	0.09	−0.09	0.11	0.09	0.13
Apical	0.11	0.06	−0.06	0.32	−0.07	0.2
Aa	0.14	<.02	0.009	0.88	0.14	<.02
Ab	0.35	<.0001	0.03	0.62	0.11	0.05
C	0.14	<.02	−0.03	0.64	−0.07	0.23
Gh	0.07	0.26	0.06	0.32	0.04	0.5
Pb	−0.1	0.07	0.07	0.23	0.03	0.6
TVL	0.03	0.56	0.03	0.55	−0.005	0.9
Ba	−0.05	0.38	−0.05	0.37	0.09	0.12
Bb	0.13	0.02	−0.05	0.43	0.09	0.12
D	0.083	0.16	−0.05	0.44	−0.04	0.51

Non-Oral Poster 47
HYSTERECTOMY COMPLICATIONS IN HIV POSITIVE WOMEN

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Objectives: To evaluate surgical and postoperative outcomes in HIV positive women undergoing a hysterectomy for benign indications.

Materials and Methods: Charts from all hysterectomies performed at Grady Memorial Hospital between January 1, 2000 and December 31, 2009 were reviewed. Demographic, operative and postoperative data were abstracted. Women who were HIV positive at the time of their benign hysterectomy were compared to uninfected women who also had a hysterectomy for benign indications. Categorical variables were analyzed with Chi-square or Fisher's exact test while Student's t-test or Mann-Whitney U test was used for continuous variables. Logistic regression was used for multivariate analysis.

Results: During the study period, 3002 hysterectomies were performed. A total of 104 women infected with HIV were identified, of which 89 (86%) had a benign hysterectomy. Of those uninfected, 2615 had a hysterectomy for a benign indication. HIV positive women were more likely to use tobacco (56% vs 34%, P < 0.001) and have a prior pelvic infection (38% vs 20%, P < 0.001). HIV positive women were more likely to have a ureteral injury (3% vs 1%, P = 0.046), a postoperative urinary tract infection (10% vs 3%, P < 0.001) or a postoperative fever (24% vs 14%, P = 0.008). After controlling for potential confounders, HIV positive women were still twice as likely to develop a postoperative fever (OR: 2.11, 95% CI: 1.13-3.96).

Conclusion: This is the largest series evaluating HIV infected women undergoing a hysterectomy for a benign indication. We found that HIV positive women are more likely to develop postoperative febrile morbidity than their uninfected counterparts. Considerations should be made for aggressive preoperative, intraoperative and postoperative management to prevent potential infectious sequelae.

Key Words: Hysterectomy, HIV, Surgical complications

Non-Oral Poster 48
DOES FLUID INTAKE BEHAVIOR PREDICT BOTHER FROM URINARY SYMPTOMS IN WOMEN WITH URINARY INCONTINENCE?

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Objectives: Modification of fluid intake behavior is a first line treatment for women with urinary incontinence, but the relationship between fluid intake behavior and lower urinary tract symptom bother is unclear. We sought to correlate self-reported fluid intake behavior with lower urinary tract symptom bother in women with urinary incontinence.

Materials and Methods: Women who presented with urinary incontinence at their initial visit from January 2009 through January 2010 to a urogynecology practice were included in this cross-sectional study. Women with a known diagnosis of interstitial cystitis, diabetes, recurrent urinary tract infections, neurologic disorders, or currently taking diuretics or anti-cholinergic medications were excluded. Data on urinary symptoms and fluid intake behavior was collected using a validated questionnaire, the Questionnaire-based Voiding Diary. Bother from lower urinary symptoms was evaluated using the Urogenital Distress Inventory (UDI-6 Short Form). Fluid intake was analyzed by type (caffeinated, carbonated, and total) and volume (quartiles) of fluid. Fluid intake behavior, type and volume of fluid intake, lower urinary tract symptoms, and bother were evaluated using ANOVA and chi-square tests.

Results: Mean age and BMI of the 256 women was 52.5 ± 12.6 years and 27 ± 6.2 kg/m2, respectively. Based on the questionnaire responses, 115 (44.9%) women reported urge urinary incontinence, and 144 (56.3%) reported stress urinary incontinence. Self-reported behavior of drinking large amounts of caffeinated, carbonated, and total fluid was significantly associated with increasing quartiles of respective fluid intake volume (chi-square, p < 0.01, p<0.01, p=0.019). The mean total fluid intake for daily urinary frequency of 1–5, 6–10, 11–15, 15–20, and greater than 20 voids was 2948.5 +/− 1735.7mL, 3193.9 +/− 1514.2, 3395.0 +/− 2070.4, 2776.1 +/− 1096.9, and 4119.6 +/− 3405.1 mL, respectively. Increasing volumes of total fluid intake was significantly associated with increasing urinary frequency (ANOVA, p=0.017). Increasing volume of caffeinated beverage intake was significantly associated with worsening severity of urge urinary incontinence (ANOVA, p=0.024). The self-reported behavior of "restricting fluid intake to control urinary symptoms" was significantly associated with bother from urinary frequency (chi-square, p=0.002) and stress urinary incontinence (chi-square, p=0.002).

Conclusion: Maladaptive patterns of fluid intake behavior are associated with distress from urinary frequency, stress urinary incontinence, and urge urinary incontinence.

Key Words: behavior, urinary symptom distress, fluid intake

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS
Lily A. Arya: consultant fee

Non-Oral Poster 49
POST-OPERATIVE INSTRUCTION: IS THERE A CONSENSUS WITHIN THE REALM OF UROGYNECOLOGY?

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Objectives: To describe current variations in postoperative activity instructions given by surgeons performing abdominal, major vaginal, minor vaginal,

and laparoscopic/robotic approaches to pelvic reconstructive surgery. To describe possible reasons surgeons have for imposing these restrictions.

Materials and Methods: A questionnaire, created with input from multiple institutions, was distributed to surgeons attending a gynecologic surgical meeting in 2010. Data were analyzed using descriptive analysis and analysis of variance (ANOVA) to compare groups when appropriate.

Results: 193 of 306 (63%) meeting attendees completed a questionnaire. On average, participants were 42.9 years old and Caucasian (77.6%), having completed residency training most likely after 1990 (78.9%). Most described their practice type as academic (46.8%) and largely (defined as >75%) Urogynecology based (70.8%). Forty-two attendees were surgical fellows, and a majority of those who replied (86.8%) completed additional training after residency, most commonly in Female Pelvic Medicine & Reconstructive Surgery (68.1%). In assessing the method in which post-operative instructions were delivered to patients, most surgeons claimed to give out both written and verbal instructions at a both a patient's preoperative appointment and hospital discharge. Most respondents admitted to practicing all four major types of surgery of interest, with laparoscopic/robotic surgery the least represented (80.5%). Of all described activities, stair climbing was restricted the least, and pelvic rest was most commonly prescribed. In comparing activity restriction among different types of surgery, a significantly longer period abstinence from driving (1.92 weeks, $p<0.001$) was encouraged after abdominal versus other surgical methods. Stair climbing was likely to be restricted longer in patients undergoing laparoscopic/robotic surgery (3 weeks, $p<0.001$). Surgeons advocated less time off work after minor vaginal surgery (2.2 weeks, $p<0.001$). Prescription of a postoperative bowel regimen was universal (100%), with stool softeners being the most common ingredient. Although most attendees (25%) admitted to dictating postoperative instructions based on beliefs that their specific guidelines improve postoperative outcomes, over one-fifth attributed their restriction to previous teaching. Furthermore, only 3.3% of surgeons based their guidelines on what they considered to be standard of care. The majority (66.1%) claimed to assess patient compliance at regular postoperative appointments for patients.

Conclusion: Our results confirm presence of a wide range of restrictions imposed postoperatively without much significant variance in activity recommendations among type of surgery. Ideally, these findings could be used to create future protocols for testing efficacy of postoperative restriction, with the goal of improving outcomes after pelvic floor surgery. Future research should also address the lack of evidence behind restricting behavior and actual patient compliance with instructions.

Key Words: Urogynecology, Postoperative instruction, Postoperative activity restriction, Patient compliance

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Non-Oral Poster 50

PREVALENCE OF DEPRESSION IN WOMEN AFFECTED BY INTERSTITIAL CYSTITIS/PAINFUL BLADDER SYNDROME

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Objectives: The purpose of this study was to evaluate the prevalence of depression in patients with interstitial cystitis/painful bladder syndrome (IC/PBS).

Materials and Methods: Female patients from an academic urogynecology practice were identified based on the ICD-9 code (595.1) for IC from January 2009 to June 2010. The Patient Health Questionnaire (PHQ-9), Beck's Depression Inventory II (BDI-II), and O'Leary-Sant questionnaires were mailed to patients along with a cover letter explaining the study and informed consent for participation. Those who did not respond to the initial query received a second mailing.

Results: Of the 138 patients who met the inclusion criteria, 48 (35%) returned all three questionnaires. Mean age was 45 years old (range 19–80), and 89% were Caucasian. All 48 patients (100%) had scores on the O'Leary-Sant consistent with interstitial cystitis. Higher O'Leary-Sant scores were significantly correlated with higher scores on the PHQ-9 ($p=0.05$), suggesting an association between disease severity and worsening overall quality of life. In particular, worse IC symptoms correlated with more severe depressive symptoms ($p=0.028$). A high percentage of patients' scores on the PHQ-9 (81.2%) and BDI-II (68%) suggested a diagnosis of mild depression or worse. When evaluating the O'Leary-Sant responses, 89% of patients described moderate to severe symptoms, and 77.1% described moderate to severe bother. Finally, the PHQ-9 and the BDI-II were also found to significantly correlate with each other ($r=0.781$, $P<0.0001$).

Conclusion: Patients with IC/PBS are more likely than the general public to have symptoms of depression. Additionally, the severity of bladder symptoms is correlated with worsening severity of depression. It is essential to recognize this association so that treating physicians may screen their patients for this important comorbid condition. Future prospective studies looking at the effects of IC/PBS treatment on the patient's depressive symptoms and overall quality of life would be beneficial.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS
Rachel N. Pauls: Consultant fee, Researcher, clinical trial support Scientific Advisory Board, stock options

Key Words: Depression, Interstitial Cystitis, Painful Bladder Syndrome

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Non-Oral Poster 51

RISK FACTORS FOR BLOOD TRANSFUSION IN WOMEN UNDERGOING HYSTERECTOMY FOR BENIGN DISEASE

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Objectives: To identify risk factors associated with transfusion in women undergoing hysterectomy for benign disease.

Materials and Methods: We conducted a retrospective chart review of women undergoing hysterectomy between June 2007 and July 2009. Demographic data, pre- and post-operative hemoglobin (g/dL) values, surgical indication, estimated blood loss (EBL), route of hysterectomy, uterine weight, and peri-operative complications were recorded from a departmental surgical database and electronic medical records. A logistic regression analysis was performed to identify independent risk factors for intra- and post-operative blood transfusion.

Results: A total of 377 women were included. The overall rate of transfusion was 6.6%. On univariate analysis, the transfusion group had a significantly lower mean age (41.7 vs 44.8, $p=0.03$), lower pre- (9.28 vs 12.1, $p<0.00$) and post-operative hemoglobin value (7.1 vs 10.2, $p<0.001$), higher EBL (870mL vs 289mL, $p<0.001$), and higher mean uterine weight (830g vs 421g, $p=0.0005$). Logistic regression identified only pre-operative hemoglobin (OR 3.0, 95% CI 1.9, 4.6, $p<0.001$) and EBL (OR 1.004, 95% CI 1.002, 1.005, $p<0.001$) as significant risk factors for transfusion. Route of hysterectomy revealed a trend towards a significantly lower rate in the robotic (0/41) compared to open (19/185), vaginal (2/69), and laparoscopic groups (4/47), $p=0.07$.

Conclusion: In women undergoing hysterectomy, pre-operative anemia is the dominant risk factor for transfusion.

Key Words: hysterectomy, risk factors, complications, transfusion, anemia, route of hysterectomy

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Non-Oral Poster 52

EVALUATION OF BLOOD PRESSURE CHANGES AFTER GYNECOLOGIC SURGERY

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Objectives: To describe postoperative changes in blood pressure and the incidence of asymptomatic hypotension in women undergoing scheduled benign gynecologic surgery requiring inpatient postoperative care.

Materials and Methods: We performed a retrospective chart review of all women undergoing benign gynecologic surgery requiring postoperative inpatient care between January 1, 2007 and December 31, 2007 at the University of Rochester Medical Center. Perioperative data including intraoperative and postoperative vital signs, medications, and postoperative complications were collected. Descriptive statistics and multivariate regression analysis were performed using STATA

Results: Asymptomatic hypotension was identified in 104 subjects for an incidence of 21.3%. The incidence in non-elderly women (less than 65 years of age) was 22.8% compared to 17.7% in elderly women ($p=0.1$). In univariate analysis, asymptomatic hypotension was not associated with age,

length of surgery, or type of anesthesia received. It also was not associated with common postoperative complications including low urine output, fever, altered mental status or hypoxemia

Conclusion: Asymptomatic hypotension is a common occurrence in women following gynecologic surgery for benign indications. It is not more common in elderly women compared to non-elderly women and is not associated with common postoperative complications. Asymptomatic hypotension may be part of a trend that occurs in blood pressures after surgery.

Key Words: Post-operative Complications, Physiology, Hypotension

Non-Oral Poster 53
MEDICATION EFFECTS ON URETHRAL CURRENT PERCEPTION THRESHOLDS AND PRESSURE FLOW PARAMETERS

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Objectives: To characterize urethral function before and after two weeks of medication, quantifying afferent sensation and pressure flow parameters.

Materials and Methods: Following IRB approval, premenopausal women without lower urinary tract symptoms (LUTS) underwent baseline current perception threshold (CPT) and pressure flow study (PFS) testing. Patients were randomly assigned to take one of six medications for two weeks (pseudoephedrine, imipramine, cyclobenzaprine, tamsulosin, solifenacin or placebo), then repeat testing. CPTs were determined at three frequencies: 2000 Hz (A-beta fibers), 250 Hz (A-delta fibers) and 5 Hz (C fibers). Standardized PFS parameters were obtained. Due to non-normal distributions and small sample sizes; nonparametric tests were used and data, including pre-post differences, are presented as median (IQR).

Results: 56 women had baseline testing; 49 (87.5%) completed follow-up testing. Demographics showed no significant differences between medication groups with respect to age, BMI, parity, race, prior hysterectomy or smoking. Select patient variables are shown in Table 1. Median baseline CPTs were not significantly different across medication groups, and the placebo group showed no pre-post changes in CPT values ($p>0.05$). Significantly improved urethral sensation was observed following treatment with pseudoephedrine (0.15 to 0.09 mA at 5 Hz). No other significant differences in pre-post CPT values were seen with other medications or placebo. There were no significant differences within medication groups with respect to the following PFS parameters: maximum flow rate, mean flow rate, time to peak flow and detrusor pressure at peak flow.

Conclusion: Pseudoephedrine improves urethral sensation in asymptomatic controls. This improvement in urethral afferent innervation may explain the clinical finding of urinary retention associated with alpha agonists in normal women. These findings and further studies may help to clarify the role of the urethra in the etiology and potential treatment of lower urinary tract dysfunction.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS
Patricia Goode: Investigator, Research Grant
Kimberly Kenton: Proctor/Consultant,Honorarium
Holly E. Richter: Consultant Fee/GrantResearch

Key Words: current perception threshold, lower urinary tract function, pressure flow study

Non-Oral Poster 54
THE EFFECT OF UTERINE FIBROID EMBOLIZATION ON LOWER URINARY TRACT SYMPTOMS

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Objectives: To determine the effect of uterine fibroid embolization (UFE) on lower urinary tract symptoms (LUTS) and quality of life (QoL)

Materials and Methods: This prospective study included women with symptomatic fibroid uterus who had LUTS and underwent UFE between 3/2008 and 5/2010. All subjects underwent a pre-procedure pelvic MRI and completed the patient centered goals assessment, Urinary Distress Inventory (UDI-6), Urinary Impact (IIQ-7), PISQ-12, Uterine Fibroid Symptom (UFS-QoL) and standardized 48 hour bladder diary preoperatively and 3 months after the procedure. Patient Global Impression of Improvement (PGI-I) was used to assess patient satisfaction. The primary outcome was the measure of subjective improvement in LUTS at 3 months after intervention as measured by a decrease in the Urinary Distress Inventory (UDI-6). Univariate analysis, paired t-test and a stepwise regression analysis were utilized as required

Results: Forty six patients underwent UFE and completed the 3 months questionnaires. Patients' characteristics are summarized in Table 1. At

TABLE 1

	Pseudoephedrine	Imipramine	Cyclobenzaprine	Tamsulosin	Solifenacin	Placebo	P-value′
2000 Hz							
Pre	2.38 (1.02,7.28)	2.86 (1.12,7.12)	2.22 (0.89,8.85)	4.35 (1.43,8.99)	3.36 (1.72,6.54)	3.55 (1.6,6.47)	0.30
Post	2.16 (1.15,4.36)	2.67 (2.32,9.63)	2.53 (2.08,7.76)	5.66 (2.54,6.71)	2.95 (1.68,4.62)	3.82 (1.8,4.22)	<0.01
Change	0.16 (−1.48,4.64)	−1.94 (−6.61,3.46)	−0.49 (−3.62,2.28)	−0.98 (−3.62,2.28)	0.4 (−2.62,1.92)	−0.08 (−0.6,2.25)	0.29
P-value	1.00	0.29	0.18	0.34	1.00	1.00	
250 Hz							
Pre	0.72 (0.33,1.74)	0.81 (0.12,1.94)	0.83 (0.18,2.1)	1.22 (0.24,3.38)	0.79 (0.31,2.08)	0.9 (0.39,3.23)	0.69
Post	0.79 (0.29,1.26)	1.23 (0.69,2.24)	0.82 (0.32,2.98)	1.43 (0.36,3.37)	0.55 (0.27,1.19)	1.04 (0.32,2.3)	0.09
Change	0.1 (−0.45,0.64)	−0.49 (−1.67, 0.58)	−0.14 (−1.5,1.22)	−0.13 (−1.79,1.63)	0.14 (−0.38,1.44)	0.12 (−0.45,0.93)	0.32
P-value	0.51	0.51	0.51	0.75	0.45	0.63	
5 Hz							
Pre	0.15 (0.03,1.01)	0.15 (0.03,1.29)	0.22 (0.02,0.60)	0.18 (0.1,1.69)	0.28 (0.06,0.47)	0.12 (0.07,0.91)	0.92
Post	0.09 (0.03,0.33)	0.21 (0.02,1.27)	0.17 (0.05,0.41)	0.42 (0.13,1.82)	0.07 (0.06,0.41)	0.12 (0.03,0.86)	0.05
Change	0.06 (0.0,0.68)	−0.12 (−0.40,0.12)	0.0 (−0.16,0.28)	−0.8 (−0.79,0.04)	0.06 (−0.01,0.34)	0.03 (−0.03,0.05)	<0.01
P-value	0.03	0.73	1.00	0.18	0.22	0.63	
Qmax							
Pre	26.4 (15.0,55.0)	24.0 (10.5,48.1)	41.9 (18.5,78.1)	42.9 (12.0,56.5)	31.6 (21.4,77.0)	34.9 (7.2,44.6)	0.25
Post	32.3 (20.0,67.4)	33.4 (15.5,78.1)	42.9 (10.0,78.1)	40.5 (29.6,77.6)	33.9 (20.5,78.1)	25.6 (19.6,34.8)	0.30
Change	−7.3 (−23.8,7.2)	−6.6 (−55.1,8.7)	10.3 (−30.1,31.9)	−5.6 (−45.3,16.5)	5.0 (−24.5,21.4)	10.4 (−27.6,22.8)	0.14
P-value	0.51	0.29	0.51	0.51	0.73	0.63	

Values reported as median (IQR), CPT in milliamps, Qmax in mL/sec. ′Kruskal-Wallis p-values °Wilcoxon sign test p-values

3 months after UFE, patients had a significant decrease in UDI-6, IIQ-7 and fibroid symptoms scores, indicating an improvement in urinary symptoms and QoL (Table 2). Bladder diaries showed a significant reduction in total voids at day and night. No difference was found in incontinence episodes, stress incontinence or urge incontinence scores before and after the procedure. Uterine volume, dominant fibroid size, location or bladder compression did not affect the difference in UDI-6 scores. In a stepwise regression model, BMI had a significant impact on UDI-6 score difference, with a decrease of the difference by 1.18 points for each 1 unit increase in BMI

Conclusion: UFE significantly improves LUTS and urinary related QoL with no effect on incontinence. Obesity seems to attenuate this effect

Key Words: Urinary Incontinence, Uterine Fibroid Embolization, Lower Urinary Tract Symptoms, Urinary Urgency, Body Mass Index

TABLE 1: Patient Characteristics

Mean Age (yr)	44.1
Mean BMI	29.8
Parity (Median (range))	1 (0–5)
Race (%): African American White Hispanic Asian	69.6 21.8 4.3 4.3
Previous myomectomy (%)	23.9
Mean Uterine volume (cm3)	735.1
Mean dominant fibroid volume (cm3)	379.73
Fibroid type (%): Submucosal Intramural Subserosal	4.35 73.91 21.74
Dominant fibroid location (%): Anterior Posterior Lateral	41.9 34.9 23.2
Dominant fibroid location (%): Fundal Corporeal Cervical	34.9 55.8 9.3
Bladder compression (%)	17.8

TABLE 2: Post-procedure subjective change in symptoms

	Preop	Postop	Difference	P-value
Bladder diary: Total voids Voids at	9.07 7.68	6.43 5.89	−2.65 −1.8	<0.0001
daytime Voids at night	1.26	0.61	−0.65	<0.0001
# of accidents	0.50	0.38	−0.122	0.0012 0.57
UDI-6 score	44.70	21.37	−23.33	<0.0001
UDI-6 UUI	0.565	0.413	−0.15	0.13
UDI-6 SUI	0.565	0.500	−0.065	0.55
UDI-6 Incomplete emptying	0.370	0.326	−0.043	0.68
IIQ-7 score	21.42	6.40	−15.02	<0.0001
PISQ	35.15	37.70	2.55	0.0018

Non-Oral Poster 55
VOIDING EFFICIENCY: A NEW METHOD OF ASSESSING BLADDER EMPTYING FUNCTION IN WOMEN

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Objectives: Assessment of bladder emptying is an important component in evaluating the emptying phase function of the lower urinary tract. Traditionally, post-void residual volume (PVR) has been used as one of the key parameters to assess bladder emptying. To our knowledge, it has never been established that an absolute value of PVR is an accurate and consistently reliable measurement of adequate bladder emptying. We define voiding efficiency (VE) as a percentage of volume voided compared to the pre-void bladder volume. The primary aim of this study of normal pre-menopausal women was to determine if voiding efficiency represents a clinically meaningful way of assessing bladder emptying function. Secondly, we evaluated voids during the proliferative and secretory phases of the menstrual cycle to observe differences in VE during these two phases, and to compare VE with the widely used PVR.

Materials and Methods: Premenopausal volunteers were recruited for this prospective cohort study. Included were women between 18–45 years old with no previous anti-incontinence/urinary tract surgery, previous hysterectomy, reported urinary tract infections during the previous 3 months, previously identified abnormalities of the lower urinary tract (e.g., congenital anomalies) and no systemic hormonal birth control. Uninstrumented uroflowmetry studies were performed. During the first visit (proliferative phase), immediately upon completion of a spontaneous void (void I), the participants underwent catheterization to measure the post-void residual urine volume. The catheter was retained in the bladder which was filled with 400mL of normal saline. The catheter was removed, and the subjects were instructed to void for a second time (void II) in the uroflowmeter. The same sequence was repeated at a second visit (secretory phase), which allowed for a total of four voids per subject.

Results: Median VE's for both voids were consistently over 90% (void I = 91.7% and void II = 94.8%). Medians for PVR's were less than 50mL (void I = 35mL and void II = 25mL). When comparing void I in both phases to void II, there was a significant difference in voiding efficiencies (92% versus 95%, respectively, p=0.01). A similar trend was found for the PVR's: a significantly lower PVR was found for void II as compared to void I (40.3mL versus 60.9mL, p=0.03) respectively. Voiding efficiencies by phase of menstrual cycle showed no differences when comparing phases (p=0.57). There were no statistically significant differences in maximal flow rates, average flow rates, time-to-maximal flow, and voiding times when comparing phases and individual voids by sequence (void I to void II).

Conclusion: Our findings have persuaded us that bladder VE is a clinically meaningful method of assessing bladder emptying function. We consider women with a VE of greater than or equal to 90% to be normal. We acknowledge that further studies would be helpful to help us understand how VE can be used to differentiate between normal and non-normal subjects.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS
Hilary J. Cholhan: Speaker, Independent Contractor,Teaching,Honorarium, Speaker, Independent Contractor

Key Words: postoperative voiding trial, voiding dysfunction, urinary retention, bladder emptying

Non-Oral Poster 56
DETERMINING THE HEALTH UTILITY OF URINARY INCONTINENCE IN WOMEN

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Objectives: Health state utility measurements are important in many areas of research and health policy. The current health state utilities available for urinary incontinence have been derived from large scale population based studies without physician confirmation of diagnosis. These studies have also used generic quality of life measures to attempt to quantify a very specific medical condition. The purpose of this study was to compare the health state utility of urinary incontinence in women as derived from the EQ-5D, and visual analog scale (VAS) methods with the gold standard assessment, the Standard Gamble interview.

Materials and Methods: This study was approved by the Partner's Health Care IRB. Patients were approached for study participation after urodynamic testing confirmed a diagnosis of stress or urge urinary incontinence. Subjects completed the Sandvik Severity Index (SSI), EQ-5D and VAS. Subjects then participated in the Standard Gamble conversation.

Results: The mean utility for stress incontinence varied based on method: EQ-5D (0.79 + 0.21), VAS (0.73 + 0.22) and standard gamble (0.96 + 0.06). There was a significant difference between the standard gamble assessment and EQ-5D and between the standard gamble and VAS in women with urodynamically demonstrated stress urinary incontinence (p = 0.050 and p = 0.017, respectively). In the combined group of women with urodynamically proven stress and urge urinary incontinence, there was a significant difference between the standard gamble and the VAS (p = 0.017). In this group, the difference between the standard gamble and EQ-5D approached significance (p = 0.055). Mean Sandvik's Severity scores were similar in women with stress incontinence (7 + 2.6) and in the combined group (8 + 3.1).

Conclusion: This study suggests that existing published literature using EQ-5D and VAS methods to quantify the health state utilities may overestimate the degree of bother when compared to Standard Gamble assessment - which more closely approximates the decision to undergo surgery. This has important implications in future research regarding cost-utility analysis and treatment decisions for patients.

Key Words: Stress urinary incontinence, Health State Utility, Urge urinary incontinence

Non-Oral Poster 57
ONE YEAR OUTCOMES ON VAGINAL MESH WITH SACROSPINOUS LIGAMENT ATTACHMENT THROUGH THE ANTERIOR APPROACH

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Objectives: To assess the subjective and objective 1 year outcomes of vaginal mesh anchored to the sacrospinous ligament through the anterior approach.
Materials and Methods: This was a retrospective cohort of 47 patients who underwent a prolapse repair using the Elevate® (30 patients) synthetic mesh (American Medical System, Minnetonka, MN) or the Pinnacle® (17 patients) synthetic mesh (Boston Scientific, Natick, MA) between January 2009 and September 2009. Outcome measures were collected pre-operatively and 1 year post-operatively. We assessed objective outcomes via the Pelvic Organ Prolapse Quantification system (POP-Q), and subjective outcomes using the short forms of the Pelvic Floor Impact (PFIQ-7) and the Pelvic Floor Distress Inventory (PFDI-20) questionnaires. We defined success as any POP-Q point ≤ -1 in addition to the absence of vaginal bulge symptoms. Operative times, EBL, mesh-related morbidity, and re-operations were collected. Paired comparisons between pre and post-operative outcomes were performed using the Wilcoxon signed rank test.
Results: Forty-three out of 47 patients had complete follow-up with a surgical success rate of 91.4%. We observed one anterior failure at 2 months post-operatively and 4 patients were lost to follow-up which we considered as failures. Patients' mean age was 70 (41–85) and a mean BMI of 27.17 kg/m2 (18.33–37.1). The mean pre-operative POP-Q Points C, Ba, and Bp were −1(−7, +7), +2.4(0, +7), −1.87(−3, +7) respectively. Forty patients had anterior/apical mesh placement with anterior sacrospinous ligament fixation, and 7 had both anterior/apical and posterior/apical mesh placement with anterior and posterior sacrospinous ligament fixation. Estimated blood loss was 120 ml (25–800) and mean hospital stay of 1.1 days (1-2). Thirty seven patients (79%) had a concomitant sling, 3 of which required take down for urinary retention. The 1 mesh erosion (2.3%) was successfully treated with vaginal estrogen. One patient experienced new onset post operative pelvic pain which responded well to physical therapy. While the vast majority of the patients were not sexually active none reported postoperative dyspareunia. Mean Sandvik score improved from 1.9 to 0.8 ($p<.05$). On the surgical satisfaction questionnaire 92% of the patients were "satisfied" or "very satisfied" with the results of their surgery.

We found highly significant differences between pre and post-op POP-Q point C values (median pre procedure = −1.00, vs. −8.00 post procedure, $p<0.001$); worst anterior POP-Q (median pre procedure = 2.40, vs. −3.00 post procedure, $p<0.001$); worst posterior POP-Q (median pre procedure = −1.87, vs. −3.00 post procedure, $p<0.001$); PFDI-20 total score (median pre procedure = 101.1, vs. 18.33 post procedure, $p<0.001$), and PFIQ-7 total score (median pre procedure = 62.5, vs. 7.30 post procedure, $p<0.001$).
Conclusion: Trans-vaginal prolapse repair using a polypropylene mesh anchored to the sacrospinous ligament through the anterior approach resulted in significant improvements of subjective and objective outcome measures with an excellent success rate.

Key Words: Prolapse, Vaginal Mesh, Sacrospinous Ligament Suspension

Non-Oral Poster 58
UTEROSACRAL LIGAMENT SUSPENSION USING DELAYED ABSORBABLE MONOFILAMENT SUTURE

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Objectives: The objective of this study is to investigate suture complications and recurrent apical prolapse using delayed absorbable monofilament suture for uterosacral ligament vaginal vault suspension.
Materials and Methods: We reviewed the medical records of all patients who underwent uterosacral ligament vaginal vault suspension using delayed absorbable monofilament polytrimethylene carbonate suture (Maxon™, Covidien, Mansfield, MA) at our institution from July 2008-September 2009 with greater than 3 months follow-up. Pelvic organ prolapse was quantified using the Pelvic Organ Prolapse Quantification system (POPQ). All subjects underwent multi-channel urodynamics and cystourethroscopy pre-operatively. Bilateral suspension was performed using two No. 0 delayed absorbable monofilament sutures placed in each uterosacral ligament, 1–2 cm above the ischial spines. Concomitant procedures were performed as indicated. Primary outcomes evaluated were suture complications, and subjective and anatomic failure, defined as point C on the pelvic organ prolapse quantification (POP-Q) exam as stage 1 or greater. Descriptive statistics were used for evaluation of discrete variables.
Results: Forty-seven subjects underwent uterosacral ligament suspension with delayed absorbable monofilament suture over the study period and were included in the analysis. Mean age (±SD) at surgery and parity of the subjects were 57 (±7.5) and 3 (range 1–7). Pre-operative mean stage of apical prolapse was 1.4 (±0.7). Twenty-two (65%) had urodynamic stress incontinence and 16 (47%) had detrusor overactivity on pre-operative urodynamic testing. All but one subject (97%) had concomitant total vaginal hysterectomy, and five (15%) had anterior repair augmentation with biologic graft material. None had synthetic mesh augmentation. There were no intra-operative complications in the analyzed group. The mean follow-up time was 12.6 months (median 12, range 4–24). One (3%) subject had incomplete voiding post-operatively, and there was one suture erosion (3%). The exposed suture was braided absorbable suture used for vaginal cuff closure (Polysorb™ Covidien, Mansfield, MA) visible at 1-month post-operative exam. Granulation tissue at 5 months post-operative was treated with silver nitrate, and the suture erosion was completely resolved at the 12 months post-operative visit. Five (15%) reported post-operative prolapse symptoms, but all also had recurrent anterior compartment prolapse (three stage 2 and two stage 3). Mean post-operative apical stage of prolapse was 0.12 (±0.30). There were four anatomic recurrences (11.7%) of apical prolapse, which were all stage 1 and symptomatic. However, these subjects also had stage 2 or 3 anterior compartment prolapse. There were no re-operations for prolapse.
Conclusion: Suture complications and failures (anatomic and symptomatic) are uncommon at 12 months follow-up when using delayed absorbable monofilament suture for uterosacral vaginal vault suspension. Suture erosions are less common than with permanent braided suture, but have comparable success rates.

Key Words: uterosacral ligament suspension, vaginal cuff suspension, delayed absorbable suture, suture complications

Non-Oral Poster 59
CHOOSING THE BEST SURGICAL REPAIR FOR SYMPTOMATIC PROLAPSE FOR ELDERLY, NON-SEXUALLY ACTIVE WOMEN

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Objectives: To report on perioperative outcomes in non-sexually active women age 70 years or greater, who underwent surgery for pelvic organ prolapse.
Materials and Methods: This is an IRB-approved retrospective cohort study of consecutive non-sexually active patients 70 years and older who underwent surgical prolapse repair (colpocleisis, sacral colpopexy, or vaginal mesh procedure) at Mount Auburn Hospital from January 2007 through June 2010. Only patients with at least four weeks of postoperative follow up were included in the analysis. Demographic information, preoperative assessments, and postoperative complications were extracted from medical records. In addition, postoperative POP-Q staging and subjective outcome assessments were collected. Data are reported as proportions, means (±SD). Independent t-test, Chi-square and Fisher's exact tests were used as appropriate.
Results: Sixty-two women were included. The mean age was 78.3. Prolapse stage was as follows: stage 3/4 (69%), stage 2 (31%). Thirty-two (45.7%) underwent an obliterative procedure, 9 (12.9%) a laparoscopic sacral colpopexy, and 21 (30.0%) a vaginal mesh procedure. There were no differences between the groups with respect to BMI, parity, and use of hormone replacement therapy or pre-operative vaginal estrogen. Women in the obliterative group were significantly older (81.4 years ±5.6 vs. 75.5 years ±3.9; $P<0.0001$) and had a higher pre-operative POP-Q stage (3.0 ±0.6 vs. 2.6 ±0.6; $P=0.04$) than those in the reconstructive group.

Mean follow-up time for the cohort was 9.8 ±8.2 months and was similar for the three groups ($P=0.08$). Local post-operative estrogen use was

significantly higher with reconstructive procedures (74.1% vs. 41.4%; P=0.01). Thirty-eight women (61%) had post-operative POP-Q assessment. Recurrent prolapse (POP-Q stage II or greater) occurred in 1 woman (9.1%) in the obliterative group and 7 women (25.9%) in the reconstructive group. No women underwent re-operation for prolapse.

The difference in the estimated blood loss and operative times was not significant between the obliterative and reconstructive groups, 72±52 mL vs. 249±55.7 mL (P=0.93), and 122.9 +/−33.2 vs. 130.5 +/−62.8 min (P= 0.57), respectively.

There was no statistically statistical significant difference in rate of post-operative complications, including stress incontinence (P=0.41), overactive bladder (P=0.16), urinary retention (P=0.4135), and pain (P=0.21), between the obliterative procedure group compared with the reconstructive group. Five women in the vaginal mesh group underwent reoperation for mesh exposure.

Conclusion: Women over 70 tolerate prolapse surgery with low rates of intra and postoperative morbidity. Women > 70 who undergo obliterative procedures are less likely to have prolapse recurrence or re-operation for complications related to their initial procedure than those undergoing vaginal mesh procedures.

Key Words: pelvic organ prolapse, laparoscopic surgery, surgical outcomes, vaginal reconstructive surgery, vaginal mesh, obliterative surgery

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS
Michele R. Hacker: Member, Data Monitoring Committee, Consulting Fee

Non-Oral Poster 60
VALIDATION OF THE SURGICAL PAIN SCALES IN WOMEN UNDERGOING PELVIC RECONSTRUCTIVE SURGERY

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Objectives: The Surgical Pain Scales (SPS) consist of 4 individual items that measure average pain in the last 24 hours at rest, during normal activities, and during work or exercise as well as a rating of the intensity of one's worse pain. (1) The reliability, validity and responsiveness of the SPS was demonstrated in men undergoing hernia repair (1). The objective of this study is to evaluate the psychometric properties of a modified version of the SPS in women undergoing vaginal surgery for pelvic organ prolapse (POP) and stress urinary incontinence (SUI).

Materials and Methods: We modified the SPS by converting the original response scales from visual analog scales (VAS 150mm) to a Numerical Rating Scale (NRS) (0 to 10). The NRS has lower error rates and higher face, convergent, divergent and criterion validity than VAS, particularly in elderly patients.(2) The study sample included 169 women enrolled in OPTIMAL, a randomized trial comparing sacrospinous ligament fixation to uterosacral vault suspension with and without perioperative pelvic floor muscle training in women with Stage 2-4 POP and SUI. Participants completed the SPS and SF-36 at baseline, 2 weeks and 6 months after surgery. At 2 weeks and 6 months, subjects were also asked to rate their average pain during normal activities compared to before surgery on a 5-point Likert scale (from "much better" to "much worse"). Construct validity and responsiveness were examined in statistical analyses of cross-sectional and longitudinal data using Pearson's correlation coefficient and ANOVA.

Results: 155 of 169 subjects (92%) completed both the SPS and SF-36 at baseline and 2 weeks and 145 (87%) completed both questionnaires at 6 months. Pain at rest, during normal activities and during work/exercise significantly worsened 2 weeks after surgery ($p<.05$ for each) and all 4 measures of pain demonstrated significant improvement from baseline at 6 months ($p<.0001$ for all). Convergent validity was demonstrated by a correlation of .51 to .74 between the SPS and SF-36 Bodily Pain Scale ($p<.0001$ for all time points), while divergent validity was shown with low correlations between SPS and other SF-36 subscales. The SPS was responsive to changes from baseline to 2 weeks in patient reports of pain during normal activities and in the SF-36 Bodily Pain Scale, with significant differences among subjects with improvement, no change and worsening ($p<0.003$ for both anchors). The effect size for the change in SPS was .84 and .99, respectively, for those who reported worsening pain in the two anchors. Similarly, the SPS was responsive to changes from 2 weeks to 6 months on the SF-36 Bodily Pain Scale ($p =.0003$).

Conclusion: The modified SPS are valid and responsive scales that can be used to evaluate various aspects of pain in women after pelvic reconstructive surgery.

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Key Words: Pelvic Organ Prolapse, Outcome Measures, Questionnaire, Postoperative Pain

Non-Oral Poster 61
THE USE OF PROPHYLACTIC ANTIBIOTICS FOR PROLONGED TRANSURETHRAL CATHETERIZATION AFTER MIDURETHRAL SLINGS

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Objectives: The purpose of this study is to determine if giving prophylactic antibiotics for 3 days after the foley catheter is removed reduces the rate of UTI in patients who have prolonged transurethral catheters after slings.

Materials and Methods: A retrospective study was conducted at NorthShore University HealthSystem (NorthShore) and Illinois Urogynecology, Ltd. Charts for patients with prolonged transurethral catheterization after midurethral slings from January 1, 2008 to December 31, 2009 were reviewed. All patients who required a transurethral catheter for more than 48 hours but less than 2 weeks were included in the cohort. Patients from NorthShore received 3 days of antibiotics after withdrawing the foley catheter for prophylaxis while patients from Illinois Urogynecology did not receive prophylactic antibiotics during or after withdrawing the foley catheter. Patients who were treated with antibiotics for cystitis, or complications from cystitis, within one month of the index surgery were classified as having a UTI. Urine cultures were obtained if available. Assuming that approximately 20% of patients would have significant bacteruria (>100,000 CFU/mL) after transurethral catheterization, it was determined that 219 patients in each arm was needed to detect a 50% reduction in the rate of symptomatic UTI with an 80% power (alpha=0.05). A Wilcoxon two-sample test was used to assess the between-hospital difference for continuous covariates, and a Chi-square test was used to assess the between-hospital difference for categorical covariates.

Results: Three hundred and seventy eight patients were identified at NorthShore (n=192) and Illinois Urogynecology (n=186). There was no statistical difference in age, BMI, or length of time of transurethral catheterization between the two groups. A comparison of concomitant procedures and UTI rate was performed (see table 1). There was one case of urosepsis in the Illinois Urogynecology cohort, but no difference in the rate of positive urine culture (31 vs 26 patients). The mean time from surgery to collection of urine culture was 15 and 28 days (NorthShore and Illinois Urogynecology, respectively) (p=0.085).

TABLE 1

	Illinois Urogynecology (n=186) N(%)	NorthShore (n=192) N(%)	p value
Anterior repair	68 (35%)	137 (71%)	<0.0001
Posterior repair	95 (51%)	123 (64%)	0.011
Apical repair	100 (53%)	108 (56%)	0.627
TVH	77 (41%)	38 (19%)	<0.0001
TAH or SCH	1 (0.54%)	2 (1.04%)	1.0
Graft	11 (5.91%)	96 (50%)	<0.0001
Retropubic Sling	154 (99%)	126 (68%)	<0.0001
UTI	46 (24%)	41 (21%)	0.436

Conclusion: There was no statistical difference in the rate of UTI (24 vs 21%, p=0.436) or positive urine cultures between the two groups. Despite theone case of urosepsis in the no prophylaxis group, there does not appear to be a clear benefit in the practice of giving patients 3 days of prophylactic antibiotics after withdrawing the foley catheter. There was no documented case of allergic reactions or adverse events resulting from antibiotic prophylaxis. The detection of a positive urine culture, however, did appear to occur more immediately after surgery in the NorthShore cohort.

Key Words: UTI, catheter, antibiotics, prophylaxis, transurethral, foley

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Non-Oral Poster 62
THE EFFECT OF SCOPOLAMINE PATCH USE ON POST-OPERATIVE VOIDING FUNCTION AFTER TRANSOBTURATOR SLINGS FOR STRESS URINARY INCONTINENCE

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Objectives: One of the most common post-operative issues after suburethral slings for stress urinary incontinence is urinary retention and incomplete bladder emptying. Scopolamine transdermal patches are frequently prescribed by anesthesiologists to prevent post-operative nausea.

We sought to determine whether the use of perioperative scopolamine transdermal patches for postoperative nausea had an influence on whether patients passed standard voiding trials after transobturator sling procedures.

Materials and Methods: This was a retrospective cohort study of patients who underwent only a TVT-O sling procedure at our institution from February 2009 through August 2010. Patients with any other concomitant or previous vaginal procedures were excluded. We compared all patients who were given scopolamine transdermal patches (2.5 cm^2) (exposed) and a sample of patients who did not (unexposed). All patients underwent a standardized voiding trial before discharge from the hospital. The bladder was filled in a retrograde manner with 300 cc sterile saline and the catheter was removed. Patients were asked to void within 15 minutes and the voided volume measured. Failure was defined as < 200 cc voided. Log binomial regression was used to calculate risk ratios (RR) and 95% confidence intervals (CI).

Results: Ninety-six women were included with a mean age of 52.3 ±10.4 years and a mean BMI of 28.7 ±6.0 kg/m^2. There were 35 (36.5%) patients who used scopolamine and 61 (63.5%) patients who did not. There was no difference between the groups with regards to age, but the exposed women had a slighter higher BMI (30.9 kg/m^2) compared with the unexposed (27.4 kg/m^2; P=0.005). There were no differences in gravidity, parity, menopausal status, or history of vaginal or incontinence surgeries (all P>0.05). The time to complete the TVT-O was shorter in the exposed group (43.8 ±15.0 min vs. 53.7 ±19.0 min; P=0.009). The Babcock technique of sling tensioning described by de Laval was used in all patients. Although not statistically significant, the use of post-operative narcotics was higher among women who received scopolamine (51.4% vs. 38.3%; P=0.21).

Twenty-five (26.0%) women failed the voiding trial before discharge. The incidence of failure was higher, 54.3%, among those who received preoperative scopolamine compared with only 9.8% among those who did not (P<0.0001). Women who used scopolamine were more than five times as likely to fail the voiding trial compared with women who did not use scopolamine (crude RR: 5.5; 95% CI: 2.4-12.5). Adjusting for postoperative use of narcotics strengthened the association (adjusted RR: 6.4; 95% CI: 2.6–15.8); adjustment for BMI or operative time had no appreciable effect on the RR. There were also no difference in sling takedown rates between the two groups.

Conclusion: The use of perioperative scopolamine transdermal patches for control of postoperative nausea was found to negatively impact patients' ability to pass their voiding trial after transobturator suburethral sling procedures.

Key Words: urinary incontinence, TVT-O, voiding trail failure

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS
Michele R. Hacker: Member, Data Monitoring Committee, Consulting Fee
Peter L. Rosenblatt: consulting fee IP license, royalty consultant

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Non-Oral Poster 63
THE AJUST MINIMALLY INVASIVE SLING FOR THE TREATMENT OF URINARY INCONTINENCE IN CONJUNCTION WITH PROLAPSE SURGERY

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Objectives: To evaluate the efficacy and safety of the minimally invasive Ajust® sling (CR Bard, Covington, GA) for the treatment of stress urinary incontinence in patients with low valsalva leak points and voiding dysfunction with concurrent prolapse surgery.

Materials and Methods: This was an IRB approved prospective cohort study of patients with stress urinary incontinence who underwent a single incision Ajust® sling at the time of their surgical prolapse repair. Patients were included if they demonstrated low valsalva leak pressures and voiding dysfunction on their preoperative urodynamics. Outcome measures were collected pre-operatively and 6 months post-operatively for all patients. We assessed objective outcomes via a standing cough stress test, and subjective outcomes using the Sandvik severity score, the short forms of the Pelvic Floor Impact Questionnaire (PFIQ-7) and the Pelvic Floor Distress Inventory (PFDI-20). Operative times, EBL, mesh-related morbidity, surgical satisfaction, and re-operations were collected. Paired comparisons between pre and post-operative outcomes were performed using the Wilcoxon signed rank test.

Results: A total of 33 patients with mean age of 66 years (46–91) and parity of 3 (1–7) were enrolled. The mean Pre-operative valsalva leak point and maximum detrusor pressure during the voiding study, were 58.9 cmH2O (34–92) and 14.8 cmH2O (2-20), respectively. Of the patients, 13 (39%) had stage 2, 13 (39%) had stage 3, and 7 (21%) had stage 4 prolapse as defined by Pelvic Organ Prolapse Quantification (POPQ). Eleven had robotic assisted supracervical hysterectomy and sacral colpopexy, 2 had robotic sacrocolpopexy, 10 with apical/anterior vaginal mesh, 2 with apical/posterior vaginal mesh, 2 with apical/anterior and posterior vaginal mesh, 3 Leforte colpocleisis, and 3 vaginal hysterectomies with uterosacral vault suspension. Estimated blood loss was 100 ml (50–220) and mean hospital stay of 1.1 days (1–2).

All subjects were available for their 6 month analysis. All but one patient (97%) had a negative standing stress test. The mean post-void residual improved from 150 ml (80-600) pre-operatively to 28 ml (5–120) post-operatively. The PFDI-20 and PFIQ-7 scores significantly improved from 89.3 and 70.4 to 18.5 and 12.0, respectively (p<0.001). A similar improvement was seen in the urinary subsets UDI-6 and IIQ-7 (50.9 and 32.2 to 3.9 and 5.6, respectively, p<0.001). At 6-months, the Sandvick score was 0.9 (0–10) with 28/33 patients (85%) being 0 or 1 and all of the patients were "satisfied' or "very satisfied" as indicated by their surgery satisfaction questionnaire. There was one sling revision 10 days after the surgery for urinary retention. No erosions from the sling were noted and none of the participants had recurrent prolapse during the study period.

Conclusion: Our 6 months clinical results suggest that the Ajust sling is safe and effective for the treatment of stress urinary incontinence in patients with low valsalva leak points and voiding dysfunction with concurrent prolapse surgery.

Key Words: Voiding Dysfunction, Ajust, Urinary Incontinence

Non-Oral Poster 64
URODYNAMIC FINDINGS IN PATIENTS WITH SYMPTOMATIC TARLOV CYSTS

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Objectives: Tarlov cysts are typically asymptomatic lesions of the sacral nerve roots. Symptomatic cysts can cause pain, loss of sensation and changes in bladder and bowel function. The purpose of this study was asses whether removal of cysts in women with stress and urge incontinence improves their symptoms.

Materials and Methods: This retrospective chart review compared preoperative and post-operative standard multichannel cystometrics findings of 5 patients who underwent resection of a symptomatic Tarlov cyst.

MR/CT was used to diagnose the cysts. Patients underwent laminectomy with resection, marsupialization or fenestration of cyst with placement of fibrin glue. Patients were followed 1–31 months post-operatively.
Results: Majority of cysts had S2 involvement. All patients reported stress and urge incontinence prior to surgery. After pre-operative urodynamic testing, 64% demonstrated urethral instability and 57% demonstrated detrusor instability. Urethral instability improved in 4 out of 5 patients with pre-operative urethral instability. Post-operative urodynamics did not show consistent improvement in detrusor instability.
Conclusion: Patients with symptomatic Tarlov cysts have urodynamic abnormalities. The patients demonstrated urethral instability, detrusor instability and urge incontinence. After surgical management, urodynamic parameters improved.

Key Words: tarlov cyst, urodynamic testing, symptomatic

Non-Oral Poster 65
MIDURETHRAL SLING REVISION FOR PERSISTENT STRESS URINARY INCONTINENCE

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Objectives: The best treatment options for persistent stress urinary incontinence (SUI) following midurethral sling (MUS) are unknown. We describe techniques, subjective, and objective outcomes for a series of women who underwent MUS revision for persistent SUI.
Materials and Methods: This is a case series of women who underwent MUS revision for persistent SUI with the Division of Urogynecology at our institution. Subjective and objective findings were collected for the following timepoints: at baseline prior to index MUS procedure, postoperative to index surgery, and postoperative to MUS revision. UDI-6 and UIQ-7 scores at baseline and after MUS revision are reported. Intraoperative details on revision techniques were included.
Results: Between 6/2007 and 6/2010 three women (Cases A, B, and C below) underwent MUS revision for persistent SUI. The index surgery for Case A was abdominal sacrocolpopexy and tension free vaginal tape (TVT). This patient had a previous Mersilene® mesh suburethral sling and symptoms of urge predominant mixed urinary incontinence. Cough stress test and urodynamics revealed detrusor overactivity but no SUI. After counseling on risks and benefits of a prophylactic anti-incontinence procedure due to negative objective findings, the patient opted for MUS sling placement. The index surgery for Case B was a TVT with posterior colporrhaphy. Cough stress test and urodynamics revealed SUI with intrinsic sphincter deficiency (ISD). The index surgery for Case C was a TVT. Cough stress test and urodynamics confirmed SUI without ISD.

Postoperatively, all three women reported persistent subjective SUI at the initial visit following the index surgery. In all cases, objective SUI was confirmed on repeat cough stress test and/or urodynamics. All women subsequently underwent MUS revision within 8 weeks of the index surgery (median of 42 days). For Cases A and B, the mesh was plicated in the midline using 2.0 Prolene suture. For Case C, a portion of the mesh was excised in the midline and the remaining mesh edges reapproximated with 3.0 Prolene suture. All women were discharged home the day of surgery and no intraoperative complications occurred.

Case A reported improvement in SUI symptoms but persistent urge incontinence at 5 months post-MUS revision. Her UDI-6 score improved from 79.1 at baseline to 50.0 after revision while her UIQ-7 improved from 76.0 to 33.3. Cases B and C had resolution of SUI symptoms based on subjective report and a negative cough stress test 5 months postoperatively. For Case B, her UDI-6 score improved from 83.3 to 8.3 while her UIQ-7 improved from 85.7 to 0 from baseline to post-MUS revision. For Case C, her UDI-6 score improved from 16.6 to 0 and her UIQ-7 improved from 33.3 to 0 from baseline to post-MUS revision. No mesh or suture erosions were seen at 5 month follow-up in any of the cases.
Conclusion: MUS revision may offer a safe and effective option for management of persistent SUI. Larger studies and longer term follow-up are needed to evaluate the long term efficacy of this procedure.

Key Words: Stress urinary incontinence, Midurethral sling, Revision

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Non-Oral Poster 66
SURGICAL DIMENSIONS AND HISTOLOGY OF THE VESICOCERVICAL SPACE

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Objectives: Anterior colpotomy is an essential step during vaginal hysterectomy requiring dissection through the vesicocervical space to reach the anterior peritoneum. The objectives of this study were to quantify the distance of the dissection plane from the cervicovaginal junction to the anterior peritoneal reflection, examine the distance from this plane to the distal ureters, and describe the histologic characteristics of this space.
Materials and Methods: The space was examined in ten patients who underwent a vaginal hysterectomy and in seven cadaver specimens. Intraoperatively, the midline length from the vaginal incision to the anterior peritoneal reflection was measured on the uterus after removal. Patients without intact uterine specimens and those with malignancy or prior obstetric, gynecologic, or urologic surgery were excluded. Hospital charts were reviewed for patient demographics and operation details, and uterine weight was recorded from pathology reports. Six embalmed cadavers with intact pelvic viscera were dissected and the midline length of the same dissection plane was measured. In three cadavers, the distance from the midline to the medial aspects of the ureters at the levels of the anterior peritoneal reflection and the cervicovaginal junction were recorded. In a 23-year-old nulliparous, unembalmed cadaver, the uterus, cervix, upper vagina and lower urinary tract were removed en-bloc for histological characterization.
Results: The median age of patients undergoing surgery was 51 years (range 36–71). Five were premenopausal, four were postmenopausal not on hormone therapy, and one was postmenopausal on vaginal estrogen therapy. The surgical indications were abnormal uterine bleeding in one patient and prolapse in the remaining nine, with the latter group undergoing concomitant reconstructive procedures. The median uterine specimen weight was 109.3 g (range 38.0 – 252.0), and the median length from cervicovaginal incision to anterior peritoneal reflection was 3.2 cm (range 2.5 – 4.5). In the six cadaver specimens, the median length from cervicovaginal junction to anterior peritoneal reflection was 2.8 cm (range 2.3 – 3.0). The average distance to the ureters from the midline cervix at the level of the anterior peritoneal reflection was 2.4 cm (range 1.8 – 2.9), and 1.3 cm (range 1.0 – 1.6) at the level of the cervicovaginal junction. Histologic evaluation of the space revealed a thin band of fibroadipose tissue containing nerves and vascular channels, with an increased density of neurovascular tissue in the lower lateral aspect of the space at the level of the cervicovaginal junction.
Conclusion: When performing a vaginal hysterectomy, the surgeon can expect an approximate dissection distance of 3 cm from initial incision to the peritoneal reflection for anterior colpotomy. Dissection beyond this distance without imminent colpotomy or lateral dissection in this plane may lead to greater blood loss and increased risk of nerve and lower urinary tract injury.

Key Words: Vaginal hysterectomy, Anterior colpotomy, Anatomy and histology, Vesicocervical space

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Non-Oral Poster 67
VESICO-OBTURATOR FISTULA AND LEFT THIGH MYOSITIS 5 YEARS FOLLOWING OBTAPE® PLACEMENT

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Objectives: We describe a case of vesico-obturator fistula and left thigh myositis presenting 5 years following an ObTape® (Mentor, Santa Barbara, CA) transobturator sling procedure.
Materials and Methods: Since the introduction of the midurethral synthetic polypropylene slings by Ulmsten in 1996, their use for stress urinary incontinence has become more widespread. Complications that can arise from placement of a polypropylene mesh sling have been described. High rates of complications have been reported with the use of the ObTape®, theoretically due to its microporous nature.(1) One complication reported after placement of midurethral slings is a fistula. (2,3,4,5) However, this is the first report of its kind describing a vesico-obturator fistula with associated left thigh myositis diagnosed 5 years after her initial surgery, requiring surgical removal of the mesh.

Results: A 50-year-old female presented with complaints of left thigh pain and edema along with malodorous, bloody vaginal discharge. The patient's history was significant for a total abdominal hysterectomy with transobturator sling in 2005. She underwent revision of vaginal mesh for erosion in 2006 and 2007. Examination in our office noted pain in the left levator ani and obturator muscles, as well as edema and induration of the left thigh. Magnetic resonance imaging (MRI) noted a connection between the vagina and obturator space consistent with a fistulous tract. It also revealed edema of the surrounding obturator and abductor muscles. Surgical exploration revealed a 5 cm segment of inflamed ObTape® mesh that was subsequently removed. There was no evidence of abscess or necrotizing fasciitis. The sinus tract was excised. The patient did well postoperatively with complete resolution of symptoms 3 months postoperatively. Follow up MRI demonstrated interval resolution of the fistula tract and resolving left thigh myositis.

Conclusion: Late post operative complications can occur up to 5 years following ObTape® insertion. Our case demonstrates a need for continued awareness of possible delayed complications related to the microporous polypropylene sling.

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Key Words: fistula, polypropylene mesh, transobturator sling

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS
Carol A. Glowacki: Speaker, Honorarium

Non-Oral Poster 68
INFLAMMATORY MYOFIBROBLASTIC TUMOR OF THE VULVA

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Objectives: Inflammatory myofibroblastic tumors of the vulva have been rarely described and incompletely characterized.

Materials and Methods: In this paper we report a 27 year old female who had noted a bump in her vaginal area that had been increasing in size over a time period of several months, becoming symptomatic causing growing pressure on her bladder. She denied any pain, weight loss, weight gain and had never been sexually active.

Results: Radical hemivulvectomy and removal of this mass was performed, and based on morphology, histology, and immunohistochemistry the final pathology was consistent with a benign inflammatory myofibroblastic tumor of the vulva.

Conclusion: Inflammatory myofibroblastic tumors of the vulva are rare, and diagnosis is by morphology and histology primarily, with immunohistochemistry aiding in confirming the diagnosis.

Key Words: benign inflammatory myofibroblastic tumor, hemivulvectomy, spindle cells, ALK-1 staining

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Non-Oral Poster 69
CLINICAL FINDINGS IN PATIENTS WITH SYMPTOMATIC TARLOV CYSTS

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Objectives: Tarlov cysts or spinal perineurial cysts are typically asymptomatic lesions of the sacral nerve roots. Symptomatic cysts can cause pain, loss of sensation and changes in bladder and bowel function. The purpose of this study was to identify the common neurological and urinary symptoms in patients with symptomatic Tarlov cysts.

Materials and Methods: This retrospective chart review at a single institution identified 25 women with Tarlov cysts from clinical and operative records. MR or CT diagnosed the cysts. One neurologist and urogynecologist evaluated all of the patients.

Results: Urinary frequency, urinary urgency and lower back pain were the most common reported symptoms in women with Tarlov cysts. The average age of the patients was 55 year old with a range between 32–75 years old. The size of the cyst ranged from 1.2–3.9 cm. The most common cyst location was S2. Patients with S2 cysts predominately had bladder complaints, specifically urinary urgency.

Conclusion: Urinary frequency and urgency are important and common symptoms of women with Tarlov cysts.

Key Words: Tarlov cyst, Symptoms, Urinary urgency

Non-Oral Poster 70
EFFECT OF PETROLEUM VAGINAL PACKING ON THE MECHANICAL PROPERTIES OF SUTURE MATERIALS

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Objectives: To test the tensile properties of knotted suture made of three different suture materials and exposed to petroleum gauze. Petroleum soaked vaginal packing is commonly used in conjunction with sutures for wound dressing. Although suture security has been previously investigated, little is known regarding the effect of petroleum packing on the tensile strength of sutures.

Materials and Methods: We tested the tensile strength of United States Pharmacopeia size 0-0 polyglyconate, glycolide/lactide copolymer, and silk with exposure to petroleum packing or saline to determine the relationship packing has on suture viability. Knots were tied randomly by a single surgeon and tensile forces were evaluated via tensiometer with the point of knot failure, which was defined as either untying or breaking of the knot.

Results: A total of 251 knots were tied in 6 total groups based on material and exposure to saline or petroleum gauze. We found petroleum exposure knots failed at a mean of 122.1 Newtons (SD = 19.7), and saline soaked knots failed at 129.9 N (SD = 28.7). In order to determine whether material and/or petroleum application had an effect on tension at failure, we conducted a 3 x 2 factorial ANOVA. We found knots exposed to petroleum failed at a significantly lower tensile strengths than saline soaked knots ($p<0.001$). Among the knot failures, 5 of 251 untied rather than broke, all 5 that untied were polyglyconate sutures that had been exposed to petroleum gauze. A Fisher's exact test revealed that the probability of untying for petroleum soaked knots (4%) was not significantly different from the probability of untying for saline soaked knots (0%), ($p = 0.06$).

Conclusion: Petroleum exposed sutures fail at lower tensions than saline exposed sutures, and among the suture types, silk is weakest. Suture selection in the vagina should be predicated upon the demands of the repair and the surgeon's preference.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS
Marie Fidela R. Paraiso: Advisory Board, Honorarium

Key Words: Suture Techniques, Tensile Strength, Petroleum Gauze

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Non-Oral Poster 71
UTILITY OF MAGNETIC RESONANCE IMAGING AND PRE-OPERATIVE EXAM IN DIAGNOSIS OF ANTERIOR VAGINAL WALL MASSES

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Objectives: Anterior vaginal wall masses occur in 3-4% of women. Due to their rarity, there are no well-defined pathways for diagnosis and

management. The differential diagnosis is broad and physical exam can be nondiscriminatory. While pelvic magnetic resonance imaging (MRI) has emerged as a helpful diagnostic tool, it is limited by cost and availability, and the correlation of MRI with clinical exam has not been evaluated. Our objective is to evaluate the diagnostic accuracy of MRI and pre-operative exam findings in the assessment of anterior vaginal wall masses.

Materials and Methods: We identified patients with potential anterior wall masses using ICD-9 and CPT codes from all patients who presented to an academic urogynecology practice from January 1, 2000, to December 31, 2009. This included 5 urogynecology attendings with referral practices. We abstracted data such as demographics, presenting symptoms, medical history, and pre-operative work-up. We also collected the final pre-operative diagnosis, post-operative diagnosis and pathology reports for those who had surgical intervention.

Results: 247 patients were identified from coding records and, after chart review, 48 patients were included in the final analysis. Mean age and BMI were 38 years and 27.8 respectively. Of the 48 patients, 35 had surgical management of their anterior vaginal wall mass while 13 had expectant management. Of the 35 patients who had surgery, 29 patients (85.3%) had a pre-op pelvic MRI. Of these 29, the MRI diagnosis was accurate in 21 patients compared to the histology report, inconclusive in 4 patients and inaccurate in 4 patients. Of the patients with inaccurate MRI readings (13.8%), two were diagnosed with diverticula on MRI but pre-operative exam, intra-operative findings and histology confirmed the diagnosis as anterior vaginal wall cysts, one patient was read to have a negative MRI, but intra-operatively had an anterior vaginal wall cyst, and the fourth patient had an MRI report of a Bartholin's gland cyst while intraoperative findings were consistent with Skene's gland cyst. Of the 4 patients (13.8 %) who had an inconclusive imaging diagnosis (urethral diverticulum vs. anterior vaginal wall cyst), histologic analysis confirmed that 2 patients had diverticula and 2 patients had vaginal cysts. Histologic diagnosis was available from 23/35 (65.7%) patients who had surgery. Histologic diagnosis was in agreement with MRI diagnosis in 89.5% (17/19) of patients who had MRI, surgery, and histology. The overall working preoperative diagnosis (incorporating physical exam and imaging findings) had a diagnostic accuracy rate of 94.2% compared to the post-operative diagnosis. The positive predictive value of MRI alone in our patient population was 87.5%.

Conclusion: MRI has a high positive predictive value in differentiating between the types of anterior vaginal wall masses. Preoperative physical exam also contributes to this diagnosis, helping prepare for the most appropriate surgery and skill of surgeons.

Key Words: Vaginal Surgery, Anterior Vaginal Wall Mass, Magnetic Resonance Imaging

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Non-Oral Poster 72
RETAINED FOREIGN BODY IN SURGICAL SETTING: A SINGLE CENTER EXPERIENCE

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Objectives: To review risk factors and complications associated with retained foreign bodies in surgical patients.

Materials and Methods: Retrospective review of medical records and litigation claims at Detroit Medical Center between 1998 and 2010. Chi square test and logistic regression were used for analysis.

Results: There were a total of 67 patients who had 70 retained foreign bodies. These included 26 sponges (37.1%), 12 drains and catheters (17.1%), 6 instruments (8.5%), 3 needles (4.2%), 3 packings (4.2%) and 20 miscellaneous (including one resected bowel loop). Median age was 51years (range 1 day – 95 years), median BMI was 31.03 kg/m 2. Abdomen (35.7%) and thorax (12.8%) were the most commonly involved body cavities. Most common reason for search for foreign body was pain (27.5%). Median latency time of detection was 84 days (range 0 days – 14 years). Sponge count was available in 68.9% of the cases. Primary count was incorrect in 30% of the cases where a count was available. The common risk factors identified in the operative cases with retained foreign bodies were torrential bleeding(63.6%), extensive adhesions(36.3%), >1 surgical team(27.2%) and intra-op change of procedure(18%). Of these cases, 34.4% were emergency surgeries. Morbidity rate was 100% as all the patients required reoperation for removal of foreign body. Associated complications included fever, ileus, abscess, wound infection, acute ischemia and delayed recovery. There were no deaths.

Conclusion: Retained surgical foreign body is a persistent medical error with severe complications. The surgeon should be cognizant of this possibility, especially in cases complicated by obesity, emergency situations, bleeding, adhesions and change of surgical teams or procedures.

Key Words: Retained, foreign body, Sponge, instrument

Video Presentation 01
GRACILIS MYOCUTANEOUS VAGINAL GRAFT FOR RECURRENT PELVIC ORGAN PROLAPSE

E. Tunitsky[1], T. M. Muffly[1], A. R. Lucas[2], M. R. Paraiso[1]. *[1]Department of Obstetrics and Gynecology, Cleveland Clinic, Cleveland, OH; [2]Department of Plastic Surgery, Cleveland Clinic, Cleveland, OH*

Objectives: To demonstrate the use of a gracilis myocutaneous flap for the repair of a large anterior vaginal wall defect with insufficient fibromuscular tissue.

Materials and Methods: This video demonstrates techniques for approaching recurrent pelvic organ prolapse with chronic granulation tissue using a gracilis myocutaneous flap for vaginal reconstruction. The principle of a pedicled myocutaneous flap is the rotation of an island of tissue that depends on the underlying muscle for its vascular supply. The gracilis is a long, thin muscle on the medial aspect of the thigh. It can be easily elevated and rotated on its dominant arterial supply to reach the pelvis, making the gracilis an ideal candidate for pelvic reconstruction.

Results: Vaginal reconstruction with a myocutaneous flap is helpful when the indigenous vaginal muscularis and epithelium are fragile or non-existent. Finally a myocutaneous flap can be used when the anticipated defect is too large to be closed primarily.

Conclusion: The key points of this video are that the gracilis muscle flap can be used for vaginal reconstruction due to consistent anatomy with large caliber vessels, convenient graft origin, ease of harvest, and acceptable donor site morbidity.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS
Marie Fidela R. Paraiso: Advisory Board, Honorarium

Key Words: Vaginal prolapse surgery, Myocutaneous flap, Granulation tissue

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Video Presentation 02
LAPROENDOSCOPIC SINGLE SITE SURGERY (LESS) IN GYNECOLOGY

M. A. Bedaiwy, P. F. Escobar. *Obstetrics and Gynecology, Case Western Reserve University, Cleveland, OH*

Objective: to describe LESS technique for salpingectomy, salpingo oophrectomy and infrarenal paraaortic lymph node dissection

Description: LESS surgery was performed using endoeye scope, articulated grasper and multifunctional devices.

Conclusion: LESS surgery is feasible for a wide variety of gynecologic surgeries with variable degrees of complexities

Key Words: single site surgery, salpingectomy, lymphadenectomy

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Video Presentation 03
EXCISION OF A SUBURETHRAL DIVERTICULUM - AN EDUCATIONAL VIDEO

C. R. Rardin, B. B. Washington, N. B. Korbly. *OB/Gyn, Alpert Medical School at Brown University, Providence, RI*

Objective: This video outlines the surgical principles of excision of a symptomatic suburethral diverticulum.

Description: Using both an illustrative model and surgical footage, principles of layered dissection, identification and delineation of the diverticulum, and layered repair with avoidance of overlapping suture lines is demonstrated

Conclusion: Careful and thorough techniques can help to optimize outcomes for patients with symptomatic suburethral diverticula; many of these principles are also applicable to the surgical management of urethrovaginal fistulae as well.

Key Words: Urethral Diverticulum, Surgical Techniques, Double-Balloon Catheter

Video Presentation 04
CAN RADIOLOGICAL STUDIES GUIDE SURGERY FOR RECTAL PROLAPSE AND DEFECATORY DYSFUNCTION?

S. Kasturi[1], P. J. Woodman[1], D. D. Maglinte[2], D. S. Hale[1]. *[1]Division of Female Pelvic Medicine and Reconstructive Surgery, Dept of Gynecology and Obstetrics, Indiana University, Indianapolis, IN; [2]Dept. of Radiology, Indiana University, Indianapolis, IN*

Objective: To understand the pathophysiology and radiological features of rectal prolapse (RP), recto anal intussusception (RI) and defecatory dysfunction using Dynamic Cystocolpo Proctograms (DCP), which in turn can help in planning appropriate surgical intervention.

Description: RP is the circumferential protrusion through the anus, of all layers of the rectal wall. Options for surgical management include perineal procedures and abdominal procedures. Abdominal procedures include suture and mesh rectopexy. Various techniques of mesh rectopexy have been described in the literature. Selection of surgical procedures can be difficult and success of surgery is not related to its complexity. This video demonstrates the various radiological characteristics that can be associated with RP, RI and defecatory dysfunction.

Conclusion: We demonstrate the radiological features of rectal prolapse and defecatory dysfunction. Surgical treatment of rectal prolapse must be individualized. The best surgical option for any patient may depend on other associated pelvic floor defects such as enteroceles.'

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Douglass S. Hale: consultant,honorarium investigator, study cost speaker and teaching honorarium

Key Words: defecatory dysfunction, cystocolpoproctogram, rectal prolapse

Video Presentation 05
LAPAROSCOPIC SACRAL COLPOPEXY WITH VAGINAL MESH ATTACHMENT

R. E. Gutman, P. A. Nosti, A. Sokol, D. D. Marshall, C. B. Iglesia. *Obstetrics and Gynecology, Washington Hospital Center, Washington, DC*

Objective: The goal of this video is to illustrate our technique for laparoscopic sacral colopexy (LSCP) following vaginal hysterectomy.

Description: Steps involved in this process include: (1) dissection of the bladder from the anterior vaginal wall to the urethrovesical junction, (2) dissection of the rectum from the posterior vaginal wall (3) attachment of soft, light-weight, type I polypropylene mesh with gortex CV-2 sutures 1 to 2 cm from the vaginal cuff, (4) copious irrigation and insertion of the mesh into the peritoneal cavity, (5) cuff closure, (6) laparoscopic attachment of the grafts to the sacral promontory and retroperitonealization of the mesh. Short-term follow-up revealed no intraoperative complications, no mesh exposures, and no reoperations.

Conclusion: These methods improve the overall efficiency of LSCP by facilitating vaginal dissection, maximizing graft attachment, and decreasing operative times without increasing mesh exposure risks.

Key Words: vaginal hysterectomy, sacrocolpopexy, robotic sacral colpopexy, laparoscopic sacral colpopexy, vaginal mesh attachment

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Video Presentation 06
ACCESSING THE VESICOVAGINAL SPACE TRANSVAGINALLY FOR OPTIMAL POP MESH PLACEMENT

A. Cassidenti. *Urogynecology, St Josephs Hospital, Orange, CA*

Objective: This video illustrates an easily reproducible technique to perform a full thickness vaginal wall dissection to access the vesicovaginal space transvaginally for optimal placement of pelvic organ prolapse (POP) mesh in order to minimize the risk of mesh erosion, contracture and dyspareunia.

Description: The four layers of the vaginal wall are described and the histology reviewed. The surgeon's thumb and index finger are used to milk the bladder away from the anterior vaginal wall to develop the vesicovaginal space. A Tuohy 18 G epidural needle is used to enter the vesicovaginal space which is then infiltrated with 40 cc of a diluted .25% bupivacaine with epinephrine solution. Gentle knife dissection going layer by layer through the vaginal wall is then performed to achieve a full thickness dissection and entry into the vesicovaginal space. Mesh placement to repair the prolapse is then illustrated.

Conclusion: To minimize the risk of mesh erosion, contracture and dyspareunia from vaginal mesh placement, a full thickness vaginal wall dissection must be performed with the placement of the mesh in the vesicovaginal space as performed in sacrocolpopexy. This video illustrates an easily reproducible technique to perform this dissection.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Andrew Cassidenti: Consulting, speaking, teaching

Key Words: mesh, dyspareunia, mesh exposure, vesicovaginal space, mesh contracture

Video Presentation 07
ANATOMY OF THE RETROPUBIC SPACE AND PARAVAGINAL DEFECT REPAIR

H. Fisher, P. M. Lotze. *Women's Pelvic Health and Continence Center, Texas Womens Hospital, Houston, TX*

Objective: Review the anatomy of the retropubic space and performance of a laparoscopic paravaginal defect repair.

Description: Detailed laparoscopic description of the anatomy of the paravaginal and paravesical spaces including, the ischial spine and sacrospinous ligament. Reviewing the history and performance of a paravaginal defect repair.

Conclusion: The viewer should be able to identify the anatomy pertinent to the performance of a paravaginal defect repair.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS
Peter M. Lotze: Speaker, Honorarium

Key Words: Retropubic space, Paravaginal defect repair, Laparoscopic retropubic anatomy

Videofest 08
DA VINCI ASSISTED LAPAROSCOPIC RADICAL HYSTERECTOMY

C. A. Robinson, E. Greenberg, T. Myers. *OB/GYN, Baystate Medical Center, Tufts School of Medicine, Springfield, MA*

Objective: The objectives of this video are to explain the proper patient positioning, port placement, and surgical steps executed in a da Vinci assisted laparoscopic radical hysterectomy and bilateral pelvic lymphadenectomy. The anatomic landmarks inherent to this surgery are also reviewed, focusing primarily on the avascular planes of the pelvis.

Description: This video uses a combination of live surgical dissection in addition to pelvic atlas diagrams to show the perioperative preparation and surgical anatomy that is encountered when performing a da Vinci assisted laparoscopic radical hysterectomy. This blend of live time video with superimposed anatomic images assists in depicting the location and borders of the avascular spaces of the pelvis in addition to the vasculature and nerves of the pelvic sidewall.

Conclusion: The da Vinci surgical system offers a minimally invasive technique to perform a radical hysterectomy. Proper patient positioning and port placement are essential in a successful and efficient case. Having a sound knowledge of the avascular spaces of the pelvis, and their relationships with each other, is critical when performing gynecologic surgery.

Key Words: Radical hysterectomy, da Vinci surgery, Pelvic anatomy, Pelvic lymphadenectomy

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Elliot Greenberg: Course Director, Honorarium Proctor,

Videofest 09
HYSTEROSCOPIC MYOMECTOMY TECHNIQUE FOR THE LARGE SUBMUCOUS MYOMA

G. J. Raff, B. D. Skinner. *Ob/Gyn, Indiana University School of Medicine, Indianapolis, IN*

Objective: Present a safe and efficient technique for removing large submucous myomas hysteroscopically utilizing bipolar energy.

Description: Our video reviews a technique for hysteroscopic myomecotmy, classification of submucous myomas, complications and means to minimize these risks.
Conclusion: Hysteroscopic myomectomy can be safely and efficiently performed for large submucous myomas utilizing bipolar energy.

Key Words: Hysteroscopy, Myomectomy, Bipolar

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Gregory J. Raff: consultant, Honorarium speaker

Videofest 10
INTROITAL CERCLAGE: A NOVEL TECHNIQUE FOR THE TREATMENT OF SEVERE AND RECURRENT PELVIC ORGAN PROLAPSE

M. Santos[1], S. Kovac[2]. *[1]Urogynecology, Gunn Towbin Center, Fullerton, CA; [2]Urogynecology and Pelvic Reconstructive Surgery, Emory University, Atlanta, GA*
Objective: To describe a novel technique which is a simple, quick, safe and easily reversible novel technique for the treatment of severe and recurrent pelvic organ prolapse in certain populations.
Description: This video describes the current status of the surgical treatment of pelvic organ prolapse as it pertains to the need for continued surgical innovation. Our novel technique is demonstrated with 2 cases, with patients who both suffer from recurrent prolapse and are generally viewed as poor surgical candidates.
Conclusion: The introital cerclage is a simple, quick, safe and easily reversible technique. Utilization of this novel technique may improve outcomes in the treatment of severe and recurrent pelvic organ prolapse in certain populations.

Key Words: pelvic organ prolapse, surgery, cerclage

Videofest 11
PELVIC ORGAN PROLAPSE AND RECTAL PROLAPSE: COMBINED SURGICAL APPROACHES

C. Crisp Harmon[1], A. Pancholy[1], B. R. Davis[2], S. D. Kleeman[1]. *[1]Good Samaritan Hospital, Cincinnati, OH; [2]The Christ Hospital, Cincinnati, OH*
Objective: The purpose of this video is to demonstrate abdominal and perineal techniques for the combined surgical repair of rectal and vaginal prolapse. The etiology, presentation, and initial work up for rectal prolapse are described. Surgical videos, narration, and illustrations provide examples of techniques and factors impacting the surgeon's decision making process.
STUDY DESIGN: IRB waiver was obtained for the production of this video. Operative film was collected and edited for both an abdominal resection rectopexy with sacral colpopexy and a perineal proctectomy with colpocleisis.
Description: Rectal prolapse and pelvic organ prolapse often present concurrently due to similar risk factors. In the case of rectal prolapse, patients typically present with complaints of a rectal mass, fecal incontinence, mucous leakage, or bleeding. Evaluation may include proctosigmoidoscopy, defecography, anal manometry, pudendal nerve latency studies, or colonic transit studies. In this video, two patient cases are presented followed by surgical footage of abdominal resection rectopexy with concomitant sacral colpopexy and perineal proctectomy with concurrent vaginal colpocleisis to demonstrate the techniques for these repairs. Benefits and risks for each procedure.
Conclusion: Vaginal and rectal prolapse commonly coexist and can be treated concomitantly with either a perineal or abdominal approach. Appropriate evaluation and management of these patients is important. A collaborative approach between urogynecologists and colon and rectal surgeons can be effectively accomplished and can lead to an optimal outcome for both conditions.

Key Words: abdominal sacral colpopexy, colpocleisis, rectal prolapse, resection rectopexy, perineal proctectomy, vaginal prolapse

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Videofest 12
ROBOTICALLY ASSISTED PRESACRAL DISSECTION: TIPS FOR SUCCESS

B. A. Suozzi, A. C. Steinberg. *Urogynecology, University of Connecticut: Hartford Hospital, Hartford, CT*
Objective: To demonstrate "tips and tricks" to maximally aid in the dissection of the presacral space during a robotic assisted laparoscopic sacral colpopexy (RALSC).
Description: Sacral colpopexy is an important procedure for the treatment of apical pelvic organ prolapse. This procedure can be performed open and laparoscopically, with or without robotic assistance. RALSC has become popular given its minimally invasive nature, short hospital stay, and the ease of performing the procedure. Videos from archived RALSC were reviewed for easily identifiable anatomy and for good demonstration of proper technique during the presacral dissection. Difficult dissections were also reviewed. A video was then made demonstrating the techniques used for good exposure and safe dissection of both easy and difficult presacral dissections.
Conclusion: Risks during the dissection of the presacral space can be mitigated with simple techniques.

Key Words: sacral colpopexy, robotics, presacral space

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Adam C. Steinberg: consultant, honorarium

Videofest 13
PELVIC SIDEWALL ANATOMY RELEVANT TO THE LAPAROSCOPIC HYSTERECTOMY

H. Fisher, P. M. Lotze. *Women's Pelvic Health and Continence Center, Texas Womens Hospital, Houston, TX*
Objective: To improve understanding of pelvic anatomy during hysterectomy and decrease the incidence of injury.
Description: Pelvic sidewall anatomy is extensively dissected during a laparoscopic hysterectomy. The course of the ureter is followed from the pelvic brim to the insertion into the bladder. Lighted ureteral stents are used as a visual aid to improve understanding of the anatomy without dissection.
Conclusion: Understanding of surgical anatomy significantly decreases risk of injury.

Key Words: Ureter, Pelvic Anatomy, Laparoscopic Hysterectomy, Cardinal ligament

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Peter M. Lotze: Speaker, Honorarium

Videofest 14
TOTAL LAPAROSCOPIC HYSTERECTOMY AND UTEROSACRAL LIGAMENT COLPOPEXY

S. Kasturi, D. S. Hale. *Division of Female Pelvic Medicine and Reconstructive Surgery, Dept of Gynecology and Obstetrics, Indiana University, Indianapolis, IN*
Objective: To demonstrate how to select a candidate for a uterosacral ligament colpopexy and perform a total laparoscopic hysterectomy and uterosacral ligament colpopexy.
Description: Uterosacral ligament vault suspension is not only a technique employed in surgically treating vaginal vault prolapse, but is also recommended as a means of prophylaxis against vault prolapse in patients undergoing hysterectomy. Although there is no agreement in the urogynecologic community as to how to select an ideal candidate for this procedure, when used to treat vaginal prolapse via the vaginal route, it has a success rate of up to 95% at the apex. The vaginal approach however, has the disadvantage of poor visibility and increased risk of injury to the ureters and rectum. This is overcome by the laparoscopic approach.

Although laparoscopic hysterectomies are increasingly being performed for non urogynecologic indications, the benefits of incorporating the uterosacral ligaments into vaginal cuff closure is often times overlooked.
Conclusion: We demonstrate our technique of performing a total laparoscopic hysterectomy and uterosacral ligament colpopexy. We also demonstrate how to appropriately select patients for a uterosacral ligament vault suspension.

Key Words: hysterectomy, Laparoscopy, uterosacral ligament colpopexy

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Douglass S. Hale: consultant, honorarium investigator, study cost speaker and teaching, honorarium

Videofest 15
"MINI-ASC": A LOW-TECH, LOW-COST, HIGHLY SENSIBLE MINIMALLY INVASIVE APPROACH TO SACRAL COLPOPEXY

R. Goldberg, M. Vu, A. Gafni-Kane. *University of Chicago; NorthShore University HealthSystem, Evanston, IL*

Objective: To demonstrate the "Mini ASC" surgical technique, in which a standard Abdominal Sacral Colpopexy (ASC) is performed through a 5cm minilaparotomy, utilizing a 'double ring' self-retaining retractor.

Description: The "Mini ASC" technique represents a low-tech, low-cost, minimally invasive approach to Abdominal Sacral Colpopexy, which we are performing with highly successful results at our center. The operation is performed through a 5cm mini-pfannensteil incision, in comparison to five incisions of varying sizes utilized for the robotic ASC technique; no laparoscopic or robotic instrumentation is required. The surgeon is able to feel and palpate tissues and anatomic structures; quick and efficient placement of suture and mesh is assisted by the full "degrees of freedom" provided by the surgeon's own wrist rather than a robotic surrogate. A self-retaining "double ring" retractor provides excellent exposure of the sacral promontory and relevant anatomy. Operative times range from 60-120 minutes, and nearly all patients are discharged with minimal pain after a one night stay. When compared to robotic-assisted laparoscopic ASC, the Mini-ASC technique utilizes four fewer incisions, avoids trocar and insufflation-related risks, and is performed in a fraction of the operative time and overall cost. Clinical studies, and cost-effective analyses of this minimally invasive approach, are in progress.

Conclusion: Mini-ASC offers a simplified, minimally invasive "hands on" alternative; this video demonstrates the technique and utilization of the self-retaining double-ring retractor. We believe that Mini-ASC will prove to have substantial cost advantages, and improved efficiency, when compared to robotic techniques now being widely disseminated. Outcomes of Mini-ASC appear consistent with those typically seen after 'traditional' ASC, and are currently being evaluated at our urogynecology center.

Key Words: Abdominal sacral colpopexy, Minimally invasive surgery, pelvic organ prolapse surgery

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Roger Goldberg: speaker, advisor, consulting, honoraria

Videofest 16
BASIC GYNECOLOGIC SURGICAL INSTRUMENTS AND TECHNIQUE

S. Balgobin, C. A. Hamid, C. Caudle, M. M. Corton, J. I. Schaffer, C. Y. Wai. *Obstetrics & Gynecology, University of Texas Southwestern Medical Center, Dallas, TX*

Objective: The objective of this video is to describe the principal features and typical uses of four basic and commonly used instruments in gynecologic surgery.

Description: This video focuses on the scalpel, scissors, forceps, and needle driver and is intended for trainees in general gynecology and gynecologic subspecialties. A scripted storyboard was constructed for each surgical instrument based on a number of standard textbooks and surgical technique books. Using a series of illustrations and de-identified video footage from the operating room, cadaver laboratory, and inanimate bench laboratory, the salient features and appropriate handling techniques for each instrument are described and demonstrated.

Conclusion: Review of a brief educational video on basic surgical instruments and technique may enhance resident assimilation to the operating room setting and increase comfort levels. In addition, learning basic principles of instrument use in a non-pressured atmosphere may improve educational efficiency, allowing more focused learning of surgical anatomy, procedures, and intra-operative pathology.

Key Words: Surgical Education, Surgical Technique, Surgical Instruments, Educational Video

Videofest 17
HIDRADENITIS SUPPURATIVA: A FOCUS ON SURGICAL CARE FROM PRESENTATION TO RECOVERY

C. A. Brincat, M. B. Berger, H. K. Haefner. *Obstetrics and Gynecology, University of Michigan, Ann Arbor, MI*

Objective: To present the preoperative, operative and post-operative care of those patients most severely affected with vulvar hidradenitis suppurativa.

Description: Hidradenitis suppurativa is a chronic, follicular occlusive disease. This video discusses the diagnosis, treatment for early disease, and complex care of those most severely affected with hidradenitis suppurativa. These Hurley stage III patients often require radical vulvar resection, skin grafting, and long-term follow-up. At our center, we have treated many of these patients successfully, and our video documents this staged treatment.

Conclusion: Patients with stage III hidradenitis suppurativa can be successfully managed with radical excision and split thickness skin grafts.

Key Words: Hidradenitis suppurativa, Skin graft, Vulvectomy