Oral Presentation 01
UNEXPECTED ABSENCE OF URODYNAMIC STRESS INCONTINENCE IN STRESS-INCONTINENT WOMEN: CLINICAL, DEMOGRAPHIC AND URODYNAMIC CORRELATES

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Objectives: The unexpected absence of a urodynamic stress incontinence (USI) finding in women planning surgery for stress urinary incontinence (SUI) is a challenge to surgeons. We examined the prevalence and clinical and demographic factors associated at baseline (pre-operatively) with the unexpected absence of USI among study participants of two multi-center randomized clinical trials of surgery for treatment of SUI.

Materials and Methods: Women with stress incontinence symptoms and positive stress tests on physical examination enrolled in two separate clinical trials comparing the autologous fascial sling with the Burch suspension (SISTEr trial), and the retropubic mid urethral sling compared to the transobturator mid urethral sling (TOMUS), were evaluated for USI preoperatively. The association of clinical, demographic and urodynamic parameters was examined in women without USI in univariable and multivariable analyses.

Results: Overall, 144 of 1233 women (11.7%) enrolled in the two studies did not show USI. These women had a significantly lower mean volume at maximum cystometric capacity than those with USI (347.5 vs. 395.8 in SISTEr, $p = 0.012$), (315.2 vs. 358.2 in TOMUS, $p = 0.003$), and a lower mean number of daily accidents reported on a three day diary (2.2 vs 2.7 in SISTEr, $p = 0.030$) (1.7 vs 2.7 in TOMUS, $p < 0.001$). Additionally, those without demonstrable USI were more likely to have POPQ stage III/IV (31.7% vs 14.4% in SISTEr, $p = 0.002$), (15.5% vs 6.9% in TOMUS, $p = 0.025$). Severity of SUI as recorded on Urogenital Distress Inventory correlated strongly with the presence of USI in both studies.

Conclusion: We observed that about one of out eight women planning surgery for SUI do not show USI. Severity of stress incontinence and Stage 3/4 pelvic organ prolapse were strongly associated with the unexpected absence of USI. A diminished urodynamic bladder capacity among women who did not display USI may reflect an inability to reach the limits of capacity during urodynamics, at which these women normally leak.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

*. For the UITN: Nothing to disclose
Charles W. Nager: Nothing to disclose

Oral Presentation 02
IS INTRINSIC SPHINCTER DEFICIENCY ASSOCIATED WITH IMPROVEMENTS IN MIXED URINARY INCONTINENCE SYMPTOMS AFTER MIDURETHRAL SLING?

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Objectives: Our objective was to estimate the association between intrinsic sphincter deficiency (ISD) and improvements in mixed urinary incontinence (MUI) symptoms after midurethral sling.

Materials and Methods: We performed a secondary analysis of a retrospective database of 423 women who underwent mid-urethral sling placement between June 2008 and July 2010. Inclusion criteria for this analysis included women with preoperative MUI, defined by an affirmative response to the frequency item (#15) and/or urge incontinence item (#16) on the Pelvic Floor Distress Inventory-20 (PFDI). Demographic and clinical information was abstracted at baseline and at six to twelve months after surgery. Women were categorized into two groups, those with ISD and MUI (ISD-MUI) and those without ISD (non-ISD MUI) at baseline. ISD was defined as a positive abdominal leak point pressure of ≤ 60 cm H2O and/or maximum urethral closure pressure ≤ 20 cm H2O on pre-operative urodynamics. Our primary outcome was postoperative resolution of frequency and urge incontinence as assessed by responses to PFDI items 15 and 16. Our secondary outcome was resolution of stress incontinence as assessed by PFDI item 17. We assessed improvements in symptom severity and life impact using UDI and UIQ. Multiple logistic regression was performed to estimate the association between ISD and complete resolution of frequency and urge incontinence, controlling for potential confounders.

Results: 166 women met inclusion criteria; 17 (10.2%) had ISD-MUI and 149 (89.8%) had non-ISD MUI. Demographic and clinical data (age, parity, race, BMI, co-morbidities, baseline UDI and UIQ scores, duration of incontinence, type of sling, concomitant procedures) did not differ between groups. A higher proportion of women with ISD-MUI had detrusor overactivity on preoperative urodynamics compared to those with non-ISD MUI (58.8% vs. 26.6%, $p = 0.01$). Postoperatively, 58.8% of women with ISD-MUI versus 32.2% of women with non-ISD MUI had complete resolution of both frequency and urge incontinence ($p=0.03$). There was no difference between groups in postoperative resolution of stress incontinence symptoms (86.7% vs. 88.3%, $p=0.69$). Objectively, there was no difference in postoperative negative cough stress test between groups (90.9% vs. 99.1%, $p=0.17$). Within groups, women with and without ISD had significant improvement in UDI and UIQ scores ($p < 0.001$ for both). Between groups, there was no difference in mean improvements in scores of either subscale (UDI delta = 48.6 vs. 43.1 and UIQ delta = 36.4 vs. 32.1 for ISD-MUI versus non-ISD MUI, respectively). On multiple logistic regression, women with ISD MUI had an increased odds of experiencing complete resolution of urge incontinence and urinary frequency compared to women with non-ISD MUI (AOR = 4.33 [95% CI 1.38-13.6]) after adjusting for age, preoperative detrusor overactivity and preoperative anticholinergic use.

Conclusion: Women with MUI have improvements in urinary frequency and urge incontinence after midurethral sling; however, women with preoperative ISD have improved outcomes compared to women without ISD.

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Nadine Kassis: Nothing to disclose
Nicole B. Korbly: Nothing to disclose
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Vivian W. Sung: Nothing to disclose
Blair B. Washington: Nothing to disclose

Oral Presentation 03
A POPULATION-BASED ANALYSIS OF LONG-TERM OUTCOMES AFTER SUI SURGERY: TIME TO REPEAT SURGERY

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Objectives: Limited data exist regarding long-term outcomes after different types of stress urinary incontinence (SUI) surgeries. Thus, our objective was to compare the long-term risk of a repeat SUI procedure between different types of initial SUI surgery and to identify other predictors of time to repeat SUI surgery in a large, population-based cohort.

Materials and Methods: We utilized the 2000-2009 Thomas Reuters Marketscan® Commercial Claims and Encounters database which contains healthcare claims data from employer-based plans. Marketscan® provides detailed enrollment data which enables calculation of person-time contribution and event rates. We evaluated women aged 18 - 64 years, as those 65+ are covered by Medicare and are not uniformly captured by this database. We included women who underwent a SUI procedure based on CPT codes (Sling: 57288; Burch: 51840, 51841, 51851; Collagen: 51715; Kelly: 57220; Needle suspension: 51845, 57289; Laparoscopic SUI: 51990, 51992; TVH + colpo-urethrocystopexy: 58267, 58293). The index SUI surgery was defined as the 1st eligible procedure for which a woman was continuously enrolled for the prior 90 days with no other SUI procedure during that time. We constructed Kaplan-Meier survival curves to estimate cumulative incidence of repeat surgery through 9 years. We used a Cox proportional hazards model to estimate the adjusted hazard ratios (adjHR) and 95% confidence intervals (95%CI) for factors associated with time to recurrent surgery.

Results: Over 10 years, we identified 155,458 eligible women who underwent one or more SUI surgeries with a total of 294,855 person-years of follow-up. At the time of the index surgery, women had a mean age of 48.8 ± 8.6 years with median follow-up of 1.9 years (IQR 0.5, 2.7). Of these index surgeries, 127,848 (82.2%) were slings. The 9-year cumulative incidence of

repeat surgery after any SUI surgery was 14.5% (95% CI: 13.4, 15.5). As expected, collagen injection had the highest 9-year cumulative incidence of repeat surgery (62.6%, 95%CI: 57.2, 68.0) followed by needle suspension (22.2%, 95%CI: 16.5, 27.9); the lowest 9-year cumulative incidences were for Burch (10.8%, 95% CI: 9.3, 12.3) and sling (13.0%, 95%CI: 11.7, 14.3). In the Cox proportional hazards model, the rate of repeat surgery was 23% higher for slings compared to Burch (adjHR=1.23, 95%CI: 1.15, 1.32). The hazard rate for repeat surgery increased by 8% with each decade of age (adjHR=1.08, 95%CI: 1.05, 1.10). Compared to the Northeast, the rate of repeat surgery was significantly higher in the South (adjHR 1.60, 95%CI: 1.47, 1.75) and in the West (adjHR=1.17, 95%CI: 1.05, 1.29) but was similar in the Midwest (adjHR 1.01, 95%CI: 0.92, 1.12).

Conclusion: In this population-based analysis of more than 150,000 SUI surgeries in women aged 18-64 years, Burch procedures had the lowest 9-year cumulative incidence of repeat SUI surgery. We observed significant variability in the time to repeat surgery across geographical regions in the US, even after adjusting for regional differences in age and type of index SUI surgery.

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Oral Presentation 04

RISK FACTORS FOR ILEUS AND BOWEL OBSTRUCTION FOLLOWING BENIGN GYNECOLOGIC SURGERY: A FELLOWS' PELVIC RESEARCH NETWORK STUDY

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Objectives: To determine the timing of and risk factors for the development of ileus and small bowel obstruction after benign gynecologic surgery.

Materials and Methods: This IRB approved, multicenter case-control study included patients that underwent benign gynecologic surgery and subsequently developed an ileus or small bowel obstruction (SBO) between 1/2005 - 6/2010. Ileus and SBO were grouped and defined as any symptoms of nausea, vomiting, abdominal pain, and/or abdominal distention resulting in a prolongation of stay during index hospitalization (≥ 2 days for laparoscopic / vaginal surgery, ≥ 4 days for abdominal surgery), readmission within 1 year, or reoperation. Patients with gynecologic malignancies were excluded. We identified gynecologic surgical cases and controls using ICD-9 and CPT codes. Each case was matched to 2 controls that underwent the same gynecologic surgery closest in time period, but did not develop an ileus/SBO. We reviewed inpatient charts to make sure they met inclusion/exclusion criteria and collected baseline patient characteristics, surgical data, and postoperative management. Diet ordered immediately after surgery was broken down into patients NPO and patients receiving any type of diet. Univariate and multivariate logistic regression analysis and Mantel-Haenszel tests were used to determine factors associated with ileus and SBO.

Results: We identified 144 cases and 288 controls at 7 institutions during the study period. Univariate analysis identified age, higher scores on the Charlson Comorbidity Index (CCI), menopausal status, operative time, midline vertical incision, concomitant bowel surgery, lysis of adhesions (LOA), estimated blood loss, use of hemostatic agents, cystotomy, transfusion, and type of diet ordered immediately after surgery as risk factors for ileus/SBO (all p <.05). When entered into a conditional multivariate logistic regression analysis adjusted for CCI, midline vertical incision, transfusion, cystotomy, concomitant bowel surgery, and LOA, final risk factors for ileus/SBO included: cystotomy (OR = 8.71, 95% CI 1.48-51.47; p = 0.017), concomitant bowel surgery (OR = 4.32, 95% CI 1.18-15.78; p = 0.027), transfusion (OR = 2.93, 95% CI 1.44-5.95; p = 0.003) and LOA (OR = 1.70, 95% CI 1.03-2.83; p = 0.039). Of the case patients, 63% developed ileus/SBO during their index admission, 41% were readmitted, and 13% underwent reoperation. The median interval from surgery to the development of ileus/SBO was 3 days; 2 days during the index admission and 8 days for those readmitted.

Conclusion: Lysis of adhesions, concomitant bowel surgery, and perioperative complications such as blood transfusion and cystotomy were risk factors for the development of ileus/SBO following benign gynecologic surgery. Most cases of ileus/SBO occurred within the first week after surgery and only 13% required surgery. Future prospective trials are needed to evaluate interventions aimed at decreasing postoperative ileus/SBO in high risk patients.

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Oral Presentation 05

ROBOTIC OBJECTIVE STRUCTURED ASSESSMENT OF TECHNICAL SKILLS (ROSATS): MULTICENTER DRY LAB TRAINING PILOT STUDY

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Objectives: To determine if a structured robotic dry lab curriculum for gynecology (GYN) & urology residents improved basic robotic skills.

Materials and Methods: After institution-specific IRB approval or exemption, 167 residents from 8 GYN and/or urology programs enrolled. Prior to randomization, residents underwent standardized,15-minute robotic orientation in the operating room, including a video of 4 dry lab tasks [Manipulation (Manip), Transection (Trans), Knot tying (Knot) & Suturing (Suture)] and specific teaching instructions. Residents then performed each task (maximum time allowed-120 sec). One investigator (MT) rated performance using task-specific checklist and Likert scale (0=incomplete,108=complete). Errors & time to completion were recorded. Objective Structured Assessment of Technical Skills (OSATS) scores (6-30) were calculated for post-testing.

Residents were randomized to one of two intervention groups by site: Unstructured or Structured Practice. The Structured arm received detailed instructions & goal times, while the Unstructured arm was simply told to practice. All residents were to practice 15-min twice/month & record robotic cases during 7-10 month period until retesting. STATA (ver. 11.2) was used to perform T-tests, Pearson's correlation & ANOVA as appropriate.

Results: 88% of 167 residents were GYN. Postgraduate years were: 1(25%), 2(25%), 3(25%), 4(23%), and 5(2%). 68% practiced on daVinci® S & 32% on Si. 44% had experience as a robotic bedside assistant (mean cases=6, range 0-40); only 20% had performed surgery at the console. Over the study period, residents practiced a mean of 4 times (0-15) and were robotic assistant & console surgeon for a mean of 9 (0-40) & 2 (0-30) cases.

99 residents completed pre & post-testing. Time for task completion improved for all tasks: Manip (120±2 vs 114±12, p<.001), Trans (119±4 vs 112±14, p<.001), Knot (114±12 vs 103±22, p<.001), and Suture (101±20 vs 85±23, p<.001). Likert scores improved: Manip (70±21 vs 84±23, p<.001), Trans (62±30 vs 82±30, p<.001), Knot (59±40 vs 74±42, p<.001), and Suture (100±18 vs 104±13, p=.02). Number of errors decreased significantly only for Suture (.29±.5 vs .12±.4, p=.01).

At baseline, the Unstructured group was faster at Knot (113±14 vs 118±7s, p<.001) with less errors (.2±.4 vs .4±.6, p<.001) and had higher Manip scores (70±22 vs 64±18, p=.03). Post-test Manip & Suture scores did not differ amongst groups. The Structured group was faster at Trans (108±20 vs 115±10, p=.01), but slower at Knot (60±47 vs 81±39, p=.01).

27% felt duty hour limitations impacted ability to complete practice sessions. Most common practice barriers were clinical duties (84%) & robot availability (75%). Only 6 reported using the practice instructions to direct their practice, and only 15 participants reported awareness of instructions.

Conclusion: Residents' robotic skills improve after participating in a dry-lab curriculum; however, robotic availability, duty hour restrictions & clinical responsibilities limit practice and curriculum implementation.

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Elizabeth Mueller: PI – research, n/a
Amy Petzel: Nothing to disclose
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Oral Presentation 06
RISK FACTORS FOR SYNTHETIC MESH EXTRUSION FOLLOWING ABDOMINAL SACRAL COLPOPEXY AND VAGINAL MESH PROCEDURES: A FELLOWS' PELVIC RESEARCH NETWORK STUDY

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Objectives: Synthetic mesh is often used in an attempt to increase the success of surgical prolapse repairs. Unfortunately, extrusion remains a troublesome complication unique to mesh. The purpose of this study was to identify risk factors for mesh extrusion in women who underwent surgical prolapse repairs utilizing mesh via abdominal sacral colpopexy (ASC - Open, Laparoscopic, and Robotic) or vaginal mesh procedures (VMP - free mesh and kits).

Materials and Methods: A multicenter, retrospective case-control study of patients who underwent reconstructive pelvic surgery utilizing polypropylene mesh between January of 2006 and December of 2009. Cases were defined as patients who developed mesh extrusion after undergoing ASC or VMP. Controls were defined as patients who did not develop mesh extrusion after undergoing the same surgeries and were matched (3:1) by date of surgery (+/- 12 months) and type of procedure. Cases and controls were excluded if no available preoperative and postoperative follow-up data was available.

A conditional logistic regression model was carried out to assess the possible risk factors associated with mesh extrusion.

Results: During the study period, a total of 398 patients with a mean age of 62 and median BMI of 27.1 were eligible for this study. 84 patients met case study criteria by demonstrating mesh extrusion and 314 patients were matched as controls.

The results were reported Table 1 with adjusted odds ratios (AOR), 95% confidence intervals (CI), and a p value < .05 denoting statistical significance.

Mesh extrusion was associated with concomitant hysterectomy (AOR 5.37, 95% CI = 1.64 - 17.62, p = 0.006). Contrast coding for hysterectomy status further revealed a significant likelihood of mesh extrusion with a concomitant hysterectomy compared to previous hysterectomy (AOR 2.26, 95% CI = 1.06 - 4.81, p = 0.04). Post-menopausal status trended toward a likelihood of mesh extrusion (AOR 2.48, 95% CI = 0.90 - 6.76, p = 0.08). The only variable that decreased the likelihood of mesh extrusion was advancing age (AOR 0.95, 95% CI = 0.92 - 0.99, p = 0.01), although this point estimate is reasonably close to the null of 1.00 and therefore should be interpreted more cautiously.

Race, type of reconstructive pelvic surgery, type of vaginal incision, medical co-morbidities, and smoking were not statistically significant as risk factors for mesh extrusion.

Conclusion: Concomitant hysterectomy was a risk factor for mesh extrusion and post-menopausal status trended towards statistical significance. No other risk factors were associated with mesh extrusion. This information may be helpful during preoperative counseling.

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Husam Abed: Nothing to disclose
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Nazanin Ehsani: Nothing to disclose
Mohamed Ghafar: Nothing to disclose
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Stephanie M. Molden: consulting, teaching, honorarium
Miles Murphy: Consultant & Research Site, Consultation Fee Consultant & Research Site, Consultation Fee
Saya Segal: Nothing to disclose
Jasmine Tan-Kim: Nothing to disclose
William B. Warner: Nothing to disclose

TABLE 1. Conditional Logistic Regression Results for Likelihood of Mesh Extrusion (N = 398)

Age	0.95	0.92–0.99	0.01
Race (reference = non-White)	0.79	0.39–1.61	0.52
Surgical procedure (reference = VMP)	1.60	0.32–8.08	0.57
Estrogen status (reference = pre-menopausal)	0.54	0.15–2.02	0.36
Menopausal Post-menopausal	2.47	0.90–6.67	0.08
Hysterectomy Concomitant surgery	5.37	1.64–17.62	0.006
Previous surgery	2.38	2.86–6.62	0.10
Hysterectomy status with contrast coding for specific comparison of concomitant vs. previous surgery	2.26	1.06–4.81	0.04
Vaginal incision type (reference = horizontal)	0.67	0.17–2.68	0.57
Vertical T-colpotomy	2.32	0.32–16.62	0.40
Comorbidities (reference = none)	1.45	0.83–2.55	0.19
Smoking history (reference = none)	2.01	0.77–5.25	0.16

Oral Presentation 07
POST-OPERATIVE WALKING ENHANCES RECOVERY (POWER): A RANDOMIZED CONTROLLED TRIAL

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Objectives: Early ambulation benefits post-operative patients by reducing DVT/PE, pneumonia, wound complications and overall recovery time. Unlike "vital signs", ambulation is not traditionally quantified, effectively precluding a definition of "adequate" ambulation. This study tests the feasibility of quantifying ambulation and tests the hypothesis that a verbalized ambulation goal improves the number of steps taken by post-operative gynecology patients.

Materials and Methods: Following IRB approval during 1/20/11-6/20/11, this randomized controlled trial (NCT01254851) enrolled women undergoing major gynecologic surgery at a single tertiary hospital who were expected to be hospitalized at least 18 hours and ambulate within 12 hours after surgery. Pre-operatively participants were randomized 1:1 to goal-based ambulation (500 steps per day) or routine post-operative care. Steps were recorded by a pedometer placed after surgery and worn throughout hospitalization. The goal-based group was given frequent encouragement from staff to increase ambulation to 500 steps and had ambulation goal reminder signs placed in their rooms. Participants completed a 12-question survey to describe their perception of post-surgical ambulation barriers. The primary outcome was number of steps taken in the 24 hours prior to discharge. Using

data collected in a pilot study, our sample size was calculated a priori to have 80% power to detect a clinically significant 25% difference in the number of steps using a two tailed .05 alpha level. Data analysis was completed using SPSS (Chicago, IL).

Results: 129 patients were randomized, 68 to routine care and 61 to goal-based ambulation. We did not detect significant group differences in mean age (53 vs. 56 yrs), race, mean BMI (30.6 vs. 30.5), type of surgery performed, pre-operative diagnosis, or length of hospital stay. The distribution of pedometer steps was notably skewed but did not statistically differ by group. For control patients, the median number of steps was 87 (range 0-3576) versus 80 (range 0-2353) for the goal-based patients. Combining both groups into a single post-operative cohort, we detected a clinically and statistically significant difference in the number of steps taken between women who underwent a minimally invasive procedure (median 143, range 0-3576) and those who had an abdominal procedure (median 27, range 0-2275), p = .035. Eight patients in each group took no pedometer recorded steps prior to discharge. Participants reported that catheters (38%), IV poles (27%) and pain (12%) were the most common ambulation barriers.

Conclusion: Our study demonstrates the feasibility of quantifying ambulation in the post-operative, hospitalized setting. Although our technique of goal-based ambulation did not improve the number of steps, we quantified improvements in ambulation for women who have minimally invasive approaches, compared to the abdominal route. Ambulation may improve with limited use of Foley catheters, early transition to oral from IV fluids and adequate pain control. Future studies that further quantify ambulation, reduce barriers and raise awareness of inadequate ambulation prior to hospital discharge are likely to further improve surgical recovery and patient safety.

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Michael Awad: Nothing to disclose
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Colleen Rivard: Nothing to disclose
James Sinacore: Nothing to disclose

Oral Presentation 08

MANAGEMENT OF ILEUS AND BOWEL OBSTRUCTION FOLLOWING BENIGN GYNECOLOGIC SURGERY: A FELLOWS' PELVIC RESEARCH NETWORK STUDY

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Objectives: To describe practice preferences among US academic institutions regarding diagnosis and management of ileus and small bowel obstruction following benign gynecologic surgery.

Materials and Methods: This was an IRB-approved, multi-center retrospective study of patients who underwent benign gynecologic surgery and subsequently developed an ileus or bowel obstruction between 1/2005 to 6/2010. Ileus and bowel obstruction (SBO) cases were grouped together based on similar clinical pictures and were defined as nausea, vomiting, abdominal pain, and/or abdominal distention with a prolongation of stay during index hospitalization (≥ 2 days for laparoscopic/vaginal surgery, ≥ 4 days for open surgery), readmission, or reoperation. Inpatient charts were reviewed for interventions including type of imaging ordered for diagnosis, diet alterations, anti-emetic administration and need for reoperation. Descriptive statistics and bivariate associations are reported regarding the participating institutions' practice preferences for the diagnosis and postoperative management of ileus and SBO.

Results: Seven academic institutions provided information regarding management practices on a total of 144 cases of ileus/SBO. Ninety one cases (63%) developed ileus during their index admission, 59 cases (41%) were readmitted for ileus or SBO, and 18 (13%) were reoperated on for bowel obstruction. The mean number of days to ileus/SBO resolution was 4.04 days (SD±5.0). Abdominal x-ray was the most common form of imaging ordered, with over a third of cases (38%) diagnosed in this manner. In contrast, 26% underwent no imaging and were diagnosed based solely on symptomatology. Thirteen percent underwent computed tomography (CT) only and 21% received both abdominal x-ray and CT. Fifty-four percent of ileus/SBO cases managed conservatively were diagnosed as 'ileus' on imaging, whereas 83% of cases that underwent reoperation for SBO were correctly diagnosed as 'partial SBO' or 'SBO' on imaging. Bivariate analysis between the rate of reoperation and imaging results revealed that patients with a diagnosis of 'SBO' on imaging are statistically more likely to undergo reoperation (42% vs 10%, p=.002). Concurrently, the odds of reoperation decreased by a factor of .15 (85%) for those with imaging results listed as 'ileus' (95% CI 0.04-0.56). Fifty-three percent of subjects received a multi-agent anti-emetic regimen, whereas 17% received no anti-emetics at all. Ondansetron was the most common anti-emetic administered, with 64% of patients receiving at least one dose, followed by 45% receiving promethazine and 36% metoclopramide. There were no significant differences between single or multiple anti-emetics utilized and rate of reoperation (p=0.18), or between diet status, whether NPO (34%) or clear liquids (66%) post-operative day 1, and rate of reoperation (p=0.08).

Conclusion: There are various means used to diagnose and manage ileus/SBO. These data suggest a much higher correlation between radiographic and clinical findings for SBO as opposed to cases of ileus. A multiple-agent versus single-agent anti-emetic regimen and post-operative day 1 diet status do not appear to be correlated to risk of re-operation.

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Aimee Smith: Nothing to disclose

Oral Presentation 09

A PROSPECTIVE RISK MODELING SYSTEM TO PREDICT MORBIDITY AND COST IN PATIENTS WITH ENDOMETRIAL CANCER: SUPERIORITY OF THE MINIMALLY INVASIVE APPROACH

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Objectives: To identify patient (pt) characteristics and peri-op factors predictive of morbidity and cost within 30 days of surgery in pts with endometrial carcinoma (EC).

Materials and Methods: Between 1999 and 2008 a detailed EC database was assembled. Complications were graded based on the Accordion Classification (grades 1-6). 40 predictors were chosen for analysis from over 200 collected based on anticipated clinical relevance and incidence (>5%). Multivariable logistic models were developed using stepwise and backward variable selection methods. Costs were modeled using the generalized linear model (GLM) framework. The modified Park test was used to establish the appropriate family of distribution for the GLM framework while the Pregibon link test was applied to confirm the link function.

Results: 1413 pts underwent surgical treatment for EC and 1358 pts (96%) had sufficient 30-day follow-up. 956 (70%) had absent or grade 1 complications while grade 2 or higher complications occurred in 402 (30%). Two models were developed: 1) Counseling model: non-controllable (ex: BMI) pt risk factors and 2) Global model: both non-controllable pt and peri-op process of care (ex: minimally invasive surgery (MIS)) risk factors. Significant predictors of grade 2 and higher morbidity in the counseling model included Hgb <12 (OR=3.0), BMI (2.8), disease stage (3.4), ASA score (1.9), type of lymphadenectomy (LND) (3.1), platelet count (1.9), age (1.3), history of DVT (2.0), and smoking (2.4) (p<0.01 for each variable). Significant risk factors in the global model included Hgb <12 (OR=3.4), ASA score (1.5), pre-op WBC (2.0), age (1.3), history of DVT (1.9), smoking (2.4), type of LND (2.1), operative time (1.4), operative complexity (3.6), and MIS (5.9) (p<0.01 for each variable).

Health care costs at 30 days were 70% higher for patients who experienced complications compared to patients who did not; these costs increased dramatically according to complication grade. Costs for patients who underwent laparotomy were 25% higher compared to MIS (laparoscopic or robotic). Lastly, patients who underwent pelvic LND only exhibited costs 14% higher and for para-aortic LND 31% higher, compared to patients at low risk who underwent hysterectomy alone. MIS, preoperative white count <11.1, and the use of DVT prophylaxis were controllable variables associated with reduced 30-day costs.

Conclusion: Analysis of this large prospectively collected cohort of pts with EC allowed identification of pt and peri-op process of care predictors of 30-day morbidity and 30-day cost. The model including only pt risk factors is useful for pre-operative risk counseling and of paramount importance in defining equitable reimbursement for management of this disease. The global model confirms patient characteristics that are correlated with post-operative complications, and identifies areas for quality improvement. MIS is associated with significantly lower 30-day morbidity and 30-day costs and should be the standard approach for all appropriate candidates with a diagnosis of EC.

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Jamie Bakkum-Gamez: Nothing to disclose
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Karl Podratz: Nothing to disclose
Amy Weaver: Nothing to disclose

Oral Presentation 10
DOES THE PRESENCE OF ADENOMYOSIS AND LYMPHOVASCULAR SPACE INVASION AFFECT LYMPH NODE STATUS IN PATIENTS WITH ENDOMETRIOID ADENOCARCINOMA OF THE ENDOMETRIUM?

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Objectives: To determine the prevalence of adenomyosis in our study population and to assess its effect on lymph node status in endometrioid adenocarcinoma of the endometrium (EAC).

Materials and Methods: Surgical specimens from patients who underwent total hysterectomy at a single institution between 2000 and 2006 were evaluated. Histologic slides and surgical specimens were reviewed by a single pathologist to determine presence of adenomyosis, lymphovascular space invasion (LVSI), tumor grade, depth of myometrial invasion and lymph node status. Patients with endometrioid EAC and adenomyosis were compared to patients with endometrioid EAC alone using the chi-square test, Fisher's exact test and logistic regression analysis.

Results: 2,346 hysterectomies were performed during the study period. 197 cases of EAC were identified. Adenomyosis was diagnosed in 42% of hysterectomy specimens and 66% of specimens with EAC ($p = 0.009$). The prevalence of adenomyosis was significantly greater in patients with endometrioid EAC as compared to patients with EAC of other histologic subtypes (75% vs. 48%, $p = 0.023$). There was no significant difference in ethnicity, mean age, mean BMI or incidence of hypertension in patients with endometrioid EAC and adenomyosis versus endometrioid EAC alone. In endometrioid EAC patients without adenomyosis, 87.5% of cases with LVSI had lymph node involvement (OR 29.4, $p = 0.001$). In endometrioid EAC patients with adenomyosis, only 60% of cases demonstrating LVSI had lymph node involvement (OR 17.1, $p = 0.008$). When controlling for tumor grade and depth of myometrial invasion, LVSI was independently associated with lymph node metastasis in patients without adenomyosis (OR 58.7, $p = 0.03$), but the relationship was not significant in patients with adenomyosis.

Conclusion: The prevalence of adenomyosis was significantly greater in patients with EAC and more commonly associated with the endometrioid histology compared to the other EAC subtypes. While LVSI has long been established as a risk factor for nodal metastasis in EAC, our findings revealed a lower risk of nodal metastases in patients with adenomyosis and LVSI compared to patients with LVSI alone. Further studies are recommended to investigate the role of adenomyosis in tumor infiltration of the lymphatic circulation.

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Clinicopathologic Characteristics - Univariate Analysis

		Adenomyosis Absent	Adenomyosis Present	P Value
Tumor Grade	1	36.8%	73.5%	
	2	47.4%	19.5%	
	3	15.8%	7.1%	<0.001
Depth of Myometrial Invasion	0	22.5%	42.5%	
	<50%	50.0%	46.0%	
	>50%	25.0%	10.6%	0.044
Positive LVSI		33.3%	8.7%	0.001
Positive LN		22.5%	4.3%	0.002
% of Patients with Positive LVSI who had Positive LN		87.5%	60%	0.008

Adenomyosis and concurrent endometrioid endometrial adenocarcinoma

Oral Presentation 11
COSMETIC VULVAR SURGERY AND PERCEPTION OF VULVAR APPEARANCE

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Objectives: Cosmetic vulvar surgery has been popularized as more women who believe their vulvas to be abnormal seek 'corrective' surgery. The primary aim of this study is to determine if women age 18 to 44 years are less likely to perceive their vulva as normal compared to women age 45 to 72 years. The secondary aim is to determine if age impacts interest in cosmetic vulvar surgery.

Materials and Methods: This IRB approved cross-sectional survey was conducted at Washington Hospital Center, Georgetown University School of Medicine, and a community fair during July - September 2011. Women completed a 24-item survey and were excluded if they had prolapse, identified by question #3 from the PFDI-20. Data were collected on demographics, responses to perceptions about their vulva, grooming patterns, and sources of educational information on vulvar appearance. Participants were asked to identify which vulva appeared "normal" from 4 pairs of photographs. Photographs showed an array of ages, grooming patterns, and skin tone. Based on a sample size calculation, 145 participants were needed in each group.

Results: 516 women were approached; 121 declined, leaving 395 women for a response rate of 77%. 41 women were excluded (15 due to prolapse, 22 not answering prolapse question, 4 not including their age). Participants were grouped in two age categories: Group 1 (n=207) ages 18-44 and Group 2 (n=147) ages 45-72. The mean age (standard deviation) in Group 1 was 30 (±6.2) years and 55 (±6.1) years in Group 2. More women were menopausal in Group 2 versus Group 1 (69% vs. 2.4%, $p<0.01$). A significantly larger percentage in Group 1 worked in health care (93% vs. 69%, $p<0.01$), were single (47% vs. 22%, $p<.01$), and sexually active (84% vs. 70%, $p< 0.01$). There was no statistically significant difference between the groups with respect to ethnicity, education, and sexual preference. There was no difference in how often women looked at their vulva or in the perception that they had a normal vulva (Group 1: 91% vs. Group 2: 93%, $p=0.76$). The two groups were similarly satisfied with the appearance of their vulva (81% vs. 82%, $p=0.71$). A higher percentage of women in Group 2 would consider

cosmetic surgery if cost were not an issue versus Group 1 (15% vs. 8%, p=0.05). There was no difference as to where women learned about vulvar appearance; however in the younger age group, significantly more women use pornography (6.4% vs. 1%, p=0.01) and their friends (12% vs. 4%, p<0.01) as a source of information. The source of information did not have a significant effect on the perception of a normal vulva in either age group.

Conclusion: Women's age does not impact perception of a normal vulva. The majority of women, approximately 90%, perceived their vulva to be normal and were satisfied with their appearance. Despite this, older women are more interested in cosmetic vulvar surgery even though they are less sexually active. Younger women are more likely to use pornography as a source of information on vulvar appearance.

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Amy J. Park: Nothing to disclose
Andrew Sokol: Nothing to disclose
Ladin Yurteri-Kaplan: Nothing to disclose

Oral Presentation 12
GASTROINTESTINAL COMPLICATIONS IN LAPAROSCOPIC SACROCOLPOPEXY

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Objectives: Laparoscopic sacrocolpopexy (LSC) is gaining popularity as an alternative to open abdominal sacrocolpopexy (ASC). The risks of gastrointestinal (GI) complications are well known in ASC, but not as well described for LSC. The objectives of this study were to quantify the risks of intraoperative and postoperative GI complications in LSC and identify possible risk factors.

Materials and Methods: Patients who underwent LSC between January 2006 and August 2010 were identified from billing records and their medical records were retrospectively reviewed for GI complications. GI complications were classified as functional complications (ileus, small bowel obstruction (SBO), prolonged nausea/emesis,) or bowel injury. Nausea/emesis was considered prolonged if these symptoms resulted in a hospital stay greater than 48 hours or in readmission.

Results: Of 405 patients identified, records were available for 390. The mean age was 59 ± 9.5 years and the mean BMI was 26.6 ± 4.4. Of the 390 cases, 71.5% included concurrent hysterectomy. The average hospital stay was 1.7 days (median 2 days). 43.6% were discharged on the first postoperative day and 49.0% on day 2. Seven (1.8%) patients stayed longer than four days. Median follow-up time was 26 weeks (3-210).

Seven patients had functional GI complications including one ileus, three SBOs, and three cases of prolonged nausea/emesis. The combined rate for ileus and SBO was 1.0% (95% CI 0.3%, 2.6%). The patient with an ileus had a prolonged hospital stay of four days. Of the three patients with bowel obstructions, two required readmission for conservative management, one on two occasions, and the third required readmission and reoperation. The rate of prolonged nausea/emesis was 0.8% (95% CI 0.2%, 2.2%). Two patients had a prolonged hospital stay and one was readmitted. None of these had objective evidence of SBO or ileus. Patients with functional GI complications were more likely to have undergone prior abdominal surgery (100% vs. 61.4%, p=0.048). There were no significant differences between the two groups with respect to age, BMI, EBL, or OR time.

There were three small bowel injuries and two rectal injuries for a total bowel injury rate of 1.3% (95% CI 0.4%, 3.0%). One small bowel injury was a trocar enterotomy that was repaired laparoscopically. The other two small bowel injuries were unrecognized and resulted in reoperation (laparotomy) and lengthy hospitalization. One rectal injury occurred during laparoscopic development of the rectovaginal space and was repaired laparoscopically and the other was a rectovaginal fistula presumed to result from an unrecognized rectal injury. Small bowel injury was not associated with prior abdominal surgery (20.0% vs. 62.6%, p=0.071), nor was it associated with age, BMI, EBL, or OR time. The total reoperation rate for SBO or bowel injury was 0.8% (95% CI 0.2%, 2.2%).

Conclusion: The rates of functional GI complications and bowel injury in LSC are low. Prior abdominal surgery was associated with an increased risk of ileus, SBO, or prolonged nausea/emesis, but not bowel injury. No other risk factors for GI complications were identified. This information should assist surgeons with preoperative patient counseling.

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Angela Alonge: Nothing to disclose
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William B. Warner: Nothing to disclose
Jeffrey A. Welgoss: Proctor, Honorarium

Oral Presentation 13
RANDOMIZED TRIAL OF TRANSVERSUS ABDOMINAL PLANE (TAP) BLOCK AT TOTAL LAPAROSCOPIC HYSTERECTOMY: EFFECT OF REGIONAL ANALGESIA ON QUALITY OF RECOVERY

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Objectives: Transversus Abdominal Plane (TAP) block is a technique for achieving single entry point multi-dermatome analgesia by depositing local anesthetic in the plane between the internal oblique and the transverse abdominus muscles, thus interrupting the sensory innervation to the anterior abdominal wall and peritoneum. A significant reduction in narcotic consumption following TAP block in both open and laparoscopic surgery has been shown, but no trials have evaluated the outcomes after laparoscopic hysterectomy (TLH). Our primary objective was to determine if TAP block would improve the early postoperative quality of recovery score (QoR-40). Secondary objectives were to evaluate postoperative pain and narcotic medication use.

Materials and Methods: After obtaining IRB approval, all women undergoing TLH were approached to participate. Exclusions were chronic narcotic pain medication use or allergy to local anesthetic. Randomization was performed on the day of surgery by the research pharmacy and the study drug (40mL of 0.5% Ropivacaine with epinephrine 1:200,000) was dispensed if patient was randomized to TAP Block. Following TLH, while under general anesthesia, the anesthesia pain management team placed the TAP block under ultrasound guidance, 20mL on each side. There was no sham or placebo injection in the control group, and patients were blinded to their treatment group. All patients received Toradol and standard pain management with oral and IV medications.

Outcomes were measured 2 and 24 hours postop. Measurement of postoperative pain and recovery following TLH was performed using validated quality of recovery questionnaires (QoR-40), visual analogue scales (VAS) for pain and recovery, and documented narcotic pain medication use in the EMR and on diary.

Results: 58 women were enrolled between April and September 2011. There were no differences in baseline demographics of age, race, BMI, insurance status, or indication diagnoses between randomization groups. Comparisons of pain and recovery between the 2 groups also showed no differences. Review of postoperative pain medication use showed no decrease in narcotic use among those who received the TAP Block. (Table 1).

Postoperative Outcomes

	TAP Block	No Block	*p-value
QoR-40 score (40–200)	165.5	168.5	0.53
2hr VAS pain score (0–10)	5.0	5.8	0.35
24hr VAS pain score (0–10)	5.2	5.2	0.97
POD#0 Narcotic use (Morphine mg)	11.7	12.1	0.83
POD#1 Narcotic use (Morphine mg)	10.8	8.0	0.13

*p-value by student's t-test <0.05 significant, QoR-40 = Quality of Recovery 40 item questionnaire, VAS=Visual Analogue Scale, all oral and IV narcotics converted to mg of Morphine.

Conclusion: TAP Block does not improve postoperative QoR-40 scores or VAS pain scores following laparoscopic hysterectomy, nor does it decrease the need for narcotic pain medications following this procedure. Continued efforts can be made to improve outcomes and decrease pain following laparoscopic hysterectomy.

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Sarah Kane: Nothing to disclose
Robert Pollard: Nothing to disclose

Oral Presentation 14

PERIOPERATIVE COMPLICATIONS IN ELDERLY WOMEN: ROBOTIC VERSUS VAGINAL UROGYNECOLOGIC SURGERY

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Objectives: Surgeons may choose vaginal surgery for apical prolapse repair in older women with greater preoperative risk factors, and reserve more invasive abdominal surgery for younger, healthier women. The primary objective was to compare perioperative complications after robotic versus vaginal reconstruction surgery in elderly women. Our secondary objectives were (1) to assess whether tools designed to predict surgical morbidity, the American Society of Anesthesiologists (ASA) class and the Charlson Comorbidity Index (CCI), are useful in the elderly urogynecologic population and (2) to classify complications during urogynecologic apical procedures using the Dindo classification system.

Materials and Methods: Medical records of women 65 years and older who underwent robotic or vaginal urogynecologic surgery from March 2006 through April 2011 were reviewed. Procedures included robotic sacrocolpopexy and cervicocolpopexy, vaginal uterosacral ligament suspension, sacrospinous ligament suspension, colpocleisis, and Uphold™ vaginal mesh placement. Preoperative risk was assessed using ASA and CCI classification. Complications were classified with Dindo classification.

Results: 136 elderly women underwent apical support procedures during the 5 year study period. There were 70 robotic and 66 vaginal procedures. Women who underwent robotic surgery were younger (70 vs. 74, p<0.001), with similar race and BMI (27 vs. 26, p=0.056). More women had at least stage 2 apical prolapse in the robotic group (56% vs. 29%, p=0.002). The vaginal group had more severe comorbidities as measured by CCI (p=0.012) but similar ASA profiles (p=0.376). The robotic group had longer anesthesia time (237 vs. 168 minutes, p<0.001) and surgery time (201 vs. 139 minutes, p<0.001). Estimated blood loss was greater in the vaginal group (172mL vs. 91mL, p<0.001), but the decrease in hematocrit was similar (-6.3% vs. -6.8%, p=0.338). While rates of intraoperative complications were similar between groups (11.5% vs. 4.5%, p=0.194), postoperative complications were fewer in the robotic group (20.9% vs. 43.9%, p=0.005), specifically less urinary tract infections (6.0% vs. 18.2%, p=0.030) and blood transfusions (0 vs. 15.2%, p=0.001). Complication severity based on Dindo classification was similar between groups with most complications classified as 0 (38.1% vs. 28.4%, p=0.067). ASA was significantly correlated with the Dindo classification (r=0.630, p=0.043), while CCI was not (r=0.557, p=0.279).

Conclusion: We demonstrated a surgeon bias for performing vaginal reconstruction in women with greater preoperative morbidity as measured by the CCI. However, robotic surgery was associated with fewer postoperative complications despite longer surgical times and similar intraoperative complications. Thus, robotic surgery may be a good alternative to vaginal apical surgery for elderly women with greater preoperative morbidity. The ASA was a good predictor of postoperative complications as measured by the Dindo system, however the CCI was not. In general, urogynecologic apical support procedures were associated with few complications based on Dindo classification and either route can be considered reasonable.

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AnnaMarie Connolly: Nothing to disclose
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Brent A. Parnell: Nothing to disclose
Barbara L. Robinson: Nothing to disclose
Jennifer Sandbulte: Nothing to disclose

Oral Presentation 15

WHAT DO PATIENTS RECALL FOLLOWING SURGICAL CONSENT FOR MIDURETHRAL SLING (MUS) USING MESH 6 WEEKS POSTOPERATIVELY?

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Objectives: 1) To determine specific risks, benefits, alternatives, and general procedural items that patients recall 6 weeks following MUS surgery when compared to what they recall immediately following surgical consent. 2) To determine if patient recall influenced surgical decision regret.

Materials and Methods: Surgical consent sessions of women undergoing MUS surgery were audio-recorded. Women completed immediate post-consent and 6-week postoperative 18-item surgical checklists of risks, benefits, alternatives, and general procedural items of MUS surgery. In addition, women completed the Urinary Distress Inventory 6 (UDI-6), and the Decision Regret Scale-Pelvic Floor Disorders. Audio files of risks, benefits, and alternatives actually discussed were compared to patient recall for the 18-item surgical checklist immediately after surgical consent and at 6 weeks postoperatively. Percent recall was based on actual information shared with patients during consent. Recall of specific risks, benefits, and alternatives were correlated with the validated Decision Regret Scale scores. Significance was set at p<.05.

Results: Eighty-two women with a mean age of 52.5 ± 10.9 years were consented for MUS and completed the 18-item checklist. 71/82 (87%) subjects underwent MUS and 63/71 (89%) completed 6-week questionnaires. The sample was predominantly White (87%), non-Hispanic (76%), and were highly educated (68% ≥ Associate's degree). Mean UDI-6 scores for those who underwent surgery improved from 51.5 ± 20.7 to 20.3 ± 20.0 (p<.001). Six week recall of surgical risks deteriorated when compared to immediate recall documented on audio files, while recall of benefits, alternatives, and procedural items did not change. At the time of surgical consent, women had 89% correct recall of surgical risks compared to 72% at 6 weeks postoperatively (p<.001). Specific recall regarding risks of mesh placement declined. At surgical consent, 98% of women correctly recalled that mesh would be placed during surgery vs 84% at 6 weeks postoperatively (p=.01). Recall of the risk of mesh erosion declined at 6 weeks postoperatively, 86% of women recalled the risk of mesh erosion at surgical consent vs 64% at 6 weeks postoperatively (p<.001). Women accurately recalled surgical benefits (97% correct recall at time of surgical consent vs 100% correct recall at 6 weeks, p =.33), alternatives (73% at surgical consent vs 67% at 6 weeks, p=.15), and specific procedural items over time (88% at surgical consent versus 83% at 6 weeks, p=.09). Overall, Decision Regret scores were low, indicating low regret with MUS surgery (mean score 1.1 ± 0.3; scale from 1-5). However, decision regret was correlated with poorer recall of surgical risks at 6 weeks follow-up (Pearson coefficient 0.28, p=.027).

Conclusion: Recall of specific risks associated with MUS surgery deteriorated over time. Women forgot that they had a mesh placed or that mesh might erode. New methods of surgical consent are needed to aid patient recall of device implants and the risks which may occur remote from the time of surgery.

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Oral Presentation 16

INFORMED CONSENT FOR SACROCOLPOPEXY: IS COUNSELING EFFECTIVE IN ACHIEVING PATIENT COMPREHENSION?

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Objectives: Surgeons utilize the informed consent process to ensure a patient understands her condition, treatment alternatives, and risks and benefits of a proposed procedure. The process attempts to assure realistic expectations for surgical results. We aimed to evaluate how well women who consented to undergo sacrocolpopexy understand their planned procedure.

Materials and Methods: We conducted a prospective study of women planning to undergo laparoscopic or robotic sacrocolpopexy with or without hysterectomy. A 15-item questionnaire was developed to assess patient comprehension of preoperative counseling. Participants were given the questionnaire at the conclusion of a standard preoperative visit with a nurse, approximately one week before surgery. Women were eligible if they had signed an informed consent in English with their surgeon. The questionnaire was scored based on the proportion of correctly answered questions; answers were considered incorrect if the response was either incorrect or "not sure". Data are presented as proportion, median (interquartile range) or mean ± standard deviation; the t test was used for comparisons.

Results: To date, 34 women have been enrolled; 91.2% were Caucasian and 21 (61.8%) completed college or postgraduate education. The mean age was 60.0±10.3 years. Twenty-one (61.8%) women were employed, and six (28.6%) worked in health care. Many (67.7%) women reported obtaining outside information about their pelvic floor condition.

The majority (97.1%) of women strongly agreed or agreed that they were prepared for their surgery. Importantly, women strongly agreed or agreed that they understood the risks (91.2%), benefits (100%), purpose (100%), and alternatives (88.2%) of the planned procedure.

Including the preoperative visit, women had a median of 4.0 (4.0-5.0) documented office visits before their procedure. The median time between signing the consent and completing the questionnaire was 5.9 (2.9-8.9) weeks.

The mean knowledge score was 70.9% ±16.3% (range: 33.3%-93.3%). Women who completed the survey within 4 weeks of signing the surgical consent had a higher mean score (78.4% ±17.0) than women for whom 4 or more weeks elapsed (66.3% ±14.4, P=0.03). The majority (63.6%) of women incorrectly believed they might experience post-operative back pain due to the mesh location, 44.1% incorrectly believed there was no risk of an intraoperative blood transfusion, 35.3% incorrectly believed there was no risk of recurrent prolapse, and 63.6% did not understand that they could have a prolapse repair without mesh. Another third (35.3%) did not understand the location of mesh attachment. There were no significant differences in score relative to education, age, number of office visits or prior pelvic surgery (all P>0.26).

Conclusion: Despite an extensive informed consent process and high level of education, women had suboptimal understanding of their planned sacrocolpopexy. In addition, women overestimated their comprehension of the risks of the procedure. Time from consent adversely affected recall of information discussed. New methods to improve patient education should be considered, and surgical consent should be reviewed within one month of surgery.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Sonia R. Adams: Nothing to disclose
Eman Elkadry: Nothing to disclose
Michele R. Hacker: Nothing to disclose
Anna Merport: Nothing to disclose
Peter Rosenblatt: Nothing to disclose

Oral Presentation 17
POSTOPERATIVE ANALGESIA IN PATIENTS UNDERGOING VAGINAL RECONSTRUCTIVE SURGERY: A RANDOMIZED TRIAL COMPARING PATIENT-CONTROLLED AND SCHEDULED, NURSE-ADMINISTERED INTRAVENOUS HYDROMORPHONE

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Objectives: To determine if patient-controlled analgesia (PCA) or scheduled intravenous analgesia provides superior pain relief and patient satisfaction with pain control following vaginal pelvic organ prolapse repair.

Materials and Methods: Women aged 18 years and over undergoing vaginal reconstructive surgery, including intraperitoneal vault suspension, for pelvic organ prolapse were randomized to receive either PCA or scheduled intravenous hydromorphone postoperatively. Non-steroidal anti-inflammatories, anti-emetics, voiding trial, diet advancement, and narcotic doses were standardized. Pain scales were collected, including the verbal pain scale (upon arrival to the floor), visual analog scale (VAS) for pain, and visual analog scale for satisfaction with pain control. Both visual analog scales were recorded in the morning on all postoperative days and at a two week postoperative office visit. Surgical data including procedures performed, length of surgery, estimated blood loss, and total lidocaine used during surgery was noted. Postoperatively, complications such as discharge with urinary catheter, ileus, and side effects from the narcotic including pruritus, nausea, or vomiting were also documented.

Results: To date 49/54 patients have completed the study. Five subjects were excluded from analysis; 3 were given an incorrect narcotic and 2 underwent an intraoperative change in surgical procedure. There was no difference between groups in estimated blood loss or length of surgery. Total lidocaine used intraoperatively was higher in the scheduled, nurse-administered group (p=0.038). However, the difference was 5cc and felt to be clinically insignificant. When analyzing for side effects of the narcotic, there was no difference between groups for nausea, vomiting, or total medication required to treat these symptoms. Of note, the total amount of hydromorphone was significantly different between groups, with the PCA group using more than twice as much medication (p=0.004). When evaluating pain scales on postoperative day one, patients receiving PCA scored significantly lower on the VAS, indicating less perceived pain (p=0.004). Despite this, there was no difference between groups in the patients' level of satisfaction with pain control. Complications, such as discharge home with a urinary catheter or ileus, and length of hospital stay did not differ between groups. At the two week postoperative assessment, there was no difference between groups for recall of pain or for satisfaction with pain control at the time of surgery.

Conclusion: Patients receiving PCA hydromorphone postoperatively had less pain on postoperative day one, but showed no difference in satisfaction with pain control. Despite using twice as much hydromorphone, the PCA group did not differ in side effects, complications, or length of stay. Nevertheless, at two weeks postoperatively, patients' recollection of pain and satisfaction with pain control was not different.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

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Oral Presentation 18
COMPARISON OF PATIENT SATISFACTION BETWEEN RETROPUBIC AND TRANSOBTURATOR MIDURETHRAL SLING AT ONE YEAR

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Objectives: To evaluate differences between patient satisfaction following retropubic (RMUS) and transobturator (TMUS) midurethral sling procedures and to assess clinical correlates.

Materials and Methods: 1 year after surgery, we assessed patient satisfaction in participants from a multicenter randomized trial comparing RMUS to TMUS procedures. Satisfaction was assessed using the Incontinence Surgery Satisfaction Questionnaire, a 9-item instrument with 3 domains (urinary symptoms, activity limitations, improvement of emotions after bladder surgery). Summary scores for each domain of the questionnaire and a composite summary score were used to compare both routes of surgery.

Bivariate analyses were used to examine the associations between participant baseline characteristics and satisfaction with treatment at 1 year. Multivariate logistic regression was used to analyze the association between clinical correlates (demographic variables, preoperative symptom severity, adverse events and treatment outcomes) and satisfaction.

Results: Most participants completed the 1-year satisfaction questionnaire (RMUS 264/298, TMUS 263/299). The majority of patients in both treatment groups were either "mostly" or "completely" satisfied with respect to urine leakage (RMUS 85.9% (225/262) vs TMUS 90.0% (235/261), P=0.52), urgency to urinate (80.7 vs 84.5%, P=0.20), frequency of urination (77.6 vs 84.1%, P=0.46), capable of physical activity (87.7 vs 89.7%, P=0.90), social activity (88.7 vs 91.4%, P=0.49), ability to engage in sexual activity (87.5 vs 86.5%, P=0.91), and from an emotional standpoint (85.9 vs 89.8%, P=0.17). There was no group difference in summary scores with high levels of satisfaction at 6 months (83.7%) and 2 years (82.7%).

With bivariate analyses, reduced satisfaction was seen in participants with higher baseline MESA urge subscale scores and detrusor overactivity. Patients who were "mostly" or "completely satisfied" 1 year after midurethral sling placement were those who ultimately had fewer daily incontinence episodes, lower pad weights, lower IIQ & UDI scores, greater improvement in the stress and urge subscale of the MESA, were improved by the patient's global assessment, had less nocturia, had fewer voids, experienced more overall treatment success, and had fewer complications. Greater improvement in frequency of incontinence episodes, nocturia, voiding frequency, pad test weight, both stress and urge subscales on the MESA questionnaire, IIQ, UDI and PISQ scores were also associated with greater levels of satisfaction.

In the final multivariate model [OR (95% CI)], patient satisfaction 1 year after midurethral sling was associated with overall treatment success [2.15 (0.99, 4.64), P=0.05], patient global perception of improvement [19.66 (6.09, 63.44), P<0.0001], greater reduction in UDI [0.98 (0.97, 1.00), P=0.01] and IIQ scores [0.99 (0.98, 1.00), P=0.002], and fewer complications [0.46 (0.23, 0.93), P=0.03].

Conclusion: Patients experience an equally high level of satisfaction after either RMUS or TMUS procedures that is persistent at 1 year. Satisfaction is associated with both objectively measured and patient-perceived improvement of stress incontinence, and fewer complications.

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Clifford Y. Wai: Nothing to disclose
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Oral Presentation 19
LOWER URINARY TRACT INJURY RATES AND TRENDS ASSOCIATED WITH BENIGN HYSTERECTOMY ROUTE FROM 1999–2008

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Objectives: To determine rates of lower urinary tract (LUT) injury associated with benign hysterectomy over a 10 year period and to assess if specific hysterectomy routes were associated with LUT injury.

Materials and Methods: The Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample database was used to identify women who underwent benign hysterectomy over a 10 year period from 1999 - 2008. ICD-9 codes were used to determine hysterectomy and LUT injury type (Table 1). LUT injuries were classified into bladder and ureteral injuries. Patients that underwent hysterectomy for gynecologic malignancy or had urogynecologic procedures were excluded. In order to compare bladder and ureteral injury rates, we adjusted for trends using logistic regression. We selected the route with highest incidence of bladder or ureteral injury as the comparator for Odds ratios. Significance was set at p<0.001 because of large sample sizes.

Results: Compared to abdominal and vaginal hysterectomy, all other routes of hysterectomy increased in prevalence (all p <0.001). Bladder and ureteral injury rates also increased over 10 years (bladder injury OR 1.017; 95%CI 1.010-1.024 per year and ureteral injury OR 1.056; 95%CI 1.036-1.076 per year). Bladder injury rates after adjusting for trends were compared to vaginal hysterectomy and were significantly lower for laparoscopic supracervical (OR 0.36, 95%CI 0.29-0.46), total laparoscopic (OR 0.58. 95%CI 0.44-0.75), total abdominal (OR 0.68, 95%CI 0.64-0.72), and subtotal abdominal hysterectomies (OR 0.78, 95%CI 0.71-0.85). Ureteral injury rates similarly adjusted for trends and compared to total laparoscopic hysterectomy were significantly lower in vaginal (OR 0.18, 95%CI 0.09-0.35), laparoscopic supracervical (OR 0.32, 95%CI 0.15-0.72), subtotal abdominal (OR 0.53, 95%CI 0.30-0.94) and laparoscopic assisted vaginal hysterectomies (OR 0.56, 95%CI 0.32-0.96).

Conclusion: LUT injury rates and trends have changed due to changes in approach to hysterectomy route. Bladder injury rates were highest for vaginal hysterectomy and ureteral injury rates were highest for total laparoscopic hysterectomy. Training in a variety of hysterectomy approaches including vaginal hysterectomy is needed to keep LUTS injury rates low.

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Marianne Berwick: Nothing to disclose
Mamta M. Mamik: Nothing to disclose
Clifford Qualls: Nothing to disclose
Rebecca G. Rogers: DSMB chair TRANSFORM trial, Research Support

ICD 9 Codes

Hysterectomy Route	ICD 9	LUT Injury	ICD 9
Total abdominal	68.49	Suture of laceration of bladder	57.81
Laparoscopic-assisted vaginal	68.51	Closure of cystotomy	57.82
Total laparoscopic	68.41	Vesicovaginal fistula repair	57.84
Vaginal	68.59	Bladder repair	57.89
Laparoscopic-assisted supracervical	68.31	Urethral/ bladder injury	867.0
Supracervical abdominal	68.39	Ureteroneocystostomy	56.74
		Transureteroureterostomy	56.75
		Anastomosis or bypass of ureter	56.79
		Suture of laceration of ureter	56.82
		Closure of ureterostomy	56.83
		Closure of other fistula of ureter	56.84
		Removal of ligature from ureter	56.86
		Other repair of ureter	56.89
		Ureteral injury	867.2
		Ureterovaginal fistula repair	56.84

Oral Presentation 20
THE INFLUENCE OF OBESITY ON COMPLICATION RATES FOLLOWING BENIGN HYSTERECTOMY

H. E. Burks, D. E. White, A. M. Allen, L. H. Quiroz. *FPMRS, University of Oklahoma Health Science Center, Oklahoma City, OK*

Objectives: To investigate the association between obesity and hysterectomy complications performed for benign indications.

Materials and Methods: Retrospective chart review was performed between 2005 and 2009 for all hysterectomies by the gynecology service, for benign indications. Data of interest included age, height, weight, ethnicity, parity, smoking history, and medical comorbidities. For each subject, detailed surgery data, type of hysterectomy, intraoperative (any bowel or urinary tract injury), immediate postoperative (blood transfusion, thromboembolic event, infection), as well as late postoperative complications (infections, thromboembolic event and readmission) were recorded. Patients were classified as obese if their calculated body mass index (BMI) was ≥ 30.5 kg/m2, non-obese for BMI < 30.5. Categorical variables were compared using chi square or Fisher's exact test; Student's t-test was used for continuous variables. Logistic regression was used to assess predictors associated with hysterectomy complications.

Results: 662 charts were available for review from January 1, 2005 to December 31, 2009. Thirty-six were excluded due to concomitant pelvic floor reconstruction or known gynecologic malignancy. Records were

unavailable for 13 charts, and no height and weight information was recorded on 9 charts, leaving 605 charts for analysis. The average age of the study population was 43 (SD ± 7.6) years and average BMI was 32 (SD ± 8.7). Median parity was 2 (0-8). When comparing obese to non-obese, age and parity did not differ significantly. There were significantly more Native American women in the obese group and significantly more smokers in the non-obese group. The obese group had a higher rate of diabetes mellitus, hypertension, and COPD. Rates of intraoperative injury were similar between groups. Obese women were significantly more likely to have an intraoperative hemorrhage, defined as blood loss ≥500cc (34.6% compared to 17.2%, $p < 0.0001$), independent of hysterectomy route. Obese patients were also more likely to be converted to an open case and to receive a post-operative transfusion ($p=0.0087$ and $p<0.0001$ respectively). When uterine size, route of hysterectomy, and history of previous pelvic surgery were incorporated into the regression model, obesity remained a significant predictor of both hemorrhage (OR 2.59, 95% CI 1.73, 3.86) and immediate postoperative complications (OR1.66, 95% CI 1.10, 2.49).

Conclusion: Obese women who underwent benign hysterectomy were more likely to have an intraoperative hemorrhage, as well as a post-operative transfusion. Obese patients were also 1.6 times more likely to have immediate postoperative complications, compared to their non-obese counterparts.

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Arielle M. Allen: Nothing to disclose
Heather E. Burks: Nothing to disclose
Lieschen H. Quiroz: Nothing to disclose
Dena E. White: Nothing to disclose

Oral Presentation 21
GEOGRAPHIC DIFFERENCES IN WOMEN'S PREFERENCES REGARDING INFORMED SURGICAL CONSENT

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Objectives: To describe possible geographic differences in women's preferences when giving informed surgical consent.

Materials and Methods: We surveyed women presenting for care to woman's health clinics in two metropolitan areas. Data collected included patient age, race and education. Women were asked to rank the importance of a variety of surgeon characteristics including age, gender, experience, medical school attended, physical appearance and reputation on a 10 point scale ranging from "0=not at all important" to "10=completely important" when making a decision to have surgery. Aids used to improve surgical consent understanding were similarly rated on a three point scale ranging from "1=not helpful" to "3=very helpful" as well as their preferred level of detail regarding a proposed surgical procedure on a three point scale ranging from "1=simple overview with no details" to "3=very detailed". Women also reported on a 10-point scale their comfort with surgeons-in-training participation their surgical procedure. Data were analyzed using frequency tables and t-test to compare mean responses.

Results: 500 women completed surveys from two metropolitan areas in the US, 302 from the Midwest (group A) and 198 from the southwest (group B). Mean age was 38 ± 13 years for group A and 49 ± 17 years for group B. The majority of women from group A were non Caucasian (80%), completed high school (76%), and had undergone at least one prior surgery (51%). For group B, more than half were non Caucasian (52%), completed high school (64%), and had undergone at least one prior surgery (89%). Women agreed on the importance of the following surgeon's attributes in descending order of importance for groups A and B; surgeon experience (8.99 and 9.14), reputation (8.41 and 8.14), medical school (5.73 and 5.14), and gender (3.15 and 2.91). They differed in rating the importance of physical appearance (6.18 and 4.86) and surgeon age (5.66 and 4.59) as both were considered of higher importance for women in the Midwest. Women ranked the following consent aids in descending order of helpfulness for groups A and B; pamphlets and brochures (2.73 and 2.75), easy access to a clinic nurse for questions about surgery (2.72 and 2.67), diagrams (2.61 and 2.69), and pictures (2.67 and 2.69). Women ranked their preferred level of detail provided regarding surgery in descending order for groups A and B; very detailed description of functional changes following surgery (2.81 and 2.89), risks (2.80 and 2.86), the course of recovery following surgery (2.81 and 2.86), anatomic changes (2.78 and 2.86), alternatives to surgery (2.75 and 2.81), surgery benefits (2.74 and 2.80), who actually operates (attending surgeon or trainee) (2.71 and 2.72) and details about anesthesia (2.66 and 2.64). Women reported that they were somewhat comfortable with trainees being supervised while performing surgery (5.51 for group A and 5.76 for group B), and not at all comfortable if trainees were not supervised throughout the entire surgical procedure (2.59 for group A and 2.28 for group B).

Conclusion: Regardless to differences in age or location, women share similar preferences regarding their participation in the process of obtaining informed consent for surgery.

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Husam Abed: Nothing to disclose
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Pranith Perera: Nothing to disclose
Rebecca G. Rogers: DSMB chair TRANSFORM trial, Research Support

Oral Presentation 22
ESTROGEN AND VAGINAL INJURY INCREASE TROPOELASTIN AND LYSYL OXIDASE GENE EXPRESSION IN THE VAGINAL WALL

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Objectives: Reconstructive surgery for pelvic organ prolapse is often performed in aging menopausal women. We have shown that estrogen treatment results in increased collagen type I and type III mRNA and collagen content in the vaginal wall. Interestingly, estrogen not only increased collagen content and strength, distensibility of the vaginal wall was also increased in estrogen treated animals. The purpose of this study was to investigate the role of estrogen in regulating elastic fiber synthesis in the vaginal wall after surgical injury in a menopausal animal model.

Materials and Methods: Young virginal female Hartley guinea pigs (n = 48, 12 weeks) were used to study the elastic fiber biosynthesis gene response to estrogen in the uninjured (control) and surgically injured posterior vaginal wall. All animals underwent bilateral ovariectomy with subcutaneous mini-pump insertion containing either estradiol (E2, 50 μg/kg/d, n = 24) or vehicle (n = 24). After 2 weeks, a modified vaginal posterior colpo-perineorrhaphy was performed in all guinea pigs. Animals from each group were sacrificed at 4 and 21 d. Tropoelastin and lysyl oxidase mRNA levels were quantified in both control and injured guinea pigs at both time points.

Results: At 4 days after injury, tropoelastin mRNA doubled in the presence of E2 regardless of injury (See table). 21 days after injury, tropoelastin gene expression increased further (5-fold) in response to injury in estrogen-treated animals (i.e., 9-fold increase compared with non-injured estrogenized animals). Concomitantly, LOX mRNA also increased with injury and estrogen treatment (Table).

Conclusion: In this menopausal guinea pig model, tropoelastin and LOX mRNA are increased in response to estrogen and injury. We have previously demonstrated the unique adaptation of the vagina to synthesize new elastic fibers in the postpartum period. Findings from this study suggest that injury-induced remodeling of the vaginal wall includes increased expression of genes important in elastogenesis which may thereby act to increase vaginal distensibility and strength.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Jesus F. Acevedo: Nothing to disclose
Sunil Balgobin: Nothing to disclose

TABLE. Tropoelastin and lysyl oxidase (LOX) mRNA levels in control and injured guinea pig vaginal wall. Data are expressed as arbitrary units relative to the housekeeping gene β-2 microglobulin (β2m)

	NO ESTROGEN		ESTROGEN	
	Non-injured	Injured	Non-injured	Injured
Tropoelastin mRNA	1.0 ± 0.06	5.0 ± 0.85[a]	2.4 ± 0.49[b]	8.0 ± 0.95[ab]
4 d 21 d	1.6 ± 1.08	5.1 ± 0.64[a]	3.1 ± 1.07[b]	28.0 ± 10.5[ab]
LOX mRNA 4 d 21 d	1.0 ± 0.10	7.7 ± 1.3[a]	2.5 ± 0.32[b]	9.3 ± 0.57[ab]
	2.3 ± 0.99	4.6 ± 1.6[a]	2.7 ± 0.65	12.2 ± 3.5[a]

Values expressed as mean ± SEM. [a]$P < 0.05$ compared with non-inj; [b]$P < 0.05$ compared with no estrogen

Patrick W. Keller: Nothing to disclose
Clifford Wai: Nothing to disclose
Ruth A. Word: Nothing to disclose

Oral Presentation 23
6 YEARS FOLLOW-UP AFTER TVT AND TVT-O CONTINENCE PROCEDURES TO TREAT USI

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Objectives: To compare long-term effectiveness, complications and reoperation rates of two continence procedures in the treatment of USI: the retropubic route of tension free vaginal tape (TVT) with the trans-obturator inside-out tape (TVT-O).

Materials and Methods: 378 women diagnosed with USI and symptomatic for moderate to severe SI, who underwent two surgical continence procedures (190 TVT, 188 TVT-O) were included in this retrospective observational study. Preoperatively the groups did not differ significantly in any of the characteristics investigated (age, parity, mode of delivery, BMI, menopausal age, pelvic organ prolapse). Preoperative and postoperative evaluation included an accurate interview, a frequency-volume chart, several validated questionnaires to assess the impact of USI on quality of life and a urogynaecological examination. SI was objectified by a positive cough-test. Urodynamics was performed preoperatively to evaluate lower urinary tract function. Exclusion criteria were: a previous continence surgery and/or concurrent surgery, previous radiation therapy of the pelvis and lower urinary tract abnormalities.

Data were analyzed using SPSS software. Wilcoxon signed rank sum test was used to calculate statistical differences between the groups. Mann-Whitney U and the Chi-square test were applied for the categorical variables. Statistical significance was set at p<0,05.

Results: 258 patients (122 TVT, 136 TVT-O) out of 378 initially included were evaluated at a mean follow up period of 41.5 months (range 9-74). Mean operative time was significantly shorter in the TVT-O group (29.7 vs 18.0 min, p<0.001).

No differences were found in terms of intraoperative blood loss, hospital stays or perioperative complications. Vaginal erosions were observed significantly more after TVT-O (9 vs 1.7%, p=0.01). Voiding difficulties and de novo urge-incontinence were slightly lower in TVT-O group, whereas groin pain was more common after TVT-O (p value>0.05). No statistical differences have been found for peri- and post-operative complications of the two treatments, because of their low occurrence rate and the small number of patients. Quality of life improved significantly in both groups after the treatment. Although long term objective cure rate was significantly higher in the TVT group (82.8 vs 71.3% p<0.05), the subjective effectiveness suggested equivalent results for TVT and TVT-O (81.1 and 72.0% respectively, p=0.11).The estimated risk ratio of failure was 1.72 times higher in the TVT-O group (95% CI:1.03-2.85), p<0.05.

Conclusion: TVT appears to be significantly more effective in the treatment of USI and to have a higher long-term durability than TVT-O. However, TVT-O seems to be correlated to a significantly lower rate of intra-operative complications; therefore high risk patients, those who are at such risk of morbidity might benefit from the trans-obturator approach rather than from the retropubic one. Prospective randomized studies with long term results are needed to allow comparison of outcomes between these surgical techniques.

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Dario Consonni: Nothing to disclose
Chiara M. Dell'Utri: Nothing to disclose
Clara Gargasole: Nothing to disclose
Paola Pifarotti: Nothing to disclose

Cure rate	TVT	TVT-O	p value
Objective	83%	71%	<0.05
Subjective	81%	72%	0.11

Tips & Tricks 01
TEN TIPS & TRICKS TO AVOID MESH EXPOSURE IN PELVIC ORGAN PROLAPSE SURGERY

A. Henriques, A. Lourenço, M. Afonso, C. Fadigas, A. L. Ribeirinho. *Obstetrics, Gynecology and Human Reproduction, Santa Maria Hospital - Lisbon, Lisbon, Portugal*

Objective: On July 2011 an FDA Safety Communication - Update on Serious Complications Associated with Transvaginal Placement of Surgical Mesh for Pelvic Organ Prolapse (POP) - was issued to inform the medical community and patients that serious complications associated with this procedure are not rare, namely erosion and infection.

According to the new terminology the expression "erosion" should be avoided and replaced by terms with greater physical specificity and clarity like "separation", "exposure" or "extrusion".

Based on the FDA systematic epidemiologic literature review, the risk of mesh erosion for all POP repairs using mesh was reported throughout the follow-up period of 6 months to 3 years, and ranged from 7.7% to 19%.

In the Urogynecology Unit of Santa Maria Hospital in Lisbon, Portugal, 270 patients were treated with polypropylene mesh (Gynecare ProliftTM Pelvic Floor Repair System) and followed for a period of 6 months to 4 years. Mesh exposure rate was 3.3% (n = 9). All were small exposures (less than 1cm) and 77.8% (7/9) needed surgical correction under local anesthesia. Based on their experience, the authors present 10 Tips & Tricks, exemplified in small videos, to achieve a low rate of mesh exposures.

Description: Perform hydrodissection with frozen saline with adrenaline; avoid vaginal incision with electrical scalpel; maintain vaginal mucosa with fascia; avoid concomitant hysterectomy; use tension-free vaginal mesh technique; anchor the mesh under bladder neck and near cervix; apply local estrogens before and after surgery; place double suture on vaginal mucosa; use low absorbable sutures; pack vagina with impregnated paraffin gauze.

Conclusion: Mesh exposure after POP surgery can be maintained at very low levels if manufacturer recommendations are always followed and additional caution is taken during critical steps of the procedure.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Maria Afonso: Nothing to disclose
Cristina Fadigas: Nothing to disclose
Alexandra Henriques: Nothing to disclose
Alexandre Lourenço: Nothing to disclose
Ana L. Ribeirinho: Nothing to disclose

Tips & Tricks 02
AUTOLOGOUS GRAFT FOR TREATMENT OF POLYPROPYLENE MIDURETHRAL SLING EXPOSURE WITHOUT MESH EXCISION

P. C. Jeppson, V. W. Sung. *Obstetrics and Gynecology, Women & Infants' Hospital, Providence, RI*

Objective: To describe the successful treatment of polypropylene midurethral sling exposure with a full thickness autologous vaginal epithelial graft.

Description: A 35 year old patient who underwent a retropubic midurethral sling for stress urinary incontinence (SUI) developed a mesh exposure 9 weeks postoperatively. Risk factors for mesh exposure included tobacco use. The patient subjectively was "cured" of her SUI symptoms and strongly desired to keep the sling intact. However, she was unable to have sexual intercourse due to partner discomfort. Conservative management with estrogen cream for 3 months followed by tension free re-closure of the vaginal epithelium was unsuccessful. After obtaining informed consent, she underwent autologous vaginal epithelium graft placement. In the operating room a 1 cm polypropylene mesh midurethral erosion was visualized. The vaginal epithelial edges were trimmed until healthy, well-vascularized tissue was identified. An elliptical 2 × 2 cm full thickness epithelial graft was harvested from the patient's left vaginal side wall using a scalpel. The base of the graft was attached to the base of the exposure using 3-0 polyglactin 910 suture. The graft was then sutured to the vaginal epithelial edges with 9 equidistant alternating interrupted stitches using 2-0 polyglactin 910 and 2-0 polydioxanone suture. The graft harvest site was closed with 2-0 Polyglactin 910 suture. Final follow-up at 24 weeks revealed no evidence of mesh exposure, the patient remained subjectively cured of her SUI symptoms, and she had resumed sexual intercourse. Sequential pictures will demonstrate the intraoperative findings and postoperative healing of the autologous graft during follow-up.

Conclusion: Polypropylene midurethral sling mesh exposure is successfully treated with full thickness autologous epithelial tissue graft in this patient.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Peter C. Jeppson: Nothing to disclose
Vivian W. Sung: Nothing to disclose

Tips & Tricks 03
A NOVEL TECHNIQUE FOR THE ENDOSCOPIC APPLICATION OF TOPICAL SEALANTS TO ACHIEVE HEMOSTASIS

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Objective: Control of hemorrhage is an integral component of surgical procedures. Hemostatic matrix sealants are valuable tools for the control of hemorrhage when ligation or electrocautery are ineffective or contraindicated. Floseal® is a commonly employed topical hemostatic sealant. An endoscopic applicator can be used to apply the substance to the bleeding site. The endoscopic applicator may be unavailable or at times not provide adequate length or flexibility to access the target tissue. We describe a method to apply Floseal® laparoscopically using a readily available substitute for the endoscopic applicator supplied by the manufacturer.

Description: A 30-inch intravenous extension was modified by removing the distal male connector and the clamp. The proximal connector was then attached to the tip of the Floseal® syringe. The free end of the tube was then passed through one of the laparoscopy ports. A grasper was used to guide the tube precisely to the bleeding site and the sealant was applied. The priming volume was flushed out with air using the Floseal® syringe.

Conclusion: With our technique, topical sealant can be applied laparoscopically with precision to the bleeding target. The IV tubing used to substitute for the endoscopic applicator provides increased length and flexibility. This technique can also be used to achieve hemostasis in vaginal, pelvic and deep open abdominal surgeries with limited space.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Patricia Dramitinos: Nothing to disclose
Shravya Govindappagari: Nothing to disclose
Felix A. Strube: Nothing to disclose

Tips & Tricks 04
USE OF A SURGICAL GLOVE AS AN ENDOBAG FOR LAPAROSCOPIC RETRIEVAL OF ECTOPIC PREGNANCY IN THE DEVELOPING WORLD

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Objective: Limitations in the utilization of laparoscopic surgery in the developing world include the cost of disposable equipment. We describe the use of a sterile surgical glove as a substitute for a commercially available tissue retrieval bag in the case of an ectopic pregnancy during a medical mission trip to Granada, Nicaragua.

Description: After a laparoscopic right salpingectomy was completed, the cuff of a sterile glove was fashioned as a funnel, the finger portion of the glove was cut off with scissors, and the finger holes were then closed with a suture, thus creating a bag. The newly created bag was advanced through the 10-12 mm port. Utilizing a grasper, the specimen was placed into the glove-bag and it was subsequently retrieved through the umbilical incision completely intact.

Conclusion: This technique offers a low-cost alternative to the use of commercially available disposable laparoscopic tissue retrieval bags. Its use can keep down the cost of laparoscopic surgery, and it is particularly helpful when operating in developing countries.

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Ericka M. Castillo: Nothing to disclose
Ralph R. Chesson: Nothing to disclose
Peter G. Drewes: Nothing to disclose
Lise M. Rehwaldt: Nothing to disclose
Ambereen Sleemi: Nothing to disclosefa

Oral Poster 01
SEXUAL ACTIVITY AND FUNCTION IN WOMEN FOR TWO YEARS AFTER RETROPUBIC AND TRANSOBTURATOR MIDURETHRAL SLINGS

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Objectives: Midurethral slings (MUS) are associated with complications including voiding dysfunction, mesh exposure and mesh contraction that negatively affect sexual function. This study prospectively assessed the impact of MUS on sexual function and activity over a two year period.

Materials and Methods: Sexual activity and function before and after surgery were analyzed from stress incontinent women participating in a randomized equivalence trial comparing retropubic (RMUS) to transobturator (TMUS) midurethral slings. The Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12) scores, and clinical and surgical outcomes including intraoperative and postoperative complications were obtained at baseline and 6, 12 and 24 months after surgery. Repeated measures analysis was used to assess changes over time in PISQ-12 scores controlling for MUS type among women who were sexually active.

Results: At baseline, the majority (406, 68%) of the 597 participants (mean age of 52.9 yrs,) were sexually active. Among women who were sexually active at all times during follow-up, significant and similar improvements in sexual function were seen in both MUS groups post surgery ($p<0.0001$). Improvement was noted 6 months after surgery and was sustained to 24 months. Mean PISQ score for transobturator at baseline was 32.6 (s.d=7.1) and 37.7 (s.d.=6.3) at 24 months; similarly for retropubic the PISQ score was 33.0 (s.d=7.1), at baseline and 36.9 (5.7), at 24 months . Compared to women with successful surgery (defined as a negative stress test, negative pad test, no retreatment), women who experienced surgical failure reported worse sexual function post-operatively ($p=0.01$). PISQ-12 mean at 24 months among successes = 37.6 (s.d=0.36) vs. failures = 37.1 (s.d=0.33). Post-operatively, the proportion of women who were sexually active was 64-68% and did not differ from baseline regardless of treatment group ($p=0.08$). Neither intraoperative nor post-operative complications were significantly associated with sexual activity or function. Greater urge incontinence at baseline (but not post-operative) was associated with abstinence from sex after surgery ($p=0.02$). Severity of urge incontinence after surgery was negatively associated with sexual function ($p=0.02$). Pain with intercourse was reported by 176/448 (40%) of sexually active women at baseline. Of 247 who underwent a MUS only (no concurrent procedures), dyspareunia decreased from 57% at baseline to 43% at 12 months after surgery ($p=0.03$). Over the same time period, among women who received TMUS dyspareunia decreased from 59% to 45% ($p=0.008$) while those who received RMUS the decrease was from 54% to 52% ($p=0.65$). Self-reported urinary incontinence and the fear of incontinence occurring during sexual activity also significantly improved after surgery regardless of sling route ($p<0.0001$ for both).

Conclusion: Sexual function in women with SUI improves after surgery with a synthetic mesh midurethral sling through either retropubic or transobturator routes. Urge incontinence negatively impacts sexual activity and function.

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Tracey Wilson: Nothing to disclose
Halina M. Zyczynski: Nothing to disclose

Oral Poster 02
THE EFFECTS OF VAGINAL ESTROGEN IN WOMEN WITH PELVIC ORGAN PROLAPSE: A RANDOMIZED CONTROLLED TRIAL

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Objectives: The purpose was to evaluate the effects of preoperative vaginal estrogen in women with atrophic vaginitis and pelvic organ prolapse.

Materials and Methods: Forty-two postmenopausal women with atrophic vaginitis and Stage ≥2 prolapse were enrolled in this single-blind randomized controlled trial comparing vaginal estrogen cream use for 2-12 weeks preoperatively versus no intervention. Outcome assessments occurred at baseline and on the day of surgery.

Results: Twenty-two women were analyzed in the treatment group and 20 in the control group. Over time the vaginal maturity index increased 15.5% on average in the treatment group compared to a 1.5% decline in the control group ($p<.001$), though the vaginal epithelial thickness did not differ significantly.

Conclusion: Vaginal estrogen restores vaginal cytology to premenopausal levels. However, it does not significantly alter vaginal epithelium in 2-12 weeks, thus may not be appropriate for routine preoperative management of prolapse for the purpose of increasing tissue thickness.

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Christine M. Vaccaro: Nothing to disclose

Oral Poster 03
SURGEON PRACTICE PATTERNS FOR ANTIBIOTIC PROPHYLAXIS IN BENIGN GYNECOLOGIC SURGERY

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Objectives: The benefits of antibiotic prophylaxis are thought to be clear, and guidelines have been established by national and international organizations for common procedures. However, new procedures lack guidelines and hospital-specific policies may supersede these national guidelines. We sought to assess surgeon practice patterns for antibiotic prophylaxis in benign gynecologic and pelvic reconstructive surgery.

Materials and Methods: After IRB exemption, an anonymous survey was distributed to attendees of the 2011 Scientific Meeting of the Society of Gynecologic Surgeons regarding antibiotic prophylaxis prescribing practices for a range of benign gynecologic surgeries. Data were analyzed with descriptive statistics.

Results: Of 329 meeting registrants, 167 surveys were returned for a response rate of 51%. Thirty percent of respondents had been in practice 1-5 years, and 22% had been in practice more than 20 years. Most respondents (79%) were fellowship trained, and 71% had training in urogynecology. Most surgeons did not use antibiotic prophylaxis for dilatation and curettage without products of conception (55%), hysteroscopy (61%) and LEEP/cone biopsy (74%). For laparoscopic surgery without graft placement, 43% did not use prophylaxis. Antibiotic prophylaxis was commonly used for hysterectomy by any route (vaginal 99.4%, abdominal 98.2%, supracervical 94%, total laparoscopic 96.4%, laparoscopic supracervical 91.6%). Only 70% of respondents are using antibiotic prophylaxis consistent with recommendations from the American College of Obstetricians and Gynecologists (ACOG), while 78% were consistent with the Specifications Manual for National Hospital Inpatient Quality Measures used by the Joint Commission. For midurethral slings, 76% of respondents used antibiotic prophylaxis. For vaginal hysterectomy combined with use of graft material, ACOG recommendations for hysterectomy prophylaxis were followed by 78%. For vaginal procedures with graft material but without hysterectomy, the majority (77%) also used hysterectomy prophylaxis antibiotics. In general, if graft material was placed, ≥94% of surgeons used some antibiotic prophylaxis, depending on concomitant hysterectomy and route of surgery. For every procedure 3.0-14.4% of surgeons use local hospital-recommended antibiotics. The most common drugs named in these cases were cefoxitin and cefotetan, although ciprofloxacin and vancomycin are also used. Some surgeons also add metronidazole to either cefazolin or gentamicin.

Conclusion: Wide variability exists in antibiotic prophylaxis practice in gynecologic surgery. The choice of antibiotic use may be dictated by surgeon preference or by local hospital policies, and these are superimposed on national guidelines more than 20% of the time. Future investigations are warranted to determine the effect of these inconsistencies on patient safety.

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Renee M. Ward: Nothing to disclose

Oral Poster 04
COMPARISON OF EPIDURAL PATIENT CONTROLLED ANALGESIA WITH INTRAVENOUS PATIENT CONTROLLED ANALGESIA IN WOMEN UNDERGOING ABDOMINAL SACROPEXY

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Objectives: This study compared the efficacy and safety of epidural patient controlled analgesia (EPCA) with intravenous patient controlled analgesia (IVPCA) in women undergoing abdominal sacropexy.

Materials and Methods: This retrospective cohort study of 330 consecutive subjects after abdominal sacropexy compared an experimental group of women using EPCA with a control group using IVPCA. Outcome variables included visual pain scale, PCA attempts, total opioid consumption, failure in PCA method, time to ambulation, voiding dysfunction, length of hospitalization, and adverse events. Two-sample t test and chi square test were used as appropriate.

Results: 268/330 women had complete data sets and were included in the analysis. 161 subjects (60.1%) used EPCA and 107 (39.9%) IVPCA. There were no differences in baseline demographics or surgical variables between the two groups except the EPCA group had a higher blood loss (331 mL v 279mL; $P<0.01$). In the EPCA group, average pain scores were significantly improved at all time points (0-12 h, 2.0 v. 3.5; 12-24 h, 2.0 v. 3.1; and >24 h, 1.7 v. 2.4; $P<0.001$), as were overall pain score averages (1.89 v. 3.04; $P<0.001$). Total opioid consumption was also significantly lower in the EPCA group (43.7 mg v. 73.3 mg; $P<0.001$). Failure of PCA method was more common in the EPCA group (53/161; 32.9%) compared to IVPCA (4/107; 3.7%) with the most common reasons being excessive numbness and hypotension. Also, time to ambulation (26.4 h v. 17.6 h; $P<0.001$) and time of hospitalization (80.4 h v. 68.6 h; $P<0.001$) were significantly longer in the EPCA group. Women using EPCA were more likely to fail their voiding trial (47.6% v. 40.7%; $P=0.06$). There were no differences in hypotension, respiratory depression, or treatment for nausea and vomiting between the two groups.

Conclusion: EPCA provided better pain control and less opioid consumption compared to IVPCA. However, EPCA use was more likely to require a change in pain control regimen, a longer time to ambulation, longer hospitalization, and assisted bladder drainage. Adverse events were not increased with the use of EPCA.

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Ashar Ata: Nothing to disclose
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Paul Moore: Nothing to disclose
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Oral Poster 05

ANAL INCONTINENCE 5–10 YEARS AFTER FIRST DELIVERY: A COMPARISON OF WOMEN WITH ANAL SPHINCTER LACERATION, VAGINAL DELIVERY WITHOUT ANAL SPHINCTER LACERATION, AND CESAREAN SECTION

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Objectives: To compare anal incontinence and degree of bother among parous women who experienced at least one obstetrical anal sphincter laceration versus two comparison groups: women who had a vaginal birth without a sphincter laceration and women who delivered by cesarean section only.

Materials and Methods: This is a secondary analysis of baseline data collected for a longitudinal study of pelvic floor disorders after childbirth. Participants were recruited 5-10 years after their first delivery. Anal incontinence symptoms were measured using the Epidemiology of Prolapse and Incontinence Questionnaire (EPIQ) and the Colorectal Anal scale of the Pelvic Floor Impact Questionnaire (CRAIQ) Anal incontinence was defined using the EPIQ questionnaire threshold. We also considered the EPIQ score (continuous variable) and degree of bother (CRAIQ scale). Obstetrical exposures were assessed with review of hospital records. Women with at least one anal sphincter laceration were compared to vaginally parous women with no history of sphincter laceration (VB) and to women delivered by cesarean section only (no VB).

Results: Ninety-six of 1011 women had at least one sphincter laceration, 355 had at least one vaginal birth without any sphincter lacerations, and 560 women had no vaginal births. The groups did not differ with regards to age at enrollment (39.5 years), race, or maternal age >35 (28%), at the time of enrollment. Participants were an average of 7.4 years from first delivery and 72% were multiparous. Participants with no vaginal births were more likely to have BMI> = 30 kg/m2 ($p<0.01$). Anal incontinence was reported by 107 (11%) of women. Women with at least one anal sphincter laceration were more likely to report anal incontinence (20% vs. 10% (VB) and 9% (no VB), $p<0.01$). The mean EPIQ score was also significantly higher for women with at least one anal sphincter laceration (11.2 vs. 4.6 (VB), 4.4 (no VB), $p<0.01$). With regards to specific bowel symptoms, anal sphincter laceration was associated with incontinence of gas (32% vs. 23% VB and 15% no VB, $p<0.01$), liquid stool (16% vs. 8% VB and 8% no VB, $p=0.04$), and solid stool (4% vs. <1% VB and 1% no VB, $p=0.02$). Only 57 (6%) of women talked to a healthcare provider about anal incontinence and only 3 patients (<1%) had surgery to correct anal incontinence (no difference between groups). Among women reporting anal incontinence symptoms, women with an anal sphincter laceration were more likely to be bothered by their symptoms. Specifically, their anal incontinence was more likely to interfere with physical recreation ($p<0.01$), entertainment activities ($p<0.01$), ability to travel ($p<0.01$), participate in social activities ($p<0.01$), and to cause frustration ($p=0.02$).

Conclusion: Women who experience an anal sphincter laceration are more likely to complain of and be bothered by anal incontinence 5 to 10 years after their first delivery than women who had a vaginal delivery without a sphincter laceration and women who delivered by cesarean section.

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Joan L. Blomquist: Nothing to disclose
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Victoria Handa: Nothing to disclose
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Oral Poster 06

ASSESSMENT OF MENSTRUAL BLOOD LOSS IN CLINICAL PRACTICE AND RESEARCH: A SYSTEMATIC REVIEW

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Objectives: The aim of this systematic review is to summarize the literature on the methods for evaluation of menstrual blood loss (MBL) and to report on the accuracy of subjective and semi-objective methods of evaluation of MBL compared to objective measurements.

Materials and Methods: A systematic search was performed on the MEDLINE, EMBASE, Cumulative Index to Nursing & Allied Health Literature (CINAHL), Web of Science, and EBM Reviews - Cochrane Central Register of Controlled Trials from inception until June 2011. Terms referring to "menorrhagia" and "menstrual blood loss evaluation" were used. Outcomes of interest included; range and variability of objective measurement of MBL; diagnostic accuracy of subjective and semi-objective methods.

Results: Out of 242 identified reports, 46 reports were included in the review. For objective evaluation of MBL, the amount of MBL ranged from 0 up to 540 mL in women who are reported to be "healthy" and from 0 up to 465 ml in women who report their menstruation to be "normal". Despite the correlation reported between most of subjective assessment and MBL, high variability and overlap was noted. The PBLAC is one of the semi-objective tools for evaluation of MBL and had diagnostic accuracy with sensitivities from 58% to 97% and specificities from 7.5% to 97% with acceptable likelihoods ratios (LR) for positive (range from 1.1 to 7.8) and LR for negative tests ranging from 0.04 to 0.48). However, the high level of variability between the accuracy in those studies precluded pooling of those estimates (Table 1).

Conclusion: Available evidence identify high variability in the amount of MBL. Semi-objective methods including PBLAC score are easier to perform compared to objective methods with acceptable reliability and accuracy.

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Sherif A. El-Nashar: Nothing to disclose
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Mahmoud S. Zakherah: Nothing to disclose

Diagnostic Accuracy Parameters of Pictorial Blood Assessment Chart (PLBAC)

Study	Cutoff	Number	MBL>100ml (%)	Sensitivity	Specificity	+LR	−LR	DOR
Higham, 1990	100	122	50%	86%	89%	7.8	0.16	50.1
Janssen, 1995	100	288	31%	98%	64%	2.7	0.04	76.7
Deeny, 1994	100	53	47%	88%	52%	1.8	0.23	8.0
Barr, 1999	50	281	12%	58%	88%	4.8	0.48	10.1
Reid, 2000	100	103	61%	97%	7.5%	1.1	0.40	2.6
Wyatt, 2001	80mL*	108	16%	86%	88%	7.2	0.16	45.3
Zakherah, 2011	100	197	54%	99%	39%	1.6	0.02	86.9

N, number; +LR, likelihood ratio for a positive test, LR-, likelihood ratio for a negative test; DOR, diagnostic odds ratio * In Wyatt report, the unit of score was an estimated mL unlike the original PBAC by Higham, which included absolute values.

Oral Poster 07

MUSCULOSKELETAL DISORDERS AMONG VAGINAL SURGEONS

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Objectives: The objective of this study was to describe the frequency of work-related musculoskeletal disorders and identify associated surgeon and work-practice characteristics.

Materials and Methods: The target population was vaginal surgeons. The accessible study population comprised active physician members of International Urogynecological Association. Exclusion criteria include inability to read English, lack of computer access, invalid or unavailable email addresses and missing more than 50% of the responses. A web-based survey distributed to the membership email list of the International Urogynecological Association. There were 1650 physician members and 213 emails that bounced back. 18 respondents were excluded as they were not in active clinical practice and six were excluded for missing more than 50% of the answers. A total of 297 responses were included in the analysis.

Results: 86.4% of respondents reported ever experiencing work-related musculoskeletal ache, pain or discomfort. On univariate analysis, there was no association with gender, BMI, amount of obstetrics or vaginal surgery practiced. However, there was a trend to younger surgeons ($p=0.035$) and lower years of work experience ($p= 0.017$) being associated with work-related musculoskeletal disorder. The lower back (59.3%), neck (19.6%),

shoulders (39.8%) and upper back (38.1%) were most commonly identified as causing musculoskeletal ache, pain or discomfort at least once a week. BMI was associated with more frequent lower back pain (p= 0.031). Female gender was also associated with severity and frequency of musculoskeletal discomfort with females experience more severe and more frequent ache, pain or discomfort, compared to males. Prolonged surgery, working in the specialty, vaginal surgery, and length of OR day were most commonly identified as contributing factors to work-related musculoskeletal disorders. 69.7% had used over-the-counter medication and 46% had sought medical attention to treat their work-related musculoskeletal disorder. In terms of consequences on work behaviors, 18.2% had missed work, 19% had modified their work hours, type or amount of surgery and 25.4% had modified their surgical technique as a result of their injury.

Conclusion: There is a high rate of respondents reporting work-related musculoskeletal disorders among vaginal surgeons. The most severely and frequently affected areas of the body comprised the axial skeleton and proximal joints. Female gender and lower years of work experience were associated with severity and frequency of work-related musculoskeletal disorders.

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John Gebhart: Consultant Fee, Consultant, Advisory Board, Research,
Shunaha Kim-Fine: Nothing to disclose
Amy Weaver: Nothing to disclose
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Oral Poster 08

SURGEON FATIGUE AND POSTURAL STRAIN: DIFFERENCES IN LAPAROSCOPIC AND ROBOTIC SURGERY

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Objectives: To compare surgeon muscular fatigue and postural strain before and after laparoscopic and robotic surgery.

Materials and Methods: Prospective fatigue and postural measures were collected before and after consecutive cases among 6 surgeons. Motor fatigue was measured using a quantitative grip dynamometer with graphic analysis. The maximum voluntary isometric contraction force was used to calculate a fatigue index. Postural strain was measured using a non-dominant, single leg stance on an uneven surface. A balance error scoring system was used. A subjective visual analog scale (VAS) fatigue score was recorded following surgery. All pre and post-operative scores were compared. An analysis of covariance was used and adjusted p-values shown.

Results: Primary surgeons completed testing before and after 56 cases (71% robotic, 29% laparoscopic). Postural strain increased more in the laparoscopy group than the robotic (33 vs. 9.6%, p=0.05). When surgery lasted over 60 minutes or the patient's BMI was >25 kg/m2, postural strain was significantly more pronounced following laparoscopy (p<0.05). Fatigue index and VAS fatigue scores were not significantly different between groups. The mean operative time and BMI was 121.8 minutes (SD 81.61) and 26.4 kg/m2 (SD 5.60), respectively, with no difference between groups. Over 75% of cases lasted greater than 60 minutes.

Conclusion: Laparoscopic surgery resulted in increased surgeon postural strain when compared to robotics. This increase was more pronounced in surgery lasting over an hour or when the patient's BMI was >25 kg/m2.

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Oral Poster 09

THE WAY WE SEE IT: SURGEONS' PERCEPTIONS OF PERIOPERATIVE EVENTS

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Objectives: Surgical complication scales may not capture magnitude or consequence of complications from gynecologic (GYN) surgery. Indications for surgery (quality of life vs life-saving) influence patients' and physicians' expectations of surgical risk and recovery. We examined surgeons' perceptions of perioperative events and their severity. Secondarily, we compared differences in perceptions between surgeons performing elective and non-elective surgery.

Materials and Methods: We created 57 perioperative scenarios associated with GYN surgery. Some are routine perioperative events; others are anticipated complications. We grouped scenarios into 15 categories (change in surgical access, vascular injury, urinary tract injury, blood transfusion, etc). Scenarios were electronically distributed to GYN surgeons from geographically diverse areas and surgeons classified each scenario as either complication or routine perioperative event. For events classified as complication, surgeons rated severity (1-100). Study participants were divided into 2 groups based on whether they performed elective (uroGYN, REI, and benign GYN) or non-elective surgeries (GYN oncologists). PASW version 18 was used to calculate means, standard deviations, and coefficients of variability (Cv) for severity rankings of each scenario within and among surgeon groups. We also assessed survey inter-rater reliability by calculating the interclass correlation coefficient (ICC) for each of 15 categories.

Results: 63/82 surgeons (predominantly board-certified (64%) and fellowship-trained (76%)) responded: 29% UroGYN, 29% GYN Oncology, 11% REI, and 31% other GYN. Surgeons performed a mean of 18 cases/month and were 0-25 years out of training. ICC for each category of scenarios was statistically significant (P<05) for all categories except "intraoperative consultation from other surgical service", indicating that there was high reliability for all other questionnaire items. When we compared surgeon agreement across scenarios, surgeons had higher agreement on intraoperative than postoperative complications. There was also greater agreement about objective postoperative events with a measurable outcome (hospital admission, reoperation) than indolent, patient-reported events (ileus, self-resolved neuropathy). GYN oncologists classified conversion from laparoscopy to laparotomy, blood transfusion, and delayed return of bowel function as complications less frequently than elective surgeons (36% vs 12% P=.02, 62 vs 29% P=.003, 85% vs 57%, P=.002), which likely reflects differences in surgical procedures and patient characteristics between these two groups.

Urogynecologists rated postoperative urinary symptoms (retention, UTI, persistent or de novo stress incontinence, irritative symptoms, urgency incontinence) as more severe complications compared to other surgeon groups. All groups showed high agreement (96-100%) classifying postoperative events involving foreign body (mesh, suture) as complications (Cv = 46(30-51).

Conclusion: Surgeons' perceptions of perioperative events vary based on surgical indication and subspecialty training. Future studies assessing agreement between patients' and surgeons' perceptions may aid in creating a patient-oriented GYN complication assessment tool.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Kimberly Kenton: Nothing to disclose
Olga Ramm: Nothing to disclose
Megan Schmidt: Nothing to disclose

Oral Poster 10

A PROSPECTIVE PILOT STUDY OF SURGICAL TRAINING UTILIZING A VIRTUAL ROBOTIC SURGERY SIMULATION PLATFORM (MIMIC DV-TRAINER®) VERSUS A CONVENTIONAL ROBOTIC TRAINING PLATFORM

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Objectives: Simulation science has revolutionized the approach to surgical training in U.S. surgical and gynecologic residency training programs. The Mimic dV-Trainer® (MdVT) is a novel virtual reality simulator for robotic surgery that proposes to accelerate surgical skill acquisition using realistic training scenarios. The purpose of this study is to compare the utility of learning a specific suturing task on the MdVT versus training on the da Vinci Surgical System® (dvSS) dry lab platform amongst novice robotic surgeons.

Materials and Methods: This was a single institution, IRB-approved prospective pilot study. Medical students and gynecology trainees (PGY 1-6) who had participated in 10 or fewer robotic-assisted surgeries were enrolled.

Both groups completed the same pre-test and post-test, consisting of suturing an incisional defect in a vaginal cuff dVSS dry lab model using

barbed suture. Metrics measured included time to complete the task, economy of instrument movement and collisions, instruments out of view and missed targets. Between the pre and post tests, the MdVT group trained on a needle driving exercise on the virtual reality simulator, while the participants in the dVSS group trained on a similar dry lab needle driving exercise distinct from the pre and post-test model. Performance metrics were analyzed using STATA statistical software.

Results: Twenty participants were enrolled: 10 medical students and 10 residents/fellows. The groups were well matched by level of training and by previous robotic experience. 75% of participants had no robotic console experience. The mean pre-test completion times did not significantly differ between the MdVT and the dVSS groups (189.8 seconds versus 235.0 seconds, respectively; P=0.39). Training on the MdVT was associated with a mean 64.9 second decrease in time to completion (P=0.04), while training on the dVSS was associated with a 63.9 second decrease (P=0.002). Mean post-test completion times did not significantly differ between the two groups (124.9 seconds for the MdVT group, 171.1 seconds for the dVSS group, P=0.13). An improvement in the number of movements used to complete the task was seen in both groups (mean of 12.1 in the MdVT group, P=0.02; mean of 17.3 fewer movements in the dVSS group, P<0.001). There were no differences observed in pre/post test performance for any other metrics. Finally, mean simulation set-up times and technology supervision were significantly shorter for the MdVT group (P=0.002).

Conclusion: In this prospective pilot study, suture training on either the virtual reality robotic simulator (MdVT) or the dry lab robotic surgery platform (dVSS) resulted in significant improvements with technical performance for novice robotic surgeons. Benefits unique to the MdVT platform include autonomy of use, computerized performance feedback, and ease of set-up. These features may facilitate more efficient and sophisticated simulation training above that of the conventional dVSS platform, with no loss of efficacy.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Robert L. Giuntoli: Nothing to disclose
Isabel Green: Curriculum designer, Honorarium
Amanda Nickles Fader: Nothing to disclose
Sangini Sheth: Nothing to disclose
Ana I. Tergas: Nothing to disclose
Abigail D. Winder: Nothing to disclose

Oral Poster 11

THE EFFECT OF PRIOR ABDOMINAL/PELVIC SURGERY ON THE PERIOPERATIVE OUTCOMES OF LAPAROSCOPIC HYSTERECTOMY

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Objectives: The purpose of this study is to evaluate whether prior abdominal and/or pelvic surgery, and specifically prior cesarean delivery has an impact on perioperative laparoscopic hysterectomy outcomes.

Materials and Methods: We established a retrospective cohort of all laparoscopic hysterectomies performed for benign conditions between November 1999 and August 2008 at our institution. This cohort consists of laparoscopic hysterectomies which did not include vaginal assistance. Of the group, 565 (55.7%) underwent supracervical, while the remaining 450 (44.3%) had total laparoscopic hysterectomy. In this ancillary analysis, we evaluated perioperative outcomes between women who had a history of previous abdominal/pelvic surgery, and those who did not. The prior surgeries included any cesarean delivery, myomectomy, unilateral or bilateral ovarian cystectomy, salpingectomy, oophorectomy, appendectomy, cholecystectomy, and bowel resection. First, baseline characteristics were compared. Then, we examined the differences 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 re-operation, which included visceral injury, urinary tract injury, and vaginal cuff dehiscence. As a subgroup analysis, we also compared the group who had a history of cesarean delivery with the group without this history.

Results: Of the 1015 consecutive laparoscopic hysterectomies, 692 cases (68.2%) had a history of previous abdominal and/or pelvic surgery. Of these, 215 (31%) had gastrointestinal system surgery, 237 (34.3%) had cesarean delivery, 517 (74.7%) had adnexal surgery, and 28 (4%) had myomectomy. Subjects in the group with prior surgery were significantly younger, more parous, heavier, had smaller uterine size, and more likely to be postmenopausal. The comparisons of the outcomes were adjusted for these variables. Cervical preservation rate was similar between the groups. There were no significant differences in any outcome including the rates of conversion to laparotomy, urinary tract injury, or serious complications as well as operating time, length of hospital stay, 24-hour hemoglobin change. In the subgroup analysis for cesarean delivery, drop in hemoglobin levels more than 2.5 g/dl occurred more often among women with history of cesarean delivery compared to those who did not (34.4 versus 25.0%, adjusted odds ratio 1.41, confidence interval 1.04-1.91). Interestingly, all 13 urinary tract injury happened in women who did not have previous cesarean delivery, and 10 of those occurred in women who underwent total laparoscopic hysterectomy.

Conclusion: Overall, history of prior abdominal and/or pelvic surgery including cesarean deliveries does not worsen laparoscopic hysterectomy outcomes.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Reyhan Ayaz: Nothing to disclose
Ayse Citil: Nothing to disclose
Sertac Esin: Nothing to disclose
Oz Harmanli: Nothing to disclose
Keisha Jones: Nothing to disclose
Alexander Knee: Speaking and teaching, Consulting Fee

Oral Poster 12

UTERUS-PRESERVING LAPAROSCOPIC SACROHYSTEROPEXY FOR THE TREATMENT OF ADVANCED APICAL PELVIC ORGAN PROLAPSE

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Objectives: The purpose of this study is to describe all cases of laparoscopic sacrohysteropexies performed at Mount Sinai Hospital from 2004 to 2011.

Materials and Methods: In this retrospective case series, the main outcome measure is recurrence of symptomatic prolapse. Secondary outcomes include surgical time, length of hospital stay, estimated blood loss, change in hematocrit, and complications. All procedures were performed by two experienced laparoscopic surgeons. Surgical technique included bilateral incisions in the broad ligament, passage of polypropylene mesh from the posterior aspect of the cervix through these two incisions with attachment to the anterior cervix, then attachment of the long arm of the mesh to the sacral promontory either using a tacker or polyester sutures.

Twenty cases of laparoscopic sacrohysteropexy (three of them with robotic assistance) were performed at Mount Sinai Hospital from 2004 to 2011. The mean age was 58 (range 32-82), and the mean parity was 3.42 (range 0-11). Six patients (30%) had a prior surgery for apical prolapse. The preoperative stage of apical prolapse ranged from POPQ stage 2 to 4 (stage 2=10, stage 3=7, stage 4=3). The average follow up after surgery was 8.5 months (range 0-39 months).

Results: Two (10%) out of twenty patients had recurrent prolapse that required additional surgery. One patient failed on postoperative day number 2 and the second patient failed 2 years after her surgery. The average surgical time for sacrohysteropexy without concomitant procedures (n = 11) was 51 minutes (range 35-68 minutes). The average surgical time for cases with concomitant procedures (n = 9) was 114 minutes (range 63-216 minutes). Additional procedures performed at the time of sacrohysteropexy included anterior colporrhaphy, posterior colporrhaphy, paravaginal repair, retropubic midurethral slings, cystoscopy, insertion of IUD, cervical amputation, and dilation and curettage. Six out of 20 patients went home the same day, 12 patients spent one night in the hospital, and two stayed in the hospital for two days. The mean estimated blood loss was 71.5 mL, median 50 mL (range 25-400 mL), while the average change in hematocrit among thirteen cases (n = 13 as blood tests for seven patients were not performed) was 5.65%, median 6.0%. Complications were observed in four patients (20%). The most severe complication was a small bowel obstruction that required a laparotomy and enterolysis (this occurred on a patient with a history of colon cancer and prior bowel resection). Minor complications included one bladder perforation during placement of a retropubic midurethral sling, one case of de novo urinary urgency, and one case of de novo stress urinary incontinence.

Conclusion: We conclude that laparoscopic sacrohysteropexy is an acceptable minimally invasive alternative for the repair of apical prolapse in patients who desire to preserve the uterus.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Charles J. Ascher-Walsh: Nothing to disclose
Michael Brodman: Nothing to disclose
Basma Faris: Nothing to disclose
Lauren G. Rascoff: Nothing to disclose
Alejandro D. Treszezamsky: Nothing to disclose

Oral Poster 13
VAGINAL ASSISTED LAPAROSCOPIC UTERINE SACROPEXY (VALUES), A NOVEL APPROACH IN TREATING ADVANCED UTERINE PROLAPSE

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Objectives: To assess the safety and efficacy of vaginal assisted laparoscopic uterine sacropexy (VALUES) as a novel treatment in stage 4 uterine prolapse.

Materials and Methods: 42 women with bothersome stage 4 prolapse who underwent VALUES were prospectively evaluated. Thirteen patients underwent concomitant anterior vaginal wall repair. All patients filled the King's Health and Prolapse Quality of Life Questionnaires and underwent examination using pelvic organ prolapse quantification system (POP-Q). Patients also filled the Prolapse and Incontinence Sexual Function Questionnaire Short Form (PISQ -SF). All women were followed up to 18 months following surgery. At follow up, patients were examined and prolapse assessed using the POP-Q system and refilled the questionnaires along with patient global impression of improvement (PGII).

Results: Preoperatively, median point C was at +5 (range +4 - +8) and median point Ba was 5 cm. The procedure was safely completed in all patients. All patients were discharged home after 48 hours. At 18 months follow up, bulge symptoms disappeared in all women apart from two patients who had anterior vaginal wall prolapse. At 18 months, 39 patients (93%) reported feeling either "much better" or "very much better" on their global impression of improvement questionnaire. Anatomically, point C was at -7 (range -8 to -5) and Ba was -2 (-3 to +1). The median total vaginal length (TVL) was 8.5 cm (range 8-9 cm). Two patients developed bothersome anterior vaginal wall prolapse that needed further surgical treatments, neither had anterior colporrhaphy before. Two patients developed postoperative pelvic haematoma that was treated conservatively and intravenous antibiotics. There were no visceral injuries and none of the patients developed mesh exposure.

Conclusion: Vaginal Assisted Laparoscopic Uterine Sacropexy is a safe and effective novel treatment for women with advanced uterine prolapse without risk of vaginal shortening and should be considered in the treatment of patients with advanced uterine prolapse.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Abdalla M. Fayyad: Speaker, Honorarium Scientific Meeting, Travel Sponsorship Speaker.

Oral Poster 14
OUTCOMES OF MINIMALLY INVASIVE AND ABDOMINAL SACROCOLPOPEXY: A FELLOWS' PELVIC RESEARCH NETWORK STUDY

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Objectives: To compare peri and postoperative surgical outcomes between and among open and minimally invasive sacrocolpopexy including complications, length of hospitalization and anatomic success.

Materials and Methods: We performed a multicenter retrospective cohort study comparing abdominal (ASC) and minimally invasive (MISC) sacrocolpopexy at five institutions from January 1999 to December 2009. All subjects that underwent ASC and MISC were identified using CPT codes. We reviewed inpatient and outpatient records including operative reports and discharge summaries, and collected baseline patient characteristics, surgical information, intra and postoperative complications, and pre and postoperative POP-Q stage. Anatomical failure was defined as POP-Q ≥ stage II. Conversions from MISC to ASC were evaluated in the ASC group.

Results: A total of 831 subjects underwent sacrocolpopexy with 400 ASC and 431 MISC. The minimally invasive approach included 213 straight stick and 218 robotic assisted laparoscopic sacrocolpopexies, of which 12 (2.8%) were converted to open. There were no differences in mean age (58.6), BMI (27), parity (2.6) and preoperative POP-Q ≥ stage 3 (70.9% vs. 66.4%, p=0.21) between ASC and MISC. Complication rates were higher in the ASC group when compared to MISC group (17.2% vs. 10.1%, p<0.01). Intraoperative cystotomy (4.8% vs. 2.1%, p=0.03) and postoperative ileus/SBO (4.8% vs. 1.8%, p=0.02) were more common in the ASC group, whereas postoperative mesh erosions were more common in the MISC group (3.2% vs. 1.0%, p=0.03). In addition, patients undergoing ASC had greater blood loss (188 vs. 122ml, p<0.01) and longer length of hospitalization (2.8 vs. 1.2 days, p<0.01). Interestingly, longer operative times were observed in the ASC group (234 vs. 206 min, p<0.01) despite fewer concomitant procedures in this cohort (1.5 vs. 2.0, p<0.01). There were more anatomical failures in the ASC group (24.1%, vs. 14.3%, p<0.01), which was primarily due to posterior vaginal wall support ≥ stage 2 (16.3% vs. 7.1%, p<0.01). In addition, the ASC group had longer length of follow-up compared to the MISC group (10.8 vs. 7.6 month, p<0.01).

No significant differences in the rate of complications were noted when comparing straight stick and robotic assisted MISC (13.6 vs. 8.1, p=0.06). However, robotic assisted sacrocolpopexies did have fewer failures (5.9% vs. 18.6%, p=.04) despite more advanced preoperative prolapse.

Conclusion: ASC is associated with a higher rate of peri and postoperative complications when compared to MISC. The MISC group had shorter length of hospitalization, less blood loss, shorter operative times and fewer anatomical failures. While there is no difference in the rate of complications between straight stick and robotic assisted laparoscopy there were fewer failures in the robotic group.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Robert E. Gutman: Nothing to disclose
Heidi Harvey: Nothing to disclose
Sarah Kane: Nothing to disclose
Lior Lowenstein: Nothing to disclose
Patrick A. Nosti: Nothing to disclose
Uduak Umoh: Nothing to disclose
Dena E. White: Nothing to disclose

Oral Poster 15
WHAT DO MEN WANT? THE SURGICAL TREATMENT GOALS OF MALE PARTNERS OF UROGYNECOLOGIC SURGERY PATIENTS

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Objectives: To characterize the surgical treatment goals that men have for their partners undergoing urogynecologic surgery.

Materials and Methods: Participants were male partners of women undergoing urogynecologic surgery for treatment of pelvic organ prolapse (POP), stress urinary incontinence (SUI), or both at a tertiary care center. Following research consent, participants completed questionnaires on demographics and general health, sexual function, and relationship satisfaction using a validated scale of dyadic adjustment.

They also listed their goals for their partner's surgical treatment.

A panel of four urogynecologic surgeons placed each goal into one of 8 categories: General health, symptom specific (POP/bulge), symptoms specific (incontinence), quality of life, sexual function/intimacy/relationship, physical activity, emotional well-being/self-image, and surgical outcome/healing/recovery. Discordant placements were resolved by a fifth surgeon.

Results: Forty-three men with a mean age of 54 (range 35-78) provided data. Most respondents were Caucasian (74%), married (84%) and in their current relationship for a mean of 25 years (9 months to 53 years). Most (86%) were currently sexually active and most (86%) were happy with their relationship.

The patients were presenting for surgical correction of SUI only in 30%, POP only in 42%, and SUI and POP in 28%. Fifty-three percent of the patients had POP-Q stage ≤ 2.

Males provided 121 treatment goals (median 3, 1 - 8]. Goals related to sexual function/intimacy/relationship were the most common (21%) followed by emotional well-being/self-image (17%). When symptom specific goals were listed, male participants were more likely to cite goals specific to urinary incontinence (15%) as opposed to specific to symptoms of pelvic organ prolapse (2%), even though POP was a more common diagnosis.

Conclusion: Male partners were more likely to cite goals that were specific to sexual function and relationship intimacy than any other category,

highlighting the impact that pelvic floor disorders may have upon a couple's relationship. They were also more likely to cite goals specific to incontinence than POP, highlighting the relative impact of these symptoms on a relationship. Impressions of the role that pelvic floor disorders play may differ between men and women.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Linda Brubaker: Nothing to disclose
Jacqueline Cunkelman: Nothing to disclose
Kimberly Kenton: Nothing to disclose
Elizabeth Mueller: PI - research, N/A

Frequency of Goal Categories

Goal	Percent of Total Goals
Sexual function/intimacy/relationship	21
Emotional well-being/self-image	17
General health	16
Symptom specific (incontinence)	15
Quality of life	12
Activity	9
Surgical outcome/healing/recovery	8
Symptom specific (POP)	2

Oral Poster 16
PERIOPERATIVE MANAGEMENT OF MAJOR GYNECOLOGIC SURGERY PATIENTS; DOES INVOLVEMENT OF FELLOWS IMPROVE PERFORMANCE?

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Objectives: Physicians in training play a role in guiding patient care and their contributions may improve adherence to clinical practice guidelines. However, there is scant information in the literature assessing this impact on peri-operative decision making. The purpose of this study was to determine whether involvement of urogynecology fellows results in superior perioperative management of gynecologic patients.

Materials and Methods: This was a retrospective analysis of all patients undergoing major gynecologic surgery at our institution between July 1, 2009 and June 30, 2010. Charts were manually reviewed after identification using CPT codes. Subjects were subdivided according to provider type: urogynecology or private gynecology patients. Information was collected regarding pre and postoperative DVT prophylaxis as well as preoperative antibiotic type, dose, and timing. Statistical analysis was utilized to assess differences between the groups.

Results: To date, 300 charts have been reviewed; 187 (62.3%) private patients and 113 (37.7%) urogynecology patients. DVT prophylaxis was given peri-operatively to 94% of the private vs. 99% of the urogynecology patients (P=0.035). However, 13 private patients did not receive any preoperative DVT prophylaxis, while all urogynecology patients were treated prior to surgery (P =0.005). Between groups, there was no difference seen with respect to whether post-operative DVT prophylaxis was administered. However, there was noted to be a significant difference in type of DVT prophylaxis (i.e.: sequential compression devices, heparin or enoxaparin). When assessing based on risk categories (moderate, high, highest), private physicians were more likely to place patients in the improper category. Specifically, post-operative DVT prophylaxis in the private attending group was inappropriate 11% of the time, compared with 2% in the urogynecology group (p=0.005). Timing for post-operative DVT prophylaxis was not found to be significantly different (p=0.840). When evaluating antibiotic utilization, both groups were similar in their timing and dosing of cephalosporins. However, when evaluating antibiotic choice for penicillin-allergic subjects, private attendings were less likely to provide the correct antibiotic prophylaxis, which approached significance (p=0.06).

Conclusion: In this study, the contribution of fellows towards clinical decision making resulted in more appropriate DVT prophylaxis and antibiotic selection prior to major gynecologic surgery. This would suggest that involvement of physicians in training in patient care may lead to reduced complications and improved outcomes.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Catrina C. Crisp: Nothing to disclose
Emily Jones: Nothing to disclose
Rachel N. Pauls: Consultant, consulting fee, Researcher, research support Stock Options, Scientific Advisory Board
Holly Steiner: Scientific Advisory Board, Stock options, Researcher To hospital Consultant, Honorarium

Oral Poster 17
SEXUAL FUNCTION IN OLDER WOMEN AFTER BILATERAL SALPINGO-OOPHORECTOMY

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Objectives: The primary objective of this study is to compare the sexual function of older women who had bilateral salpingo-oophorectomy (BSO) with older women who had retained their ovaries.

Materials and Methods: We performed a secondary database analysis of the National Social Life, Health, and Aging Project (NSHAP) to examine the sexual function in older women. The NSHAP survey was conducted to investigate sexuality of community-dwelling older adults in the United States ages 57 to 85 years old. Specifically, we compared older women who reported prior BSO to older women who have not had BSO (intact). Demographic and clinical information was reviewed. Outcomes included sexual partnership, sexual activity, sexual frequency, attitudes and beliefs, and sexual problems. Statistical analyses, including descriptive and comparative statistics with 95% confidence intervals (CI), were performed as appropriate. The NSHAP dataset allowed data to be weighted to provide an estimate of population characteristics representative of community-dwelling older Americans aged 57 to 85 years. Our analysis achieved 89.9% power to detect a difference of 10% sexual activity within the last 12 months (assuming a prevalence of 45%) with a significance level(α) of 0.05(two-sided).

Results: 1,352 women were included in this analysis; 356 women reported prior BSO and 996 intact women. Mean age {68.7±0.4 vs.68.0±0.3, p=.19} and self-reported health {very good or excellent—146 (41.0%) vs. 461 (46.3%), p=32} were similar between women who reported prior BSO and intact women. Adequate representation of minorities {Black—47(13.4%) vs. 107 (10.7%), p=.90; Hispanic—19 (5.4%) vs. 81 (8.1%), p=.07} was achieved. Sexual partnership—No differences were observed in the number of women reporting being currently married, co-habitating, or other romantic partners between the prior BSO group and intact women {208 (59.6%) vs. 638 (40.4%), p=.24}. Sexual activity—Among all women with partners, women who reported prior BSO were more likely to report vaginal intercourse {90.1% (95% CI 84.7, 95.5) vs. 82.3% (95% CI 77.9, 86.8), p=.05}, however foreplay {90.1% (95% CI 84.7, 95.5) vs. 87.3% (95% CI 83.7, 91.0), p=.46}, and masturbation {21.7% (95% CI 16.3, 27.2) vs. 25.3% (95% CI 21.9, 28.2), p=.29} were similar. Sexual frequency—No differences were observed in the percentage of women reporting sexing the last 12 months between women with prior BSO and intact women {42.2% (95% CI 36.0, 48.4) vs. 44.5% (95% CI 40.8, 48.3), p=.53}. Sexual attitudes and beliefs—No differences were observed between the two groups in sexual attitudes and beliefs, including sex being essential to maintain a relationship (p=.99) and religious beliefs guiding sexual behavior (p=.16). Sexual problems in the women reporting a current partner {lack of interest (p=.86), vaginal lubrication (p=.88), premature climax (p=.95), inability to climax (p=.13), pain with intercourse (p=.59), lack of pleasure (p=.09), performance anxiety (p=.40), and avoidance of sex due to problems (.85)} were similar between women with prior BSO and intact women.

Conclusion: We found sexual function was similar among community-dwelling older women with prior BSO compared with intact women.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Maria M. Ciarleglio: Nothing to disclose
Elisabeth A. Erekson: Nothing to disclose
Marsha K. Guess: Nothing to disclose
Divya A. Patel: Nothing to disclose
Elena S. Ratner: Nothing to disclose
Kejia Zhu: Nothing to disclose

Oral Poster 18
CHANGES IN BOWEL SYMPTOMS 1 YEAR AFTER RECTOCELE REPAIR

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Objectives: Data regarding bowel symptoms after rectocele repair are still needed to inform patient counseling and expectations. Our objective was to evaluate changes in bowel symptoms after rectocele repair and to identify risk factors for persistent bowel symptoms 12 months postoperatively.

Materials and Methods: This is an ancillary analysis of a randomized double-blind controlled trial of rectocele repair with or without graft augmentation using SurgiSIS® graft (Cook, Biotech). Women with Stage 2 or greater symptomatic rectocele electing surgical correction were eligible. Women undergoing sacrocolpopexy, women with porcine allergy or prior pelvic radiation were excluded. Subjects underwent POPQ exams and completed subjective outcome questionnaires at baseline and 12 months postoperatively. Patients and outcome assessors were blinded. Bowel symptoms measured included splinting (PFDI item #4), straining (PFDI item #7), incomplete emptying (PFDI item #8), sensation of stool getting "trapped", anal incontinence, symptom severity, duration and frequency of each bowel symptom, and intake of stool softeners and/or laxatives. Resolution of symptoms was defined as symptoms that resolved completely at 12 months. Persistence of symptoms was defined as symptoms which were the same or worse, and de novo symptoms were defined as symptoms which were absent at baseline but present postoperatively. We used multiple logistic regression to identify risk factors for persistent bowel symptoms after rectocele repair.

Results: 160 women were enrolled in the study: 137 (86%) had baseline bowel symptoms and of these 123 (90%) had 12 month subjective data. The mean age was 56 years (SD 11), 81% had Stage 2 and 20% had Stage 3 rectocele on POPQ, and 94% underwent a concomitant procedure.

At baseline, there was a high prevalence of bowel symptoms: 55% reported splinting, 68% reported straining, 79% reported incomplete evacuation, 65% reported stool getting "trapped", and 63% reported anal incontinence. Postoperatively, the proportion of women reporting symptoms significantly decreased for all 5 bowel symptoms with 22% reporting persistent splinting, 44% straining, 43% incomplete evacuation, 22% stool gets "trapped", and 30% anal incontinence ($P<001$ for all). Of the women who reported persistent bowel symptoms, the severity of bother and the frequency of experiencing symptoms more than weekly improved for most symptoms ($P<05$ for splinting, straining, incomplete evacuation, stool "trapped"), except for anal incontinence. The proportion of women taking stool softeners/laxatives did not change postoperatively (42% versus 50%, P=0.1). Of the women without baseline bowel symptoms 17% had de novo straining. There was no de novo splinting or incomplete evacuation. On multiple logistic regression, a longer history of constipation and incomplete evacuation were risk factors for persistent postoperative bowel symptoms. Age, graft use, site-specific repair were not risk factors.

Conclusion: Rectocele repair is associated with improvements in bowel symptoms; however, 23%-44% of women report at least 1 persistent bowel symptom postoperatively. Longer duration of constipation and incomplete evacuation are independent risk factors for persistent postoperative bowel symptoms.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Christine LaSala: Nothing to disclose
Deborah Myers: Nothing to disclose
Christina Raker: Nothing to disclose
Charles Rardin: Nothing to disclose
Vivian W. Sung: Nothing to disclose
Renee M. Ward: Nothing to disclose

Oral Poster 19
A COMPARISON OF SEXUAL FUNCTION OUTCOMES 1 YEAR AFTER UNDERGOING A TRANSVAGINAL MESH PROCEDURE USING POLYPROPYLENE MESH VS. HYBRID POLYPROPYLENE/POLIGLECAPRONE MESH

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Objectives: To assess sexual function outcomes in patients undergoing the transvaginal mesh (Prolift) procedure using either the standard polypropylene mesh or a hybrid mesh composed of polypropylene and absorbable poliglecaprone 25 (Monocryl) fibers (Prolift+M) for pelvic organ prolapse through a comparison of pre- and post-operative responses to the Pelvic Organ Prolapse Urinary Incontinence Sexual Questionnaire (PISQ-12).

Materials and Methods: This is a retrospective cohort study assessing sexual health as measured by the PISQ-12 following surgical correction of pelvic organ prolapse. Patients that underwent the Prolift+M surgery between 8/13/08 and 6/06/09 were included and compared to age-matched, sexually active controls that underwent the standard Prolift procedure between 2/14/05 and 6/06/09. All patients completed the PISQ-12 questionnaire and had POPQ measurements taken preoperatively and at 4 and 12 months postoperatively.

Results: Out of a total of 102 patients who met inclusion criteria, 71 patients (n=39 standard mesh, n= 32 +M mesh) at 4 months and 40 patients (n=20 standard mesh, n= 20 +M mesh) at 1 year had completed both preoperative and postoperative PISQ forms. There is no significant difference in preoperative PISQ scores, age, BMI, POPQ points Ba, Bp, C and tvl (total vaginal length). Total PISQ scores improved significantly in the standard mesh group and the + M mesh group at both 4 months and 1 year postoperatively. In comparing both groups, there is a significant improvement in postoperative sexual desire (PISQ #1), comfort with intercourse (PISQ #5), and overall sexual function (Total PISQ Score) with the hybrid mesh compared to the standard mesh at 4 months but this significance was not found at 1 year postoperatively. Total PISQ scores also increased significantly in both groups between 4 months and 1 year postoperatively. This improvement was greater in the standard mesh group but was not significant.

Conclusion: Pelvic floor-related sexual health as defined by changes in the PISQ-12 improves with treatment of prolapse using the transvaginal mesh technique. When a hybrid mesh composed of permanent and absorbable fibers is used, compared to the traditional all-polypropylene mesh, this improvement appears to be greater in the short-term, however there is no significant difference at 1 year in this small cohort study. Sexual health, however, appears to improves with both mesh materials between 4 months and 1 year postoperatively.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Nina Bhatia: Nothing to disclose
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Miles Murphy: Consultant & Research Site, Consultation Fee
Cristina Saiz Rodriguez: Nothing to disclose

Comparisons of Preoperative Variables

Pre-op Variables	Standard Mesh Mean (SD)	Hybrid Mesh Mean (SD)	P Value
Age	56.53 (±8.33)	56.67 (±8.02)	0.93
BMI	27.65 (±6.41)	26.17 (±4.02)	0.17
POPQ Ba	1.20 (±2.01)	0.95 (±1.72)	0.51
POPQ Bp	−1.18 (±2.35)	−1.49 (±1.20)	0.41
POPQ C	−3.51 (±3.72)	−3.74 (3.59)	0.75
POPQ tvl	8.67 (±1.23)	9.09 (±1.23)	0.09

Differences in Postoperative and Preoperative PISQ Scores After Transvaginal Mesh Placement

	Standard Mesh Mean at 4 Months Postoperatively(SD)	Hybrid Mesh Mean at 4 Months Postoperatively (SD)	P value	Standard Mesh Mean at 1 Year Postoperatively (SD)	Hybrid Mesh Mean at 1 Year Postoperatively (SD)	P value	Standard Mesh Mean between 4 Months and 1 Year Postoperatively (SD)	Hybrid Mesh Mean between 4 months and 1 Year Postoperatively (SD)	P value
PISQ Question # 1	0.10 (±0.78)	0.54 (±0.79)	0.03	0.85 (±1.31)	0.75 (±1.33)	0.88	1.09 (±1.41)	0.57 (±1.08)	0.18
PISQ Question # 5	−0.38 (±1.71)	0.56 (±1.31)	0.02	1.22 (±1.40)	1.00 (±1.26)	0.62	0.76 (±0.93)	0.78 (±0.60)	0.92
Total PISQ Score	3.00 (±5.40) N=39	6.25 (±5.57) N=32	0.02	10.08 (±6.02) N=20	11.3 (±5.79) N=20	0.52	6.53 (±6.23) p=0.00 N=24	4.92 (±3.73) p=0.00 N=25	0.28

Oral Poster 20
COMPARISON OF SURGICAL OUTCOMES FOR ABDOMINAL SACROCOLPOPEXY VIA LAPAROTOMY AND MINILAPAROTOMY

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Objectives: To compare outcomes for abdominal sacrocolpopexy (ASC) via laparotomy and minilaparotomy.

Materials and Methods: We conducted a retrospective cohort study comparing women undergoing ASC via laparotomy and minilaparotomy. Whereas a Balfour retractor was utilized during laparotomies, the small Alexis Wound Retraction System was employed for minilaparotomies. The primary outcomes were operative time, estimated blood loss, length of hospital stay, and inpatient narcotic use in oral morphine equivalents. Vaginal vault support determined by POP-Q was the secondary outcome.

Results: 28 women underwent laparotomy ASC between May 2006 and March 2011 and 35 women underwent minilaparotomy ASC between June 2007 and May 2011. Minilaparotomy resulted in significantly shorter operative times and lengths of hospitalization compared to laparotomy with no differences in estimated blood loss or inpatient narcotic use in oral morphine equivalents (Table 1). There were no differences in postoperative POP-Q points. 21 (60%) of the minilaparotomy patients were discharged home on POD#1 compared to 2 (7.1%) of the laparotomy patients ($p<0.0001$). In a multiple linear regression model that controlled for BMI, hysterectomy, Burch urethropexy, midurethral sling, anterior repair, posterior repair, vaginal mesh removal, and other non-urogynecologic surgeries operative time remained significantly lower in the minilaparotomy group ($p<0.0001$). Hysterectomy ($p<0.0001$), Burch urethropexy ($p<0.0001$), and other non-urogynecologic surgeries ($p=0.003$) were found to increase operative times. In a multiple linear regression model controlling for the same covariates EBL was significantly lower in the minilaparotomy group ($p<0.0001$). Hysterectomy ($p<0.0001$), Burch urethropexy ($p=0.02$), and removal of vaginal mesh ($p<0.0001$) were found to increase EBL.

Conclusion: Minilaparotomy offers an effective, minimally invasive technique for ASC which is accomplished with significantly shorter operative times and lengths of hospitalization than laparotomy ASC. 60% of minilaparotomy ASC patients are discharged home on POD#1 compared to 2% of those undergoing laparotomy ASC.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Christina Boots: Nothing to disclose
Adam Gafni-Kane: Nothing to disclose
Roger P. Goldberg: Nothing to disclose
Manhan Vu: Nothing to disclose

Oral Poster 21
CAN WOMEN WITH ADVANCED UROGENITAL PROLAPSE GIVE ADEQUATE CLEAN CATCH URINE SPECIMENS?

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Objectives: There is minimal available data on the manner in which urogenital prolapse affects the accuracy of urine collection techniques. Our goal was to determine whether clean catch urine specimens are reliable in patients with urogenital prolapse to the level of the hymenal ring or beyond.

Materials and Methods: This is a prospective study of all women presenting to an outpatient urogynecologic center with urogenital prolapse from May through September 2011. Patients were included in the study if the leading edge of their prolapse was to the level of the hymenal ring or beyond on pelvic exam. Patients were excluded if they had a pessary, or any impairment preventing the ability to perform the clean catch technique. All patients provided clean catch and sterile catheterized urine samples. Both samples were sent for microscopic urinalysis (UA). For each patient the clean catch specimen was compared to the catheterized specimen for all components of the microscopic UA. Agreement between urine collection techniques was calculated using weighted and Cohen's kappa (k) for ordinal and binary outcomes respectively. Significant agreement was defined as $k \geq 0.75$. The Wilcoxon signed-rank test was used as a paired difference test between urine collection techniques.

Results: 67 patients met inclusion criteria. Mean age was 60.3 years. Of the 67 patients, 60, 27, and 42 had prolapse in the anterior, posterior, and apical compartments respectively. There was no significant agreement between clean catch and catheterized specimens when evaluating bacteria, WBC, leukocyte esterase, RBC and squamous epithelial cells regardless of the type of prolapse present (see Table 1). Clean catch specimens had significantly higher leukocyte esterase ($p< 0.0001$), squamous epithelial cells ($p<0.0030$), and WBC ($p<0.0001$) compared to catheterized specimens on microscopic UA. The UA result with the highest level of agreement between methods of collection was nitrites ($k=1.000$).

Conclusion: In our study population of women with advanced prolapse, clean catch urine specimens had significantly higher leukocyte esterase, WBC, and squamous epithelial cells compared to catheterized specimens. There was inadequate agreement between the patients' clean catch and catheterized urine specimens on all major components of a microscopic UA with the exception of nitrites. Our findings suggest that women with prolapse to the level of the hymenal ring and beyond may be unable to provide adequate clean catch urine specimens.

TABLE 1. Pre- and Peri-operative Details

	Laparotomy ASC n=28	Minilaparotomy ASC n=35	p
Age	63.1 ± 10.2	62.1 ± 10.8	0.68[a]
BMI (kg/m^2)	26.7 ± 3.0	26.2 ± 4.8	0.64[a]
OR time (mins)	200.2 ± 57.4	159.5 ± 51.1	0.005[a]
EBL (mL)	224.1 ± 138.4	160 ± 170.8	0.10[a]
Length of stay (days)	2.6 ± 1.0	1.5 ± 1.0	0.0001[a]
Narcotic use in oral morphine equivalents (mg)	88.6 ± 12.1	66.7 ± 10.1	0.17[a]
Preoperative POP-Q Aa Ap C Gh Pb TVL Ap Bp	0.5 (−1 to 3) 1 (−0.5 to 4) 3 (0.5 to 7) 4 (4 to 5) 3.5 (3 to 4) 9 (8 to 10) −1 (−2 to −1.5) −1 (−2 to −0.5)	0 (−0.5 to 3) 0.5 (−0.5 to 4) 0 (−3 to 3) 4 (3.5 to 4.5) 3 (3 to 4) 8.5 (8 to 9) −2 (−2.5 to −1) −1 (−2 to 0)	0.85[b] 0.31 0.01 0.19 0.83 0.04 0.25 0.63
Postoperative POP-Q Aa Ba C Gh Pb TVL Ap Bp	−2 (−3 to −1.5) −2 (−3 to −1.5) −8 (−9.5 to −6) 3 (3 to 4) 3 (3 to 4) 8.5 (8.5 to 10) −3 (−3 to -2) −3 (−3 to −2)	−3 (−3 to −2.5) −3 (−3 to −2) −9 (−10 to −8) 3 (3 to 3.5) 3 (3 to 4) 10 (9 to 10) −3 (−3 to −2) −2.5 (−3 to −1.5)	0.07[b] 0.29 0.07 0.26 0.60 0.10 0.87 0.71
Hysterectomy	7 (25.0)	10 (28.6)	0.75[c]
Burch urethropexy	7 (25.0)	0 (0)	0.002[d]
Posterior repair	3 (10.7)	10 (28.6)	0.12[d]
Midurethral sling	7 (25.0)	14 (40.0)	0.21[c]
Anterior repair	0 (0)	1 (2.9)	1.00[d]
Non-urogynecologic surgery	3 (10.7)	3 (8.6)	1.00[d]
Removal vaginal mesh	1 (3.6)	1 (2.9)	1.00[d]
Number discharged home POD#1	2 (7.1)	21 (60.0)	<0.0001[d]

Data are mean ± standard deviation, median (25% to 75%), number (%) (a) Student's t test (b) Wilcoxon rank-sum test (c) Pearson's χ^2 test (d) Fisher exact test.

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Harvey A. Winkler: Nothing to disclose

TABLE 1. Agreement between clean catch and catheterized urine specimens in women with stage 2 or greater prolapse

Urinalysis	Overall (n = 67)	Anterior (n = 60)	Posterior (n = 27)	Apical (n = 42)
Nitrite	1.0000	–	–	–
Bacteria	0.4780	0.4738	0.3235	0.4954
WBC	0.4479	0.4242	0.6418	0.5706
Leukocyte Esterase	0.3447	0.2984	0.4906	0.4214
RBC	0.2242	0.2842	0.4718	0.1846
Squamous Epithelial Cells	0.0565	0.0651	0.1606	0.0625

Values reported as kappa statistics.

Oral Poster 22
CHANGES IN PELVIC ORGAN SUPPORT OVER ONE YEAR AMONG PAROUS WOMEN

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Objectives: The aims of this study are (1) to report changes in pelvic organ support over 12-18 months among parous women and (2) to investigate characteristics associated with incident prolapse over that interval.

Materials and Methods: Participants were enrolled in a longitudinal cohort study of pelvic floor disorders 5 to 10 years after delivery of their first child. Eligible participants were identified from obstetrical hospital discharge records. The outcome of interest was pelvic organ support, measured using the Pelvic Organ Prolapse Quantification (POPQ) system at baseline and 12-18 months later. In this analysis, pelvic organ support was measured at the anterior wall (point Ba), the posterior wall (point Bp) and the apex (point C). We also considered the width of the genital hiatus with straining (GH). A change in support >1 cm at Ba, Bp, and GH was considered meaningful. At the apex, an increase or decrease in support > 2 cm was considered significant. We estimated the proportion of women with clinically significant changes at each POPQ point. We also compared the characteristics of women who developed prolapse to or beyond the hymen (POP) over one year of observation versus all other participants, using Fishers Exact test. Statistical significance was evaluated at $\alpha = 0.05$ level.

Results: This analysis includes data for the first 618 participants who participated in the follow-up exam. We observed worsening of support at Ba in 51 (8%), Bp in 14 (2%), C in 40 (6%) and GH in 52 (8%). We observed improved support at Ba in 15 (2%), Bp in 22 (4%), C in 27 (4%) and GH in 13 (2%). Thus, the net worsening was greatest at Ba (6%; 95% CI 3%, 8%); there was a 2% net worsening at C (95% CI -1%, 5%); the net improvement at Bp was 1% (95% CI -1%, 3%). Of 517 women who did not have prolapse to or beyond the hymen at enrollment, 42 (7%) had evidence of prolapse at the follow up examination. Risk factors for newly diagnosed prolapse included maternal age >45 years (p=0.02) and at least one vaginal delivery (p<0.01). Specifically, while there was some evidence of increased incidence of POP among women with a single vaginal birth versus those who had delivered only by cesarean (Odds Ratio OR= 1.52, 95% CI 0.57, 4.07), the greatest increase in POP incidence was observed among women who had two or more vaginal deliveries (OR= 4.01, 95% CI 1.99, 8.08). Moreover, among women with a history of vaginal delivery, women with a history of either an operative vaginal delivery or a vaginal delivery with macrosomia showed an increased, albeit non-significant, risk of incident prolapse compared to women with a history of non-operative vaginal delivery and no macrosomia (OR= 1.84, 95% CI 0.83, 4.06).

Conclusion: Over one year, we observed both improvement and worsening of support. However, the net trends were toward deterioration in support, especially at Ba. Two or more vaginal deliveries significantly increased the odds for developing prolapse over one year of observation.

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Victoria Handa: Nothing to disclose
Christopher B. Pierce: Nothing to disclose

Oral Poster 23
INCIDENCE AND BURDEN OF SURGICAL SITE INFECTION FOR ABDOMINAL AND VAGINAL HYSTERECTOMY USING OPEN AND LAPAROSCOPIC APPROACHES

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Objectives: Surgical site infections (SSIs) are a significant burden to healthcare systems negatively affecting hospital reimbursement, quality, and reputation. This study quantified the incidence and clinical and economic impact of SSIs in abdominal and vaginal hysterectomy procedures with open and laparoscopic approaches in the United States (US) using a retrospective inpatient hospital database.

Materials and Methods: Patients were drawn from the Premier Perspective™ Comparative Database, a national administrative database containing hospital billing data from about 500 hospitals throughout the US. SSIs were identified in the period Jan 2007-Dec 2009 by a combination of post-operative infection diagnosis ICD-9-CM codes (998.5×) or postoperative prescription of selected antimicrobial drugs started at least 2 days after the date of surgery and having a treatment course ≥5 days (this definition helps to distinguish prophylactic from therapeutic antibiotic treatment). The outcomes included rates of SSI by hysterectomy type, and operative approach, the impact of SSI on additional length of stay (LOS) and additional costs. Results were weighted to the national level. Generalized linear models were used for the analysis. Covariates included patient-level surgical risk factors (age, race, marital status, APR_severity score) and hospital characteristics (hospital size, teaching, geo/urban location [national region and local urban/rural], payor type). Means, standard errors (SE), and 95% confidence intervals (LCL, UCL) were reported.

Results: Weighted SSI incidence was higher for open abdominal hysterectomy (0.39%; 95% CI: 0.33-0.46%) than for open vaginal hysterectomy (0.11%; 95% CI: 0.09-0.13%); a similar pattern was observed in laparoscopic abdominal hysterectomy (0.16% CI 0.13-0.20% in contrast to laparoscopic vaginal hysterectomy (0.13% CI 0.09-0.13%). Additional length of stay and costs associated with SSI were higher for open versus laparoscopic procedures for both abdominal and vaginal hysterectomy. For abdominal hysterectomy, SSI accounted for twice the additional LOS (4.88 vs. 2.54 days) and three times the additional cost ($15,899 vs. $5,614) in open procedures compared with laparoscopic procedures. When looking at vaginal hysterectomy, there was only a slight difference in LOS (2.76 days vs. 2.45 days), but the costs associated with SSI were almost twice as much for open procedures ($8,067 vs. $4,685). Open abdominal hysterectomy manifested the highest additional LOS (4.8 days, CI 3.9-7.0 days) and the highest additional cost ($15,899, CI $11,429-$22,107).

Conclusion: SSI incidence is higher overall for abdominal hysterectomy than for vaginal hysterectomy, and within these procedures, open approaches are accompanied by greater increases in LOS and inpatient costs than laparoscopic approaches. Physicians recommending hysterectomy to their patients should take the incidence of SSI and the associated complications into account when determining route of surgery.

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Mehmet Daskiran: Independent contractor, Consulting fee
Ronald Levine: Consulting statistician, contract
Somesh Nigam: Employment, Salary
Anuprita Patkar: Nothing to disclose
Heidi C. Waters: Employee, Salary / Stock

Oral Poster 24
PRACTICE PATTERNS AMONGST OBSTETRICIAN/GYNECOLOGISTS REGARDING PARTICIPATION IN UROGYNECOLOGIC PROCEDURES: A NATIONAL SURVEY

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Objectives: Urogynecology is a rapidly evolving subspecialty, with formal accreditation on the horizon. However, the breadth and scope of practice of the generalist with respect to urogynecologic disorders, as well as the nature of their training is not well understood. The purpose of this survey was to describe the variation of Urogynecology practice amongst general Obstetrician/Gynecologists in the United States.

Materials and Methods: A 32- item questionnaire was administered through an Internet based survey (Survey Monkey®). The survey was designed by the authors to query physicians regarding current practices and training concerning pelvic floor conditions. The survey was administered to a random sample of 3,225 Obstetrician/Gynecologists utilizing the American Medical Association's (AMA) physician database.

Results: Two hundred sixty-one Ob/Gyns responded to the survey (8% response rate). The majority of responders were male (69%), with a large number (49 %) over the age of 50, and most were in private practice (67%). All geographic areas of the country were equally represented. The majority reported performing urodynamics (54%), however most stated 10 or fewer studies were completed monthly in their practice. Residency was cited by the majority for training in urodynamics (57%), with others stating that post graduate courses (30%), industry representatives (26%), and colleagues (22%) provided this expertise. A large majority (81 %) perform surgery for stress incontinence, with residency often noted as providing training (81%). Synthetic midurethral slings were the most common anti-incontinence procedure listed, with retropubic slings utilized by 73% and the transobturator approach by 75%. Regarding prolapse surgery, 89% stated they perform these procedures; residency education was listed by 93%. Surgical repairs generally performed included vaginal hysterectomy, anterior repair, and posterior repair (98%, 96% and 96%, respectively). Nevertheless, a large number indicated performance of vaginal vault suspension to the sacrospinous or uterosacral ligaments (62%, 72%). Finally, 25-43% cited use of anterior, posterior, or total mesh kits. When queried regarding their desire to address these conditions, common reasons included wanting to improve the quality of life of their patients and enjoying the operations.

Conclusion: A large number of Ob/Gyns surveyed perform diagnostic studies for pelvic floor disorders as well as surgically treat conditions such as pelvic organ prolapse and urinary incontinence. Residency was most often noted as the means of education and training in this field. This information is of interest as we move towards guidelines for certification in the subspecialty.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

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Non-Oral Poster 25
RELATIONSHIP BETWEEN RACE AND ABDOMINAL ANATOMY: POSSIBLE AFFECT ON ROBOTIC PORT PLACEMENT

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Objectives: To characterize differences between African Americans and Caucasians in abdominal wall dimensions that may affect port placement during robotic surgery.

Materials and Methods: After obtaining Institutional Review Board approval, we identified African American and Caucasian women age 30-70 that underwent abdominal-pelvic CT scan imaging from January 1 - May 31, 2010 through the radiology database who had documentation of height, weight and race. Exclusion criteria included absence of xiphoid process, pelvic masses extending outside the pelvic inlet, ascites, umbilical hernia, and acute pelvic trauma/deformity. After screening records for inclusion criteria, a radiologist, blinded to race, then reviewed the screened CT scans for exclusion criteria. Forty scans that met the inclusion/exclusion criteria from each race were included in the study. The radiologist then measured and recorded the distance from the medial portion of the anterior superior iliac spines (ASIS), the mid symphysis pubis to the deepest cleft of the umbilicus (LA - lower abdomen), and the deepest cleft of the umbilicus to the last full bone of the xiphoid process (UA - upper abdomen). Power analysis showed we needed 37 subjects in each group to have a power of 95% with a $p = 0.05$. Student's t test, Pearson's correlation coefficient and multiple linear regression were the statistical tests utilized.

Results: We reviewed 9,148 charts in order to exclude those who were outside the age range, male, or had incomplete demographic information. Scans from 663 women were then screened for exclusion criteria until 80 qualifying scans, 40 from each race, were identified. The most common anatomical reasons for exclusion were hernias and absence of cuts including the xiphoid process. No difference existed between the two groups in the recorded variables with women on average being 52 +/- 11.3 years old with a BMI of 29.1 +/- 6.3 kg/m2. Symphysis pubis to umbilicus measurement was shorter in the African American group (15.7+/-2.1 vs. 17.1+/-2.0; $p < .001$) and intra-ASIS distance was narrower (21.4+/-1.2 vs. 23.8+/-2.0; $p = .003$) creating an overall smaller lower abdomen in African American women. A positive correlation of height ($r = .211$, $p = .030$) to lower abdominal length and a negative correlation of age ($r = -.367$, $p = <.001$) and race ($r = -.326$, $p = .002$) were noted. Using linear regression, height, weight and BMI did not affect lower abdominal dimensions while age ($p < .001$) had a significant inverse relationship with symphysis pubis to umbilicus measurement.

Conclusion: Variation exists in anterior abdominal wall dimensions that can be attributed to racial differences. African American women have a shorter distance between the umbilicus and symphysis pubis when compared to Caucasian women. They also have a narrower intra-ASIS distance than their Caucasian counterparts. These anatomical differences could significantly impact their robotic procedure as the total area of the lower abdomen is diminished. Having the arms of the robot confined to a smaller space could lead to more external arm collisions. Simple assessment of these dimensions at time of port placement could repay dividends during the actual procedure.

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Barbara L. Robinson: Nothing to disclose

Non-Oral Poster 26
SEXUAL ABUSE HISTORY AND SPECIFIC DIAGNOSES IN WOMEN PRESENTING WITH PELVIC FLOOR DISORDERS

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Objectives: 1) To report the prevalence of sexual abuse history in women presenting for care for pelvic floor disorders (PFDs). 2) To determine if sexual abuse history is associated with specific pelvic floor disorder diagnoses.

Materials and Methods: We conducted a retrospective chart review of all new Urogynecology patients at the University of New Mexico Hospital. Patient characteristics were collected from a standardized history form which included a sexual abuse history. Patient's primary diagnosis was determined by review of the attending physician's dictation of the new patient encounter. Univariate and multivariate analyses were conducted to determine which functional PFDs were associated with a history of sexual abuse while controlling for baseline demographic differences between women with and without a history of sexual abuse.

Results: Between 2007-2010, 1371 new Urogynecology patients were seen; 871 were asked about a history of sexual abuse, for a prevalence of sexual abuse of 145/871(17%). Women with and without a sexual abuse history did not differ in ethnicity, BMI, gravity, parity, alcohol use, or history of hysterectomy or oophorectomy. Women with a history of sexual abuse were younger (mean 50.7± 13 vs 55.3 ± 15 years, $p<0.001$), were more likely to be

Medicaid recipients (11.7 vs 5.1%, p<0.001) and less likely to be in a relationship with a partner (43.4 vs. 58.0%, p=0.001). Additionally, women with a history of sexual abuse were more likely to report depression (50.3 vs 21.8% p<0.001), anxiety (33.8 vs 10.2% p<0.001) and also more likely to be using antidepressants (43.5 vs 21.2% p<0.001) and anxiolytic medications (29.86 vs 8.91% p<0.001).

On univariate analysis, women with a sexual abuse history were not more likely to have diagnoses of overactive bladder (OAB), stress urinary incontinence, fecal incontinence, urinary retention or recurrent urinary tract infections compared to women without a history of sexual abuse (all p>0.05). Women with a history of sexual abuse were more likely to have the diagnosis of painful bladder syndrome (PBS) (5.52 vs 2.48% p=0.05) compared to women without an abuse history.

We included OAB in our multivariate analysis, as this diagnosis has been related to a history of sexual abuse by others. A "best" stepwise logistic regression multivariate model for the diagnoses of PBS and OAB included age and current use of an antidepressant. In this model, the significance of PBS was explained by age and confounded by small patient numbers in this cohort and was no longer significant with a history of sexual abuse (OR 1.5, 95% CI 0.994 - 2.12). In the multivariate analysis, OAB was associated with an abuse history (OR 1.46, CI 1.001-2.12, p=0.05).

Conclusion: Sexual abuse is common among women with pelvic floor disorders. Women with a history of sexual abuse were more likely to have the diagnosis of OAB.

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Sara Cichowski: Nothing to disclose
Gena Dunivan: Nothing to disclose
Rebecca G. Rogers: DSMB chair TRANSFORM trial, Research Support

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Non-Oral Poster 27
ARE PATIENTS WITH ADVANCED PELVIC-ORGAN PROLAPSE AT RISK FOR NEGLECTING ROUTINE HEALTH SCREENING?

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Objectives: This study evaluated whether patients with advanced pelvic organ prolapse (POP) were less likely then age- and parity-matched controls to obtain health screening i.e., Papanicolaou (Pap) test, mammography, and colonoscopy.

Materials and Methods: During this retrospective, case-control study, we reviewed charts for all new patients presenting to our academic urogynecology practice from 7/2/2010 through 4/22/2011. After collecting demographic data, past medical and surgical history, POP-Q data, and health screening information, we identify those patients with advanced POP, defined as prolapse ≥4 cm beyond the hymenal ring and made an age- and parity-matched control group from patients whose prolapse was <4 cm. We characterized cervical cancer screening, breast cancer screening, and colon cancer screening compliance of the two groups.

All new patients are asked the date of their last Pap test, mammogram, and colonoscopy. These tests were considered current if they met the guidelines set forth by the American College of Obstetricians and Gynecologist for cervical cancer and breast cancer screening, and the American Cancer Society guidelines for colon cancer screening. We considered screening as neglected if responses were blank or fell outside the guidelines.

Results: Of 933 records, we identified 51 patients with advanced prolapse and 51 age- and parity-matched controls. For both groups, the mean (± SD) age was 69.0 ± 12.9 and parity was 2.5 ± 0.9. The prolapse group weighed less then the control (150.6 ± 31.1 vs. 163.0 ± 33.3, p=0.05); however, BMI was not significantly different (26.7 ± 5.1 vs. 28.5 ± 5.5, p=0.07). The prolapse group did not statistically differ from the control with respect to a history of diabetes, hypertension, hysterectomy, current or past tobacco use, or sexual activity.

Of the 51 paired patients, 44 pairs were available for analysis of routine screening. Pap test screening did not statistically differ between the groups (McNemar $\chi 2$, p=1.00). In the prolapse group, Pap screening was current in 30, not current in 2, and left blank in 12 patients. In the control group, screening was current in 34, not current in 1, and left blank in 9 patients.

Colonoscopy screening did not statistically differ between the groups (McNemar $\chi 2$, p=1.00). In the prolapse group, colonoscopies were current in 24, not current in 1, and left blank in 19 patients. In the control group, screening was current in 31, not current in 2, and left blank in 11 patients.

Mammogram screening was not statistically different between the groups (McNemar $\chi 2$, = 0.057); however, there was a trend towards neglecting screening in the prolapse group where mammogram screening was current in 19, not current in 13, and left blank in 12 patients. In the control group, screening was current in 29, not current in 6, and left blank in 9 patients.

Conclusion: Patients with prolapse ≥4 cm beyond the hymenal ring were no more likely to neglect their health maintenance as compared with age- and parity-matched controls. There was a trend towards neglecting mammogram screening in patients with advanced POP; however, this difference was not statistically significant.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Andrew Galffy: Nothing to disclose
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Non-Oral Poster 28
"PLANE OF HYMEN": A NEW REFERENCE LINE TO IMPROVE THE GRADING OF PROLAPSE ON DYNAMIC CYSTOPROCTOGRAM

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Objectives: The pubococcygeal line (PCL) is a widely accepted reference line used to grade the extent of prolapse on Dynamic Cystoproctogram (DCP); however, the clinical correlation, especially to the Pelvic Organ Prolapse Quantification (POPQ), has been variable. We have found the "plane of hymen" (PH), a radiologic reference line that is a good representation of the hymen, the clinical reference point used for prolapse evaluation.

The primary objective is to determine the agreement between radiologists in grading the extent of prolapse on DCP using the PH as a new reference line. The second objective is to compare the agreement between radiologists in grading prolapse on a DCP using the "traditional" PCL and the PH as reference lines.

Materials and Methods: This was a retrospective correlation study using DCP's performed between 2007 and 2009. Two experienced radiologists were given a list of fifty films in random order and asked to independently measure and grade the extent of prolapsed organs using both PH and PCL as reference lines. After the two radiologists re-read twenty studies to determine if experience in identifying PH would improve agreement.

The PCL was a line drawn from the inferior pubic symphysis to the lowest bony tip of the coccyx. Prolapse was measured at maximal organ descent and graded as mild, moderate and severe. The PH was defined as the line, parallel to the pubic bone, that extended from the urethral meatus to both anterior and the posterior fourchettes. Similar to the clinical POPQ staging, the prolapse was graded from stage 0 through stage 4.

The strength of agreement interpretation was based on the Kappa statistic using benchmarks set by Landis and Koch. Less than 0 was "poor" agreement, 0-0.2 was "slight" agreement, 0.21-0.4 was "fair" agreement, 0.41-0.6 was "moderate" agreement, 0.61-0.8 was "substantial" agreement and 0.81-1 was "almost perfect" agreement.

Results: For the first fifty studies, the agreement in prolapse grade between the two radiologists using the PCL as the reference point, was "moderate" for both cystocele (κ = 0.51, p=0.002) and enterocele (κ = 0.57, p=0.025) and "substantial" for the rectocele (κ = 0.62, p<0.001). When PH was used as the reference point, the agreement for the enterocele (κ = 0.53, p=0.074) and rectocele (κ = 0.44, p=0.004) were "moderate" and the agreement for the cystocele was "substantial" (κ = 0.61, p<0.001).

For the repeat studies, the agreement in prolapse grade between the two radiologists using the "traditional" reference point was "moderate" for the cystocele (κ = 0.59, p=0.007) and "almost perfect" for both the enterocele (κ = 0.86, p=0.012) and rectocele (κ = 0.82, p<0.001). When PH was used as the reference point, the agreement for cystocele stage (κ = 0.86, p<0.001), enterocele stage (κ = 1, p=0.005) and rectocele stage (κ = 1, p<0.001), were all "almost perfect".

Conclusion: With experience, the PH was a better reference marker for agreement in staging cystoceles, enteroceles and rectoceles compared to

PCL. In order to evaluate how well the prolapse grade on a DCP using the PH compares to the clinical POPQ grade, a prospective study should be conducted.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Douglass S. Hale: Consultant, Consultant Fee, Investigator, Study Support

John Lappas: Nothing to disclose

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Jean Park: Nothing to disclose

Colin Terry: Nothing to disclose

Non-Oral Poster 29

THE MIMIC DV-TRAINER® VIRTUAL REALITY ROBOTIC SIMULATOR: ASSESSING CLINICAL UTILITY AND USER SATISFACTION IN A GYNECOLOGY TRAINING PROGRAM

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Objectives: As the incorporation of robotic surgery becomes more common in U.S. gynecology residency and fellowship programs, greater attention has been placed on optimizing surgeon training. Available training modalities include utilizing the da Vinci Surgical System dry lab platform (dVSS) and the Mimic dV-Trainer® (MdVT), a novel virtual reality simulator. Determining which training platform is the most efficacious, accessible and appealing to gynecology trainees is paramount to its usefulness as the basis for a surgical simulation curriculum. The study purpose is to assess the perceived clinical utility and user satisfaction with the MdVT and dvSS platforms in an academic gynecologic training program.

Materials and Methods: This was a single institution, IRB-approved survey study. Medical students and gynecology trainees (PGY 1-6) had participated in a robotic surgical training symposium utilizing the MdVT and dVSS. Participants completed either a dVSS suturing exercise and/or five MdVT exercises focused on endowrist manipulation, needle driving and camera and energy control. Finally, they completed an online, anonymous 21 question survey which assessed participant demographics, training symposium and simulator platform utility, and interest in future training sessions.

Results: Participant technical performance after completion of training exercises is presented in a separate abstract. 32 subjects participated in the symposium and 27 participants completed the survey. Survey respondents included 9 medical students, 15 residents, and 3 fellows. 70% were female, 93% were right-hand dominant, and 63% were between 20-29 years old. 50% reported prior robotic console experience with a mean case load of 5.7 cases.

Based on a 5-point Likert scale, the majority found the training "definitely useful" in improving robotic surgical skills (mean response 4.6) and good preparation for live surgery (3.8). Most participants also reported they would want to attend future training sessions (4.5) and all residents/fellows felt robotic surgery training was important. Among respondents utilizing both the MdVT and dVSS trainers, the majority preferred the MdVT (57.1% vs 28.6%; p=.05). Respondents felt the MdVT system improved hand-eye coordination (95.8%) and training of the left and right hands (100%). Further, on the MdVT, "Suture Sponge 1" was considered the most useful exercise by 92% followed by "Energy Switching 1" (36%). Over 40% of respondents indicated that 10 repetitions of the suturing and energy exercises were necessary to gain competency of the task whereas fewer repetitions were needed for simpler exercises.

Conclusion: The robotic surgery training symposium and simulator technologies were well received by gynecology trainees and medical students. Although there was a perception that both simulators improved technical performance amongst participants, there was a preference for the Mimic dV-Trainer® over the da Vinci Surgical System platform. Given the challenges associated with teaching robotic surgery, virtual reality simulation may serve an increasingly important role in contemporary surgical training curricula.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Isabel Green: Curriculum designer, Honorarium

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Ana I. Tergas: Nothing to disclose

Non-Oral Poster 30

THE CHANGE IN THE PERINEAL BODY MEASUREMENT BETWEEN REST AND VALSALVA: IS IT PREDICTIVE OF A PERINEOCELE?

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Objectives: To determine if there is a change in the perineal body measurement (Pb) from rest with valsalva movement and further to determine whether that change relates to the presence of a perineocele.

Materials and Methods: A retrospective chart review was conducted. All new patients presenting to a single, fellowship-trained, Urogynecologist were examined with Pb obtained under both relaxation and valsalva as well as with a clinical examination specific for perineocele.

Results: The overall incidence of perineocele was 27.5% (99/360) in our patient population. On average, Pb when resting was below that for Pb during valsalva ($p<0.0001$ by Wilcoxon signed ranks test). Among patients who did not have a perineocele, mean Pb at rest was 2.2 centimeters (cm), while the mean Pb during valsalva was 2.3 cm. For those patients with a perineocele, the mean Pb at rest was 2.1 cm and the mean Pb during valsalva was 3.0 cm. The average difference in Pb at rest compared to during valsalva was: 0.1 cm for patients without a perineocele (not significant) and 0.9 cm (statistically significant) for patients with a perineocele. Using a change in Pb of 1.0 cm as a positive screening test for perineocele has a sensitivity of 85.9% and a specificity of 93.9%.

Conclusion: The measurement of the perineal body length is longer with valsalva than with relaxation in the presence of a perineocele. There was no significant change in the perineal body length in the absence of a perineocele when measured at rest and with valsalva. A change in the length of the perineal body measurement with valsalva should prompt the physician to consider the presence of a perineocele.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Nicole Book: Nothing to disclose

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Non-Oral Poster 31

DO PESSARIES PREVENT PROLAPSE PROGRESSION?

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Objectives: To determine whether prolapse progression differs between pessary users versus women who discontinue pessary use among women with Stage ≥2 prolapse.

Materials and Methods: This is a prospective cohort study, which is an extension of prior work. IRB approval was obtained. Women enrolled in the initial study from September 2004 through January 2006 were eligible if they were successfully fitted with pessaries with ≥ Stage 2 prolapse at baseline. These women were contacted and invited to participate in the current study which took place from September 2008 through May 2009. All women were initially fitted with a pessary. At follow-up, women were divided into two groups; those who continued and those who discontinued pessary use at follow-up. Baseline POP-Q exams were recorded and compared to POP-Q exams at long-term follow-up. POPQ examiners were blinded as to whether or not the subject had continued pessary use. Changes in POP-Q measurements from baseline to follow-up were calculated. Within-group changes were assessed using paired t-tests, while between group differences were assessed using two-sample t-tests. Additionally, each set of measurement change scores were discretized into 3 categories: decreases of 1 or more cm, changes between -1 and 1 cm, and changes greater than 1 cm. The same analysis was repeated using 2 cm changes. Groups were compared with respect to the discrete measures using Fisher's Exact Test.

Results: Twenty nine women met criteria and had baseline and follow-up data. Of these, 18 continued and 11 discontinued pessary use. Mean follow-up was 40.78 +/- 13.5 months for pessary users and 32.76 +/- 15.90 months for non-users (P= 0.16). Pessary users and non-users did not differ in mean age (53.06 +/- 11.23 years versus 53.73 +/- 11.64 years, P= 0.88), ethnicity

(majority were Non-Hispanic White in both groups, P= 0.49), BMI (27.30 +/- 7.03 kg/m^2 versus 30.43 +/- 4.11 kg/m^2, P= 0.21), nor were there differences in initial stage of prolapse (both on average were Stage 2, P=1.0). The pessary continuation group was of lower parity than the discontinuation group (2.6 +/- 1.0 vs. 3.6 +/- 1.6, respectively, P=0.03). Both groups had significant improvement or increase in mean total vaginal length at follow-up without significant change in other POP-Q measures. No significant between group differences in the POP-Q measures were observed when comparing baseline to follow-up. Nor were there any differences in POP-Q measures when the analysis was performed using the 3 discretized categories (e.g. change of ≥1 cm, ≥-1 cm, between 1 to -1 cm).

Conclusion: Little data in the literature describe whether or not pessary use prevents prolapse progression. Contrary to the single report regarding this subject which reported prolapse regression among pessary users[1], we found that POP-Q measures were not different between women who continued and those who discontinued use for Stage 2 prolapse at 3-4 years follow-up.

[1] Handa, V.L. and Jones, M. 2002. Do Pessaries Prevent the Progression of Pelvic Organ Prolapse? International Urogynecology Journal 13:349-352.

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Rachel W. Goodman: Nothing to disclose

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Rebecca G. Rogers: DSMB chair TRANSFORM trial, Research Support

Non-Oral Poster 32
NATIONAL PRACTICE PATTERNS AND FACTORS GUIDING ROUTE OF SURGERY FOR REPAIR OF PRIMARY VS. RECURRENT APICAL COMPARTMENT VAGINAL PROLAPSE

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Objectives: Describe current trends for repair of primary and recurrent apical vaginal prolapse via transvaginal approach using native tissue (TVN), transvaginal augmented with graft (TVG), laparotomy for sacrocolpopexy/other suspension procedure (ASC), or laparoscopic/robotic repair (LPY) and determine which surgeon and patient factors significantly influence decision for favored route of repair.

Materials and Methods: An anonymous, self-administered 15-item questionnaire was distributed to attendees of the 2011 SGS annual scientific meeting. Surgeon demographic and practice data were collected with estimates of monthly percentages of the 4 routes of repair. Twenty additional factors were graded for importance of influencing decision for route of repair using a 5-point Likert scale. Chi-square tests (Mantel-Haenszel chi-square for trends) for univariate analyses and stepwise logistic regression for multivariate analyses were applied.

Results: Of 331 conference attendees, 182 (55%) surveys were returned. Respondents were 52% male; 97% were trained in Ob/Gyn residencies, and of those having completed residency (n = 169), 74% were in or had previously completed FPMRS training. Mean (SD) age was 45.5 (11.4) years. TVN was the most common route of surgery for primary repair (table, p<0.001); mean percentages of TVN, TVG, ASC, and LPY were 53.0, 15.0, 8.4, and 23.0%, respectively. For recurrent prolapse repair, TVN decreased to 25.7% while TVG, ASC, and LPY were selected in 21.7, 18.0, and 33.8% of surgeries. When respondents were grouped by their "preferred" (i.e. most common) repair routes, surgeons in academic practices were more likely than those in private practice to elect TVN for primary repair [OR 3.6, 95%CI (1.4, 9.5)] while number of monthly apical repair procedures was inversely associated with TVN selection (figure). FPMRS-trained surgeons were less likely to perform TVN for primary repair compared to others [OR 0.3, (0.1, 1.0)]. Surgeon's age, gender, years since residency completion, and geographic location were not significantly associated with preferred primary surgery. For recurrent prolapse surgery, FPMRS-trained surgeons were less likely to elect TVG [OR 0.2, (0.1, 0.6)] and more likely to prefer LPY [OR 11.9, (2.6, 52.6)]. The four factors most commonly given greatest importance in selection of route of primary surgery were patient's desire to maintain ability for vaginal intercourse, severity of medical co-morbidities, patient age, and stage of apical descent. These same factors—and number of prior apical repairs—remained very important for selecting route of repeat surgery.

Conclusion: While TVN is the dominant preferred route to address primary apical prolapse among SGS meeting attendees, it appears less likely to be performed by FPMRS-trained surgeons, especially those in private practice and with larger monthly surgery volumes. Laparoscopic-assisted repairs are more common for recurrent apical prolapse.

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Distribution of Routes of Surgical Repair, MEDIAN Percent (Upper, Lower Quartiles)

	Trans-vaginal native tissue	Trans-vaginal graft-augmented	Laparotomy (sacrocolpopexy or other)	Laparoscopic (or robot-assisted)	P-value (Kruskal-Wallis)
Primary apical prolapse repair route	50.0% (25.0, 84.8)	0% (0, 20.0)	2.0% (0, 9.8)	15.0% (0, 42.3)	<0.001
Recurrent apical prolapse repair route	10.0% (0, 40.0)	10.0% (0, 34.8)	5.0% (0, 25.0)	25.0% (0, 60.0)	<0.001

Non-Oral Poster 33
MAGNETIC RESONANCE IMAGING DEFECOGRAPHY REVEALS MORE ADVANCED PELVIC ORGAN PROLAPSE THAN CLINICAL POPQ ASSESSMENT

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Objectives: To compare the degree of pelvic organ prolapse as measured by the pelvic organ prolapse quantification system (POPQ) to the measurement of prolapse by MRI defecography.

Materials and Methods: This is a retrospective review of 29 patients who underwent MRI indicated for defecatory dysfunction. POPQ values determined by one of two urogynecologists were abstracted from patient charts. A radiologist, blinded to the clinical POPQ values, measured anterior, posterior, and apical prolapse on each subject's MRI study. Based on previous cadaver studies, the mid pubic line (MPL) was the radiographic landmark used to approximate the level of the hymen and MRI measurements of prolapse were made from this reference point.

The best midline image of the resting and straining sequence of each MRI was selected by the radiologist and a line was drawn through the longitudinal axis of the pubic bone passing through its midequatorial point (MPL). Resting and straining POPQ point coordinates were recorded for each MRI study. In the straining sequences, POPQ points Aa and Ap could not be reliably tracked, however, the maximal descent of the anterior and posterior vagina was clearly delineated. We therefore calculated the distance between the single point of maximal descent of the anterior, posterior, and apex of the vagina and the MPL on each MRI study. Total vaginal length was excluded because maximal potential elevation of the vagina cannot be assessed on MRI.

Differences between clinical POPQ values and MRI measurements of prolapse were evaluated using the Wilcoxon signed rank test.

Results: Prolapse as measured by MRI defecography was significantly more advanced compared to the clinical POPQ score in the anterior, posterior, and apical compartments of the vagina (Table 1). The difference between POPQ and MRI degree of prolapse was largest in the posterior compartment. Sizeable differences were verified with more detailed review of each subject MRI study. The mean differences were quantitatively large enough to change clinical and surgical decision making.

Conclusion: Pelvic prolapse as measured during MRI defecography showed significantly higher degree of prolapse compared to clinical POPQ assessment. The clinical POPQ assessment may therefore underestimate the degree of pelvic organ prolapse. These findings have implication for clinical management of prolapse based on the standard clinical POPQ system alone. MRI defecography, which often is only used to establish an etiology for defecatory dysfunction, may have significant clinical utility with regard to prolapse staging. A union between clinical POPQ terminology and radiologic standards of reporting should be explored.

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Harvey A. Winkler: Nothing to disclose

Mean Difference Between MRI and POPQ Values of Prolapse

POPQ point	Mean Difference (cm)	p value
Anterior vaginal wall (Ba)	2.0 +/− 1.5 SD	p < 0.0001
Posterior vaginal wall (Bp)	5.0 +/− 2.0 SD	p < 0.0001
Cervix or cuff (C)	2.3 +/− 2.7 SD	p < 0.0059

Non-Oral Poster 34
MATCHED CASE-CONTROL COMPARISON OF ABDOMINAL AND VAGINAL HYSTERECTOMY TO ROBOTIC HYSTERECTOMY

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Objectives: To compare abdominal hysterectomy, vaginal hysterectomy, and robotic-assisted laparoscopic hysterectomy.

Materials and Methods: Retrospective matched case-control analysis of benign hysterectomy cases by a single surgeon at a community hospital. Preoperative data from abdominal and vaginal cases were recorded and matched 1:1 with robotic cases according to age, BMI, and uterine weight. The first 75 robotic hysterectomy cases were reported separately to account for the learning period. Cystoscopy was routine for robotic hysterectomy.

Results: Eighty-six abdominal hysterectomy and 96 vaginal hysterectomy cases from 2005-2006 were matched to 182 robotic hysterectomy cases from 2007-2010 (Robotic Group 1 (n=86) matched to abdominal cases; Robotic Group 2 (n=96) matched to vaginal cases). There were three conversions in the two robotic groups and four conversions in the Vaginal group. Significantly more Robotic Group 2 patients underwent lysis of adhesions compared to the Vaginal group ($p<0.0001$). There were no urinary tract injuries during robotic assisted hysterectomy, with one cystotomy during vaginal hysterectomy and one during abdominal hysterectomy. Robotic assisted hysterectomy took longer than an abdominal ($p<0.0001$) or a vaginal approach ($p<0.0001$), but resulted in significantly reduced blood loss ($p<0.0001$, $0<0.0001$), a shorter length of hospital stay ($p<0.0001$, $p<0.0001$), and equivalent morbidity ($p=0.1549$, $p=0.9114$).

Conclusion: Robotic assistance increased the identification and treatment of adhesions compared to TVH and resulted in improved perioperative outcomes.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Samir I. Hamati: Nothing to disclose

Non-Oral Poster 35
COMMONALITIES OF GENITOURINARY FISTULAS AFTER CERCLAGE PLACEMENT

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Objectives: Genitourinary fistula is a known, but rare complication after cervical cerclage in pregnancy with several cases reported in the literature. The risk factors for this event are unknown. We combine 4 recent cases with available literature to investigate commonalities.

Materials and Methods: Four women with a history of cerclage placement presented with vesicovaginal fistulas between 2008 and 2010 to our urogynecologic practice in Northern Virginia. Their charts were retrospectively reviewed. Fistula location, surgical technique, and obstetric and surgical histories were compared to those in the available literature (7 case reports).

Results: All four of our patients presented with symptoms consistent with fistulas being present after cerclage placement and prior to delivery in the antecedent pregnancy. All fistulas were diagnosed in the postpartum period and were located in the trigone, near the interureteric ridge. Three had histories of prior cervical procedures (2 with previous cerclage, 1 with a LEEP). Three had histories of multiple cesarean sections. Three had McDonald cerclages performed in the antecedent pregnancy (4th unknown).

Surgical and obstetrical data was available in most of the 7 case reports from the literature. Prior delivery routes were not available for comparison. Combining all available data, 9 of 11 patients (82%) had histories of prior cerclage placement (7) or prior cervical surgeries (2 LEEP, 1 conization). The McDonald technique was used in the antecedent pregnancy in 8 of the 10 known types (80%). At least half of the reported cases involved the urethra, UVJ, trigone, ureters or interureteric ridge.

Conclusion: Only a small fraction of vesicovaginal fistulas (<1%) are caused by cerclage placement. Fistulas after cerclage appear to occur more often in patients with previous procedures to the cervix (prior cerclage, LEEP, or cone), multiple previous cesarean sections, and after McDonald cerclage. The etiology of these fistulas is likely unrecognized injury or placement of the stitch through or close to the bladder. We suspect factors such as lack of vascularity, scarring secondary to the previous surgery, and minimal dissection between the cervix and the bladder when using the McDonald technique may play a role.

TABLE 1. Patient Characteristics and Perioperative Outcomes

Parameter	TAH N=86	RALH Group 1 N=86	TVH N=96	RALH Group 2 N=96	p-value TAH vs. RALH TVH vs. RALH TAH vs. TVH
Age (yrs) Mean ± SD	48.9 ± 12.4 (48.0, 49.8)	47.1 ± 10.7 (46.3, 47.9)	39.0 ± 6.8 (38.5, 39.4)	38.9 ± 6.5 (38.5, 39.4)	0.306 0.948 <0.001
BMI (k/m2) Mean ± SD 95% CI	31.2 ± 7.0 (30.7, 31.7)	30.5 ± 6.4 (30.1, 31.0)	28.4 ± 5.5 (28.0, 28.8)	28.4 ± 6.1 (27.9, 28.8)	0.494 0.935 0.003
Uterine Weight (g) Mean ± SD 95% CI	182.4 ± 169.7 (170.1, 194.8)	179.5 ± 173.7 (166.8, 192.1)	115.5 ± 68.4 (110.9, 120.3)	118.8 ± 68.9 (114.1, 123.5	0.909 0.746 <0.001
Uterine Weight ≥ 250 g n (%) 1 ≥2	18 (20.9)	19 (22.1)	2 (2.1)	2 (2.1)	0.853 1.000 <0.001
Previous Surgery, n (%) None 1 ≥2	23 (26.8) 39 (45.3) 24 (27.9)	53 (61.6) 21 (24.4) 12 (14.0)	35 (36.5) 39 (40.6) 22 (22.9)	57 (59.4) 19 (19.8) 20 (20.8)	<0.001 0.002 0.363
Procedures, n (%) Hysterectomy Hysterectomy + B/USO	1 (1.2) 85 (98.8)	39 (45.3) 47 (54.7)	72 (75.0) 24 (25.0)	76 (79.2) 20 (20.8)	<0.001 0.492 <0.001
Lysis of Adhesions, n (%)	38 (44.2)	40 (46.5)	10 (10.5)	45 (46.9)	0.759 <0.001 <0.001
Intraop Cystoscopy, n (%)	16 (18.6)	86 (100)	45 (46.9)	96 (100)	<0.001 <0.001 <0.001
Operative Time (min) Mean ± SD 95% CI	66.8 ± 24.3 (65.0, 68.5)	102.0 ± 36.0 (99.4, 104.7)	48.1± 23.7 (46.4, 49.7)	93.5 ± 31.2 (91.3, 95.6)	<0.001 <0.001 <0.001
Conversions, n (%)	NA	2 (2.3)	4 (4.2)	1 (1.0)	– 0.174 –
Blood Loss (cc) Mean ± SD 95% CI	144.3 ± 96.2 (137.3, 151.3)	48.3 ± 51.3 (44.5, 52.0)	99.8 ± 57.5 (95.9, 103.8)	41.3 ± 11.3 (40.5, 42.0)	<0.001 <0.001 <0.001
Hospital Stay (days) Mean ± SD 95% CI	3.0 ± 0.3 (3.0, 3.0)	0.9 ± 0.4 (0.9, 1.0)	2.0 ± 0.3 (2.0, 2.1)	0.8 ± 0.3 (0.8, 0.9)	<0.001 <0.001 <0.001
Complications, n (%)	2 (2.3) 1 Cystotomy 1 Pelvic Infection / Readmission	0	2 (2.1) 1 Cystotomy 1 Pelvic Abscess/Laparotomy	1 (1.0) 1 Postop Bleeding	0.155 0.561 0.911

Key: RALH = Robotic-assisted Laparoscopic Hysterectomy; TAH = Total Abdominal Hysterectomy; TVH = Total Vaginal Hysterectomy; BMI = Body Mass Index; B/USO = bilateral or unilateral salpingo-oophorectomy

Genitourinary fistulas after cerclage can form anywhere along the anterior vaginal wall and often occur lower in the bladder than may be expected. We hypothesize the early pregnancy state may alter the anterior vaginal wall length or relationship to the lower urinary tract. This may bring the trigone and bladder outlet closer to cervix and thus an area that can be involved in fistula formation.

When placing cerclages or searching for fistulas, surgeons may find this information useful when evaluating and counseling patients.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Tieneka Baker: Nothing to disclose
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Walter S. von Pechmann: Nothing to disclose

Summary of Patient Data From Current Series

Case	Age at presentation	GxPx	Pertinent Surgical history	Type of cerclage	EGA at placement	Delivery Route
1	35	G1P1	LEEP	McDonald	22 weeks	SVD
2	32	G2P3	Cesarean section x2 Shirodkar cerclage (in place)	McDonald	2nd trimester	CD
3	34	G6P3	Cesarean section x3	McDonald	14 weeks	CD
4	32	G2P3	Cesarean section x2, Cerclage	Unknown	2nd trimester	CD

CD = Cesarean delivery, EGA = Estimated gestational age, LEEP = Loop electrosurgical excision procedure

Non-Oral Poster 36
LAPARO-ENDOSCOPIC SINGLE SITE (LESS) SURGERY FOR MANAGEMENT OF OVARIAN ENDOMETRIOMAS

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Objectives: To examine the feasibility of treating ovarian endometriomas with a "laparo-endoscopic single site" (LESS) technique.

Materials and Methods: This study was conducted in 3 tertiary care referral centers. Since September, 2009, 21 patients with ovarian endometriomas were treated using a LESS technique. The LESS technique was performed exclusively through a 1.5-2 cm umbilical incision using a single three-channel port and flexible laparoscopic instrumentation. When required, an additional 5 mm port was inserted in the right or left lower quadrant to allow the use of the third instrument for additional tissue retraction or manipulation.

Results: The median (range) age and BMI of the study population were 33.5 (18-42) years and 28.5 (19-36) kg/m2 respectively. All 21 patients were treated successfully laparoscopically without the need for laparotomy. All cases were treated by ovarian cystectomy and excision of the peritoneal disease. An additional 5 mm port was required in 47.6% (10/21) of patients to adequately treat adherent endometrioma cyst walls, or endometriosis involving the cul-de-sac or lateral pelvic side wall. The mean surgical time was 63 min (95%CI: 58-77 min). The median (range) blood loss was 50 mL (range: 25-100 mL). Previous abdominal surgery was reported in 31% (5/16) of patients. The duration of hospital stay was <24 hours in all cases. No intraoperative complications occurred. All incisions healed nicely with no complications.

Conclusion: The LESS technique is a reasonable initial approach for the treatment of endometriomas. In our experience, an additional side port is usually needed to treat pelvic side wall and cul-de-sac endometriosis that often accompanies endometriomas.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Mohamed A. Bedaiwy: Nothing to disclose
Pedro F. Escobar: Nothing to disclose
William Hurd: Nothing to disclose
James Liu: Honorarium Consultant, Honorarium Clinical Trials PI, Research Investigator Costs Clinical Trials PI
Amanda Nickles Fader: Nothing to disclose

Non-Oral Poster 37
RETROPERITONEAL DUPLICATION CYST WITH A FISTULOUS TRACT TO THE VAGINA- A CASE REPORT

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Objectives: To describe a rare case of a retroperitoneal duplication cyst, of which only 12 cases are reported in PubMed since 1950.

Materials and Methods: Case description and discussion of a patient found to have an intestinal duplication cyst.

Results: A 46 year old Para 1 presented with uterine fibroids and menorrhagia desiring a hysterectomy. Her history was notable for a bicornuate uterus, recurrent UTI's and a congenitally absent left kidney. Her exam revealed a normal vaginal vault without deformities and a malodorous vaginal discharge with no identifiable source. Sonography identified a 5 cm tubolocystic structure adjacent to the left ovary, suggestive of a hydrosalpinx. Laparoscopy demonstrated a left retroperitoneal cystic mass medial to the ovarian fossa and extending to the cardinal ligament - completely separate from the colon. A total hysterectomy, bilateral salpingectomy and resection of the retroperitoneal cyst were performed. The cyst was entered during dissection, draining green fluid. No obvious communication with the vagina was seen. Pathological examination showed a benign cyst lined by squamous and mucinous columnar epithelium suggestive of a paracervical cyst. Postoperatively, the patient developed signs of peritonitis, which resolved with antibiotics. Her vaginal discharge and irritative symptoms continued. Ultrasound showed a persistent 4 cm complex cystic structure between the left adnexa and vaginal cuff. A fistulogram revealed a discrete tract between the mass and left vaginal sidewall at the middle third of the vagina. Vaginoscopy confirmed the tract. The retroperitoneal mass, isolated from the bowel, was noticeably reduced in size since her prior surgery. An aggressive laparoscopic resection of the mass with its fistulous connection to the vagina was performed. The added findings of smooth muscle and lymphatic tissue within the tubulocystic mass resulted in the pathologists' confirmation of an intestinal duplication cyst.

Conclusion: Intestinal duplication cysts are rare congenital anomalies, composed of muscular walls with intestinal mucosa, occurring as single or multiple cystic or tubular structures. Although often found adjacent to the gastrointestinal tract, they may not necessarily communicate with bowel lumen. Proposed theories for their formation include aberrant luminal recanalization and development from persistence of embryonal intestinal diverticuli. They can occur at any age and are twice as common in females, who have a higher prevalence of associated duplications of genital structures. Peritoneal duplication cysts can manifest as abdominal masses, bowel obstruction and GI hemorrhage. Rare retroperitoneal duplication cysts, remote from bowel, have vague and nondescript symptoms making preoperative identification difficult.

Our patients' pelvic duplication cyst fistulized to the vagina and became secondarily colonized. This caused a shift in vaginal flora and recurring UTI's. Preoperative evaluation and surgical findings were not successful in identifying the nature of the cyst, underscoring the difficulty of the diagnosis. Detailed intraoperative pathological evaluation increases the chance of detection. If found, a colorectal surgery consult can be beneficial.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Gilad Filmar: Nothing to disclose
Hilaire W. Fisher: Nothing to disclose
Peter M. Lotze: Nothing to disclose

Non-Oral Poster 38
UNUSUAL FINDINGS ON CYSTOSCOPY IN A PATIENT WITH REFRACTORY URINARY URGENCY

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Objectives: To present unique cystoscopy findings in a patient with detrusor overactivity and to discuss their possible origin.

Materials and Methods: This is a case report of a 77-year-old woman on chronic lithium therapy with complaints of urge incontinence and nocturnal enuresis for the past 4 years.

Results: The patient reported nightly nocturnal enuresis and urge incontinence associated with a large loss of urine. She used up to 6 pull-ups per day. She denied stress incontinence, prolapse or voiding dysfunction. She also

denied polydipsia and reported fluid intake of <60oz/day. She had taken an anticholinergic medication in the past without symptomatic improvement. Her medical history was significant for bipolar disorder and hypertension for which she had been on chronic lithium therapy for many years, metoprolol and amlodipine. She denied any history of neurologic or spinal disease. Her surgical history included an uncomplicated total abdominal hysterectomy and bilateral salpingoophorectomy in 1970 for menorrhagia. She denied previous surgical intervention or urethral injections for her urinary incontinence symptoms. Her physical exam was unremarkable. Urodynamics revealed detrusor overactivity incontinence at 229ml with complete bladder emptying and normal compliance. Cystourethroscopy revealed a metallic appearing submucosa mass at the bladder neck near the 4 o'clock position, which tracked down the urethra. Cold cup biopsy was performed, and the specimen was noted to be solid. Gross pathological evaluation revealed the presence of a black, hard material thought to be metal, with suspicion for lithium deposits. The sample was sent to a specialized laboratory for evaluation of the metal type, but the sample size was too small for definitive identification.

Conclusion: In this patient taking chronic lithium, cystoscopic findings suggest lithium deposition in the urethral submucosa, which may account for the patient's detrusor overactivity. Chronic lithium ingestion is a common cause of diabetes insipidus, which results in polyuria and polydipsia in 20-40% of patients. While urgency symptoms may be explained by lithium induced diabetes insipidus, it would not account for her detrusor overactivity. No reports of lithium deposition in the bladder or urethral submucosa were identified in our review of the literature. The case was reviewed with pharmacology department at our institution who suggested that a sudden change in urinary pH may account for precipitation of lithium. However, after reviewing the patient's medications, we were unable to identify the inciting mechanism for this potential change. Moreover, the lithium deposition appears to be in urethral submucosa, not a precipitate in the bladder. Given the uncertain benefit of surgical removal of the lithium deposits, she is currently being managed with behavioral modifications, physical therapy and an anticholinergic medication.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Patrick A. Nosti: Nothing to disclose
Andrew Sokol: Nothing to disclose

Non-Oral Poster 39
DEVELOPMENT AND VALIDATION OF A ROBOTIC SURGICAL TRAINING CURRICULUM FOR NOVICE SURGEONS

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Objectives: The use of robotic technology in gynecologic surgery is increasing. Robotic surgery requires unique skills and the optimal method and stage in training for teaching these skills is unknown. Robotic training programs for resident education are described; however, little is known about teaching robotics to novice surgeons. Our aim was to compare two methods of teaching robotic dry lab skills to medical students.

Materials and Methods: We developed an online didactic curriculum complemented by well-characterized dry lab exercises in robotic surgical skills. Expert consensus opinion determined the following skills were instrumental for proficiency in robotic surgery: manipulation, transection, knot tying, and suturing. After IRB approval exemption, 20 medical students with no prior robotic experience were enrolled. Subjects watched a video demonstrating 4 dry-lab tasks and underwent baseline robotic skill testing. A proficiency score was developed for each task. Subjects were then randomized to one of two practice groups: "control" group was instructed to practice the tasks with no specific instructions; "intervention" group was instructed to practice the tasks sequentially after meeting a predetermined level of proficiency for each task. Both groups completed 4, once-weekly, 20-minute practice sessions. After completing the practice sessions, subjects underwent repeat skills testing. Subjects also completed a non-validated self-assessment questionnaire regarding experience and proficiency in dexterity tasks. SPSS Version 16 was used for database management and analysis. Mann-Whitney test was used to compare independent groups.

Results: Twenty medical students were enrolled and 17 completed baseline and repeat skills testing (8 control, 9 intervention). Cohort showed significant improvement in scores for manipulation (6.6-11.2,p<.0005), transection (3.5-6.9,p<.0005), knot tying (0.4-1.7,p=.003), and suturing (2.0-3.5,p=.001). There was no significant difference in baseline and post-practice scores between the control and intervention groups in manipulation, transection, knot tying, and suturing (p=.700, .782, .682, .605, respectively). Subjects' self-reported musical instrument experience was inversely correlated with manipulation scores (-.543,p=.024). Gender was not significantly correlated with robotic skills proficiency.

Conclusion: When compared with the current model of non-structured, self-motivated practice, there appears to be no advantage for novice learners training with a structured robotic surgical skills curriculum. This finding, however, warrants further exploration with resident surgeons and a larger study population.

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Non-Oral Poster 40
PRESENTATION, DIAGNOSIS AND MANAGEMENT OF URETEROVAGINAL FISTULA: 7 YEAR EXPERIENCE OF A LARGE TERTIARY CARE REFERRAL CENTER

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Objectives: Ureterovaginal fistula (UVF) formation is an uncommon condition associated with significant morbidity usually resulting from of unrecognized ureteral injury at the time of pelvic surgery. Few studies report the etiology, diagnosis and management of UVF's in developed countries. The objective of this study was to describe the presentation, diagnosis and management of UVF at a tertiary referral center over the last 7 years.

Materials and Methods: This was a retrospective analysis of all patients who presented to our institution with the diagnosis of ureterovaginal fistula over a 7-year period from January 1, 2003 to January 1, 2010. Demographic information, as well as information regarding antecedent event, presenting symptoms, diagnostic approach and management was collected and analyzed.

Results: Twenty patients with a UVF were identified during the study period. Mean age at diagnosis was 44 years (SD± 8). All patients presented with continuous leakage of urine per vagina. Median time from antecedent event to the onset of symptoms was 14.5 days (range 1-42 days) while median time from index surgery to fistula diagnosis was 7 weeks (range 11 days - 5 years). Eighteen fistulas (90%) resulted from an injury at the time of a hysterectomy (9 total abdominal, 6 total laparoscopic, 3 vaginal hysterectomies). Four of these patients had concurrent pelvic reconstructive surgery, 2 had concurrent lymph node dissection for endometrial cancer while the remainder (n=12, 60%) resulted from hysterectomy alone. In one case a fistula formed between the ectopic ureter and the vagina and another followed a repeat cesarean section. In all cases ureteral injuries were not recognized at the time of index surgery. While CT urogram was the most commonly utilized diagnostic modality, in 7 cases (35%) a physical exam and cystoscopy were sufficient for diagnosis. Primary non-surgical management with ureteral stents alone was attempted in 8 cases and was successful in 5 (63%). Surgical repair followed initial conservative management for 3-6 months with stents in 3 cases. Primary surgical repair was performed in 12 instances. Of the 15 total surgical repairs, 11 were open ureteroneocystostomies and 4 were laparoscopic (3 robotically-assisted). The median follow-up duration was 3.5 months (range 3 weeks - 3.5 years). During the follow-up period no additional intervention was required.

Conclusion: This is the largest case series reporting the presentation, diagnosis and management of ureterovaginal fistulas from a developed country. Despite early onset of symptoms, diagnosis and management of ureterovaginal fistula is significantly delayed. Conservative management with ureteral stent placement was attempted in 40% of patients and of these was successful in 63%. It is worthwhile considering this approach before a reimplantation procedure.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Matthew D. Barber: Nothing to disclose
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Jonathan Shaw: Nothing to disclose
Elena Tunitsky-Bitton: Nothing to disclose

Non-Oral Poster 41

THE EFFECT OF SURGICALLY INDUCED WEIGHT LOSS ON URINARY INCONTINENCE, COLORECTAL FUNCTION, PELVIC ORGAN PROLAPSE, AND SEXUAL FUNCTION IN MORBIDLY OBESE FEMALES-LONG TERM FOLLOW UP

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Objectives: To evaluate the effect of surgically induced weight loss on the quality of life and sexual function in morbidly obese women.

Materials and Methods: IRB approval was obtained. Thirty six subjects were needed to provide 80% power to find a 30 point difference on the pelvic floor impact questionnaire (PFIQ), which was the primary outcome. Estimating a 20% dropout rate we enrolled 44 subjects scheduled to have Bariatric surgery at Mount Sinai hospital from 8/20/07 to 5/28/08. Secondary outcomes were the Pelvic Organ Prolapse/Urinary Incontinence Questionnaire (PISQ-12) and the Female Sexual Function Inventory (FSFI) to evaluate sexual function. Descriptive statistics was provided for all variables. Alpha level was set at 0.05. Data were analyzed with a paired t-test, and linear regression models using SAS software.

Results: Mean age at baseline was 41.28± 12.28 years, mean years follow up was 3.15 ± 0.24 years, mean BMI at baseline was 45.76 ± 6.48 and mean BMI at follow up decreased to 31.55, p<0.0001. The PFIQ data were analyzed. Mean difference in UIQ scores showed significant improvement in total score, (-34.92) p=0.0020, and all four subscale scores: travel (-9.03) p=0.0020, social (-7.01) p=0.0027, emotional (-8.93) p=0.0116, and physical (-9.95) p=0.0015, when evaluated postoperatively. Mean difference in CRAIQ scores were analyzed to evaluate colorectal function. The social subscale was significantly improved (-5.11) p=0.0250, and there was an associated trend towards significance in the total subscale (-19.30) p=0.0622. The travel (-5.09) p=0.0813, emotional (-5.16) p=0.0918, and physical subscales (-3.94) p=0.1302, were not significant. When mean difference in POPIQ scores were analyzed there was significant improvement in the physical subscale (-4.40) p=0.0491, and social subscale (-3.79) p=0.0365. Total score (-14.87) p=0.0715, the emotional subscale (-4.37) p=0.0788, and travel subscale (-2.31) p=0.3583, were not significant. When the PISQ-12 data were analyzed the preoperative mean sum was 35.78±6.06 and the postoperative mean sum was 38.22± 6.03 with a significant improvement of 2.44±5.98, p=0.0193. For every one unit decrease in BMI there was a mean significant increase in PISQ-12 score of 0.32 points in our linear regression model p=0.0198. When FSFI scores were analyzed the total score preoperatively was 17.70 (≤ 26 equals sexual dysfunction) and the postoperative score was 16.91, (-0.79) p=0.5832, and not statistically significant. This was true in all domains including desire (0.20) p=0.4385, arousal (-0.15) p=0.6795, lubrication (-0.21) p=0.4007, orgasm (-0.04) p=0.8811, satisfaction (-0.27) p=0.5104, and pain (-0.32) p=0.0973. This relationship was also true in our linear regression model p=0.5167.

Conclusion: Surgically induced weight loss was associated with a statistically significant improvement in quality of life on the UIQ (all subscales), CRAIQ (social subscale), and POPIQ (physical and social subscales), as well as improvement in sexual function with the PISQ-12, (not seen with the FSFI) in this cohort of 36 subjects prospectively followed long term.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Charles J. Ascher-Walsh: Nothing to disclose
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Michael D. Vardy: Nothing to disclose

Non-Oral Poster 42

THE GUINEA PIG AS A MODEL FOR VAGINAL SURGERY AND MENOPAUSE

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Objectives: Connective tissue defects that underlie initial failure of pelvic organ support may also contribute to failure of reconstructive surgery. There is scant data regarding the molecular mechanisms that facilitate or impede healing of the vaginal wall after vaginal prolapse surgery. Our objective was to evaluate and describe the use of the guinea pig as a menopausal animal model for vaginal surgery.

Materials and Methods: Virginal Hartley guinea pigs at 12 weeks of age (n = 50) underwent bilateral ovariectomy via dorsal flank incisions with insertion of either an estradiol (50 ug/kg/d) or vehicle osmotic pump. After 2 weeks, a modified posterior colpo-perineorrhaphy was performed. Briefly, the posterior introitus was incised, the vaginal wall undermined, and a 1.5 × 0.3 cm strip of full thickness posterior wall excised with primary closure of the wound. After vaginal surgery, 1/2 of each group was treated with a lysyl oxidase (LOX) inhibitor to prevent collagen cross-linking. Complications, vaginal measurements, and anatomic changes were recorded until the time of sacrifice (4-21 d after vaginal surgery).

Results: The anatomy and morphology of the guinea pig vaginal wall was remarkably similar to humans, and large enough for vaginal surgery. At the time of ovariectomy, body weight was 500 ± 12 g in animals treated with vehicle and 488 ± 9 g treated with estrogen. After 2 weeks, body weight of both non-estrogenized and estrogenized animals increased modestly to 559 ± 15 and 494 ± 15 g, respectively (P < 0.001, paired). Interestingly, body weight continued to increase in non-estrogenized animals to 612 ± 24 g (P < 0.001) whereas estrogen-treated animals lost weight (474 ± 40 g, P < 0.01). Vaginal procedures were not noticeably more technically challenging in the absence of estrogen. There were no intraoperative or anesthetic complications for either surgery. After ovariectomy, however, one animal experienced wound dehiscence with bowel evisceration within 24 h and was euthanized. Two estrogen pumps failed. The vaginal introitus in non-estrus was characterized by the presence of a closed membrane. Whereas present in 82% of non-estrogenized animals, the membrane was present in only 15% of estrogenized animals. Uterosacral ligaments were readily identified and dissected from the ureters with traction on the uterus. Vaginal measurements are shown in the table. The healing surgical incision length was consistently one-third to one-half that of the vagina.

Conclusion: Guinea pigs are an excellent model for vaginal surgery with few complications. Although a dissection microscope is needed for optimal visualization, procedures can be performed with routine surgical instruments. In addition, clear differences in vaginal dimensions and anatomy in the presence of estrogen also make them suitable models to study menopause and the effects of hormonal treatment on the vaginal wall and supportive tissues of the pelvic floor.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Jesus F. Acevedo: Nothing to disclose
Sunil Balgobin: Nothing to disclose
Haolin Shi: Nothing to disclose
Clifford Wai: Nothing to disclose
Ruth A. Word: Nothing to disclose

Vaginal Tube Measurements for Non-Estrogenized and Estrogenized Guinea Pigs

	No Estrogen (n=23)	Estrogen (n=24)	P
Vaginal Weight (mg)	485 ± 24.2	1264 ± 29.2	<0.001
Length (mm)	29.1 ± 1.0	36.1 ± 1.1	<0.001
Diameter (mm)	6.9 ± 0.3	10.7 ± 0.7	<0.001

Non-Oral Poster 43

COMPLETION RATES OF THE PFIQ-7 QUESTIONNAIRE IN SPANISH SPEAKERS COMPARED TO ENGLISH SPEAKERS

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Objectives: To determine whether there is a difference in completion rates of the PFIQ-7 questionnaire by Spanish speakers as compared to English speakers.
Materials and Methods: This is a subgroup analysis of a previous prospective, cohort study of women with uterine leiomyomata. The validated Pelvic Floor Distress Inventory (PFDI-20) and Pelvic Floor Impact Questionnaire (PFIQ-7) were administered to all subjects. Surveys were considered complete if greater than 50% of responses were marked. Basic demographic data, uterine size and PFDI-20 responses were compared between responders and non-responders. Similarly, demographic data, uterine size, PFDI-20 questionnaire responses, and rates of completion of the PFIQ-7 were compared between Spanish speakers and English speakers, using a Chi Square test, an unpaired T test or a Wilcoxon signed rank test as indicated.
Results: A total of 199 women agreed to participate in the study. Of those, 114 completed greater than 50% of the PFDI-20 (responders). There was no difference between responders and non-responders in age, BMI, uterine size, or degree of prolapse. The 114 responders were included in this analysis. 72 women were Spanish speakers, and 42 women were English speakers. There was no difference in mean age, BMI, or uterine size for Spanish speakers compared to English speakers (44.9 versus 45.1 years, 29.5 kg/m2 versus 31.2 kg/m2, and 14.6 versus 16.2 weeks, respectively). No significant difference in the composite score for PFDI-20 or any of the subscales (pelvic organ prolapse distress inventory, colorectal/anal distress inventory, urinary distress inventory) was found between groups. The Spanish speakers had a mean composite PFDI-20 score of 78.9 versus 100.3 among English speakers (p=0.065). There was a significant difference found in completion rates of the PFIQ-7; only 80.5% of Spanish speakers completed the PFIQ-7, in contrast to 100% of English speakers (p = 0.002). The average number of responses to the PFDI-20 among English speakers was 19.8 +/- 0.5 compared to 19.6 +/- 0.78 (p=0.2) for the Spanish speakers while the average number of responses to the PFIQ-7 was 20.9 +/- 0.5 among English speakers compared to 17.1 +/- 6.2 among Spanish speakers (p=0.001).
Conclusion: The Spanish translation of the PFIQ-7 may not be optimized for Spanish speaking women in the United States.
DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Christina E. Dancz: Nothing to disclose
Michelle Sanchez: Nothing to disclose
Begüm Özel: Nothing to disclose

Non-Oral Poster 44
LEARNING CURVE OF FIRST 100 ROBOTIC - ASSISTED HYSTERECTOMIES

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Objectives: To compare the clinical outcomes in the first 100 patients who underwent robotic - assisted hysterectomy (RAH) by a single surgeon.
Materials and Methods: Using the New York Hospital Queens surgical database, we identified the first 100 patients who underwent RAH by a single surgeon from May 2010 to July 2011. We performed univariate analyses to examine the relationship between the patients' clinical outcomes and when their procedures were performed during the surgeon's learning curve. We performed analysis of the chronological series and inter-quartile differences. A p value of <0.05 was considered statistically significant.
Results: We found no significant differences among the four groups in any of the demographic characteristics recorded (age, body mass index, parity, number of prior abdominopelvic surgeries and uterine weight). The last quartile of patients was found to have shorter surgery time (187.5 min vs. 117.5min, p = 0.003) and decreased estimated blood loss (EBL 200mL vs. 50mL, p = 0.003) when compared to the first quartile of patients. Although surgery time and EBL declined progressively, inter-quartile differences were no longer statistically significant when comparing the third quartile to the last quartile of patients.
Conclusion: Patients who underwent RAH with the surgeon later in the learning curve had significantly decreased operative time and EBL, but differences were not significant after approximately the 75th case.
DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Melissa Frey: Nothing to disclose
Jian Qun Huang: Nothing to disclose
Jason Kofinas: Nothing to disclose

Comparison Between the First Quartile vs. Last Quartile of Patients

	First Quartile(n=25)	Last Quartile (n=25)	p value
Age (years)	46	44	NS
BMI (kg/m2)	28	27	NS
Parity	2	2	NS
Surgery time (min)	187.5	117.5	0.003
EBL (mL)	200	50	0.003
Hospital stay (days)	0	0	NS
Prior surgery	0	1	NS
Uterine Weight (gm)	234	246	NS

Non-Oral Poster 45
EFFECT OF CONCOMITANT ANTERIOR VAGINAL REPAIR ON MIDURETHRAL SLING OUTCOMES

N. B. Korbly[1], K. Mori[1], N. Kassis[2], V. V. Lopes[1], B. S. Hampton[1], V. W. Sung[1]. *[1]Obstetrics and Gynecology, Women & Infants Hospital/Alpert Medical School at Brown University, Providence, RI; [2]Indiana University, Indianapolis, IN*

Objectives: To estimate the effect of concomitant anterior vaginal repair with midurethral sling (MUS) compared to MUS alone on the risk of postoperative urinary retention and sling failure within 1 year following surgery.
Materials and Methods: This is a retrospective cohort study of women who underwent MUS placement at our institution between June 2008 and December 2010. Women who underwent MUS alone or MUS with concomitant anterior vaginal repair were eligible. Women who underwent prolapse repair procedures other than anterior vaginal repair were excluded. Our primary outcome is a composite outcome including urinary retention and/or sling failure. Urinary retention is defined as postoperative catheterization for > 3 days or a return to the operating room for sling revision for retention. Sling failure is defined as an affirmative response to PFDI question #17 (Do you usually experience urine leakage related to coughing, sneezing, or laughing?) or positive cough stress test post-operatively. We also analyzed a subset of women with anterior prolapse at or above the hymen. Multivariable logistic regression was performed to estimate the effect of concomitant anterior vaginal repair with MUS on increasing the risk of urinary retention and/or sling failure compared to MUS alone, adjusting for potential confounders.
Results: 244 women met inclusion criteria. 24% (n=58) of women underwent concomitant anterior vaginal repair and MUS, and 76% (n=186) underwent MUS alone. Mean follow-up time was 34.4 wks (SD 19.4). There were no significant differences in age, parity, race, prior history of anti-incontinence or prolapse surgeries, BMI, presence of intrinsic sphincter deficiency, preoperative post-void residual volumes, type of sling placed, or mean follow-up time between groups (p>0.05 for all). Women with concomitant anterior repair and MUS had worse pre-operative median Aa and Ba scores of -0.5 (range -2.5 to 3) and -0.5 (range -2.5 to 3) compared to -2 (range -3 to 1) and -2 (range -3 to 1) for women with MUS alone (p<0.0001 for both). Postoperatively, a higher proportion of women in the combined procedure group experienced sling failure and/or urinary retention (24.1% vs 13.2%, p=0.05). In the subset of women with only anterior prolapse at or above the hymen, a higher proportion of women in the combined procedure group also experienced sling failure and/or urinary retention (20.9% vs 13.5%, p=0.21) however this was not statistically significant. On multiple logistic regression, women who underwent concomitant anterior repair and MUS had an increased odds of having the composite outcome of urinary retention and/or sling failure compared to women who underwent MUS alone (AOR 2.31, 95% CI 1.08-4.93) after adjusting for type of sling placed and anesthesia type.
Conclusion: Women who underwent concomitant anterior vaginal repair and MUS are at increased risk for experiencing urinary retention and sling failure compared to women who underwent midurethral sling alone.
DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Brittany S. Hampton: Nothing to disclose
Nadine Kassis: Nothing to disclose
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Vrishali V. Lopes: Nothing to disclose
Kristina Mori: Nothing to disclose
Vivian W. Sung: Nothing to disclose

Non-Oral Poster 46
PROSPECTIVE STUDY OF THE INCIDENCE OF DE NOVO STRESS URINARY INCONTINENCE FOLLOWING APICAL PROLAPSE REPAIR IN A PREVIOUSLY CONTINENT POPULATION

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Objectives: To assess the incidence of de novo moderate and severe stress urinary incontinence following apical prolapse repair in a previously continent population. The secondary aim is to assess the percentage of women needing anti-incontinence procedure following apical prolapse repair.

Materials and Methods: 148 patients (40 laparoscopic sacrocolpopexy, 36 laparoscopic sacrohysteropexy, 30 sacrospinous ligament fixation, 22 vaginal hysterectomy with culdoplasty, 20 total vaginal mesh with kit (ProliftTM), and 10 total laparoscopic hysterectomy with laparoscopic culdoplasty), were followed at 6 weeks and 6 months post operatively.

6 patients underwent a concomitant TVT at the same time of prolapse and repair and were excluded from the analysis. All subjects filled the King's Health Questionnaire, prolapse quality of life questionnaire (P-QOL) and were examined using the pelvic organ prolapse quantification system (POP-Q) preoperatively and at postoperative follow up visits. Women also filled the Patient Global Impression of Improvement Questionnaire during the postoperative visits.

Results: 9 women (6.3 %) developed de novo moderate/severe stress urinary incontinence on the Kings Health Questionnaire, 7 of those underwent anti-incontinence procedure following prolapse repair (4 following laparoscopic sacrocolpopexy, one following vaginal hysterectomy and anterior repair, two following laparoscopic sacrohysteropexy). All patients who developed de novo incontinence presented within 6 weeks of surgery.

Postoperatively, the apex and anterior vaginal wall was at ICS stage 0/1 in 81% of cases. Overall, 90% of patients reported feeling "better", "much better" or "very much better" on global impression of improvement. All patients who needed anti incontinence procedures postoperatively reported feeling worse or much worse on their global impression of improvement despite anatomical cure of their prolapse.

Conclusion: The incidence of de novo moderate and severe stress urinary incontinence following apical prolapse repair in a previously continent population is 6.3% with 4.9% of patients needing anti incontinence procedure. This questions the need for routine anti-incontinence procedures at the time of apical prolapse repair. Patients who develop stress incontinence needing surgery generally report feeling worse or much worse on global impression of improvement.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Dina El-hamamsy: Nothing to disclose

Abdalla M. Fayyad: Speaker, Honorarium Scientific Meeting, Travel Sponsorship Speaker

Non-Oral Poster 47
DERMAL ALLOGRAFT AUGMENTATION OF THE ANTERIOR COMPARTMENT AT TIME OF ABDOMINAL SACROPEXY

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Objectives: Sacropexy can be inadequate for correcting anterior compartment defects. This study evaluated the safety and efficacy of dermal allograft augmentation of an anterior colporrhaphy at the time of abdominal sacropexy in women with stage 2 or greater anterior and central compartment prolapse.

Materials and Methods: This was a retrospective case series of 330 subjects who underwent anterior colporrhaphy augmented with a dermal allograft at the time of abdominal sacropexy at a single center from July 2002 to December 2009. Outcome variables included operative time, complications, and failure rate. Objective failure was defined as Stage 2 or greater in either compartment. Logistic regression analysis was used to assess risk factors associated with recurrence. Kaplan-Meier survival curves were used to display time to recurrence.

Results: Preoperatively, 10 women had stage 2, 161 women had stage 3, and 159 women had stage 4 anterior compartment prolapse with concomitant apical prolapse. Mean surgery time and estimated blood loss were 161 minutes and 328 mL. The following concomitant surgeries were performed: 313 subjects had a culdeplasty (95%), 93 posterior colporrhaphy (28%), 207 TVT sling (63%), 124 subtotal abdominal hysterectomy (38%), 24 total abdominal hysterectomy (7%), and 49 other procedures (15%). Mean length of follow-up was 18 months (range, 1.5-72 months). Postoperatively, 8 women had stage 2, 5 women had stage 3, and 0 women had stage 4 anterior compartment prolapse resulting in a 4% objective failure rate. Three of these 13 women underwent reoperation for anterior compartment prolapse. In the central compartment, there was a 3.3% failure rate with 7/11 women undergoing reoperation. The probability of failure at 60 months was 0.28 and 0.23 for the anterior and central compartments, respectively. The only risk factor for failure identified was BMI ($P<0.01$). Overall there were 64 postoperative complications (19%) including 24 mesh/suture erosions (9%), 11 allograft exposures (3%), 16 subjects with dyspareunia (5%, 9 of which had a posterior colporrhaphy), 5 urinary tract infections (1%), 5 wound infections/separations (1%), 2 small bowel obstructions requiring surgery (0.6%), and1 pulmonary embolus.

Conclusion: Dermal allograft augmentation of an anterior colporrhaphy at the time of abdominal sacropexy in women with stage 2 or greater anterior and central compartment prolapse is safe and provides excellent objective success.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Ashar Ata: Nothing to disclose

Robert W. Lobel: Nothing to disclose

Paul Moore: Nothing to disclose

Nicole Morin: Nothing to disclose

Non-Oral Poster 48
EXTRAFASCIAL SUPRAPUBIC LEIOMYOMA PRESENTING AS PELVIC PAIN

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Objectives: Pelvic pain is a common complaint among women who present for gynecologic care. Differential diagnoses include gynecologic, urologic and gastrointestinal causes. Work-up may include history, physical exam and imaging.

Materials and Methods: We describe a case of a woman with progressive pelvic pain which was non-cyclic in nature. Initial work-up included pelvic ultrasound which revealed a 7 cm mass thought to involve the ovary, however diagnostic laparoscopy was negative. Persistent pain led to a CT scan which revealed that the mass was actually extrafascial.

Results: The patient underwent surgery to remove this suprapubic extrafascial mass. Pathology was reported as a leiomyoma of uterine origin with extensive hydropic changes. There have been cases of seeding myomatous fragments following myomectomy, however this patient had no prior history of leiomyoma or prior surgery. The suprapubic and subcutaneous nature of the mass likely contributed to the difficulty in diagnosis. After review of the initial ultrasound pictures, it was theorized that the sonographer who performed the first exam had angled the vaginal probe in such a way that the mass appeared to be intraabdominal.

Conclusion: In cases of pelvic pain where no diagnosis is found during usual work-up, CT may be useful in finding unusual anatomic sources of pain. In this case, CT was instrumental in making the diagnosis.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Elizabeth Casiano: Nothing to disclose

Victor Casiano: Nothing to disclose

Non-Oral Poster 49
HAS ROBOTIC SURGERY IMPACTED OUR APPROACH TO THE SURGICAL MANAGEMENT OF VAGINAL VAULT PROLAPSE?

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Objectives: Robot-assisted laparoscopic surgery is one of the latest advances in minimally invasive surgery and was approved for use in gynecologic surgery by the Food and Drug Administration (FDA) in 2005. Pelvic organ prolapse (POP) is a common condition in the female population and there are a variety of procedures available to surgically correct defects. Specifically, abdominal sacral colpopexy, uterosacral ligament suspension, and sacrospinous ligament suspension are options for the surgical correction of apical prolapse. An advantage of robotic surgery is that such procedures can be performed through a minimally invasive route. The purpose of this

retrospective, observational cohort study was to evaluate if there has been an increase in the number of patients in whom we perform sacral colpopexy because of robotic technology.

Materials and Methods: After IRB approval, we compared two groups of patients: those who were operated on for apical prolapse in 2007, our "pre-robot era," and those who were operated on in 2010, our "robot era." Records of women ≥18 years old scheduled to undergo surgery for uterovaginal prolapse and/or vaginal vault prolapse at Hartford Hospital in 2007 and 2010 were included.

Results: Of 148 cases performed for apical prolapse in 2007, 60 (40.5%) were abdominal sacral colpopexies, of which 21 (35.0%) were performed with robot assistance. In 2010, there were 213 vaginal prolapse repairs performed, of which 137 (64.3%) were abdominal sacral colpopexies, and of those 105 (76.6%) were completed with robot assistance. There were significantly more sacral colpopexies being performed in 2010 as compared to 2007 with a consequent decline in the overall number of vaginal repairs. Interestingly, there was no significant difference in numbers of sacrospinous ligament suspensions and uterosacral ligament suspensions performed between the two years (p=0.883). Overall, patients undergoing robotic surgery were younger (56.2 ± 9.5 years) than their vaginal surgery counterparts (64.9 ± 9.8 years, p<0.001).

Additionally, when dichotomizing stage of prolapse as a lesser stage (stages 1 and 2) or a greater stage (stages 3 and 4), patients receiving sacral colpopexy were more likely than their vaginal surgery counterparts to have a higher stage of prolapse at the time of surgery in both 2007 (p=0.008) and 2010 (p<0.001) (Table 1). However, there was no difference in the distribution of prolapse stage for robotic surgeries in 2007 and 2010.

Conclusion: Robot-assisted surgery has gained popularity in female pelvic medicine and reconstruction surgery as a means to surgically treat prolapse and has increased the number of sacral colpopexies being performed to treat apical prolapse. Patients who receive robotic surgery are younger and generally have not had prior POP surgery.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Hema D. Brazell: Nothing to disclose
Christine LaSala: Nothing to disclose
David O'Sullivan: Nothing to disclose

TABLE 1. Differences in Stage

Year	Stage	V	S	Total	P-Value
2007	1–2	108	55	163	
	3–4	68	65	133	
	Total	176	120	296	P = 0.008
2010	1–2	128	106	234	
	3–4	146	46	192	
	Total	152	274	426	P < 0.001

V = vaginal; S = sacral colpopexy.

Non-Oral Poster 50
SPANISH TRANSLATION AND VALIDATION OF THE PFDI-20, PFIQ-7, QUID AND 3IQ QUESTIONNAIRES

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Objectives: The study aim was to produce valid and reliable Spanish translations of the PFDI-20, PFIQ-7, QUID and 3IQ questionnaires.

Materials and Methods: Translation was performed using the TRAPD (Translation, Review, Adaptation, Pretesting and Documentation) method. 8 bilingual translators (native Spanish speakers from 7 Latin American countries with clinical experience in pelvic floor disorders) developed initial Spanish versions in a stepwise collaborative process. These versions were pretested with cognitive interviewing techniques, revised and retested until deemed optimal. Back-translation of Spanish versions was done by 2 translators. For validation, bilingual Urogynecology patients at 7 sites were enrolled and randomized to complete Spanish or English versions first. Participants were asked to complete and return by mail a 2nd set of Spanish versions 1-3 weeks later. Internal consistency and test-retest reliability of the Spanish instruments and agreement between English and Spanish versions were measured using Cronbach's alpha, Kappa, weighted Kappa (k) and intraclass correlation coefficients (ICC).

Results: Cognitive interviews were performed in 15 patients in 2 rounds. Back-translation was deemed satisfactory. Of 111 bilingual eligible patients, 84 (76%) agreed to participate and were randomized to answer in Spanish or English first. Six (3 per group) were later excluded for missing questionnaires, leaving 78 subjects for analysis. Median (range) age was 48 (28-85) years and median (range) number of years in the United States (US) was 31 (0-69). 95% self-identified as Hispanic, 73% reported Spanish as primary language and 84% spoke Spanish or both languages at home. 24% were born in the US, 10% in Mexico, 40% in Central America/Caribbean and 26% in South America. The proportions of missing responses per item (median (range) = 1.3% (0-3.9%)) were similarly low for both versions. Internal consistency of the Spanish PFDI-20 subscales was moderate to good and that of PFIQ-7 and QUID was excellent (Table). Individual Spanish and English questionnaire ítems had good to excellent agreement (k range: 0.66-0.96). Excellent agreement was seen between Spanish and English subscale scores (Table). The median test-retest interval was 7 days. Test-retest reliability of individual Spanish ítems was moderate to near perfect (k range 0.51 to 0.89) and reliability of the scores was excellent (Table).

Conclusion: We obtained valid and reliable Spanish translations of the PFDI-20, PFIQ-7, QUID and 3IQ Questionnaires. Our results support their use as assessment tools in the Spanish-speaking population.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Catherine Bradley: Investigator, Research Support
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Cedric K. Olivera: Speaker, Honorarium
Aimee Smith: Nothing to disclose
Alejandro D. Treszezamsky: Nothing to disclose

Subscale Score Internal Consistency, Agreement and Reliability

Questionnaire	Subscale	Spanish version internal consistency (Cronbach's alpha)	English-Spanish score agreement (ICC)	Spanish-Spanish test-retest reliability (ICC)
PFDI-20	POPDI6	0.81	0.96	0.96
	CRADI8	0.79	0.92	0.92
	UDI6	0.83	0.92	0.92
PFIQ-7	a. Bladder	0.95	0.98	0.86
	b. Rectum	0.96	0.98	0.86
	c. Pelvis	0.96	0.98	0.93
QUID	Stress	0.94	0.99	0.93
	Urge	0.94	0.97	0.88

Non-Oral Poster 51
VALIDATION OF A NOVEL, CAMERA-BASED, PROCEDURE SPECIFIC, LAPAROSCOPIC BOX TRAINER

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Objectives: The objective was to demonstrate construct and face validity of a novel laparoscopic simulator. The tasks on this box trainer were designed

specifically to simulate the technically difficult steps of the sacrocolpopexy procedure.

Materials and Methods: After IRB approval, 3rd and 4th year Ob/Gyn residents were recruited as novices and urogynecology attendings and fellows were recruited as experts. Experts had to have performed > 50 laparoscopic sacrocolpopexies. Participants were asked to fill out pre- and post-simulation questionnaires and were shown a 4-minute video detailing the exercise prior to testing. Each participant was allowed one practice stitch, following which they were asked to secure a polypropylene mesh to a simulated vagina and sacrum with 3 additional sutures, placing each stitch through a predetermined circle 1 cm in diameter. The primary outcome was time to complete the tasks, while secondary outcomes were errors and technical proficiency of each stitch. A score that was based on an algorithm from the Fundamentals of Laparoscopic Surgery (FLS) was used to evaluate each suture placement with the following formula: 600 points - time - (25 × mm distance outside of predetermined circle) - (25 × numeric score for technical mistakes in knot formation). Data are reported as proportion or median (interquartile range). The exact Wilcoxon test was used and all tests were two sided.

Results: Eight novice and five expert subjects were recruited and tested. All subjects were right handed and novices were slightly younger: 30.5 (29.5-31.0) years vs.36.0 (33.0-39.0) years (P=0.007). The experts performed a similar number of weekly laparoscopic cases as the novices: 2.0 (1.5-30) cases vs. 3.0 (2.0-3.5) cases (P=0.30). However, the experts had been operating for 9.0 (6.0-11.0) years and the novices for 3.5 (2.0-4.0) years (P=<0.0001). The median time to complete the tasks was significantly shorter for experts (1.7 (1.4 - 2.2) minutes) than novices (4.4 (3.5 - 4.7) minutes; P=0.01). The experts achieved a significantly higher score (491.5 (468.0 - 501.5) points) than the novices (318.8 (288.3 - 381.8) points; P=0.02). All participants stated that the simulator was representative of real life laparoscopic surgery.

Conclusion: This laparoscopic simulator has both construct and face validity. It can be a valuable tool in overcoming the hurdle of the learning curve in a technically challenging procedure.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Chris S. Awtrey: Nothing to disclose
Sybil Dessie: Nothing to disclose
Michele R. Hacker: Nothing to disclose
Alexander Shapiro: Nothing to disclose

Non-Oral Poster 52
DOES DISTANCE TRAVELED FOR CARE AFFECT TREATMENT CHOICE FOR PELVIC ORGAN PROLAPSE AND STRESS URINARY INCONTINENCE?

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Objectives: We sought to determine if distance traveled for care influenced patient choice for conservative vs surgical treatment for pelvic organ prolapse (POP) and/or stress urinary incontinence (SUI).

Materials and Methods: A retrospective chart review of all new patients seen in the Urogynecology clinic at the University of New Mexico Hospital (UNMH) from January 2007 through December 2010 was performed. Data were collected from a standardized history and physical form and included a Pelvic Organ Prolapse Quantification (POPQ) examination and validated quality of life questionnaires. Distance traveled to care was determined by calculating the distance from the patient's home address at time of initial exam to UNMH using Google maps. Distance traveled was dichotomized into within or outside Albuquerque city limits. Data were analyzed using SAS v9.3 (Cary, NC). Chi-squared and student t-tests were used where appropriate. Significant univariate variables were entered as candidate factors to determine the "best" stepwise logistic regression multivariate model for the choice of surgery vs conservative treatment.

Results: There were 1014 patients with the diagnosis of symptomatic POP (27.3%), SUI (59.1%) or both POP/SUI (13.6%). Women traveled a wide range of distances for care (0.9 to 1,950 miles), with 637 (62.8%) women traveling within city limits. On univariate analysis, women who chose surgery were not different than women who chose conservative management in age, BMI, Hispanic ethnicity, Charlson comorbidity index, sexual activity, or PISQ 12 scores (all p>0.05). Women who chose surgery were more likely to have a partner, POPQ stage >/= 2, a positive empty supine leak, history of prior POP or SUI surgery, and higher PFDI-20, POPDI-6, and UDI-6 scores (all p<0.05). On univariate analysis, women who lived outside of the Albuquerque city limits were more likely to choose surgery than those that lived within city limits (34.5% vs 25.3%, p<0.01). In the multivariate model represented in the table, women who traveled from outside the city were more likely to choose surgery [OR 1.47 CI 1.06, 2.06]. Positive empty supine leak [OR 2.4 CI 1.64, 3.43], higher POPDI-6 scores [OR 1.01 CI 1.01,1.02], and if the patient had a partner [OR 1.45 CI 1.04, 2.03] all were also associated with choice of surgical treatment.

Conclusion: Women who lived outside the Albuquerque city limits were more likely to choose surgical rather than conservative management for their symptomatic POP and/or SUI. Distance traveled and lack of partner support may be a barrier for conservative treatment for symptomatic POP and/or SUI.

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Sara Cichowski: Nothing to disclose
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Rebecca G. Rogers: DSMB chair TRANSFORM trial, Research Support

Significant Univariate and Multivariate Analysis

Univariate				Multivariate		
	Surgery (mean or %)	Conservative Treatment (mean or %)	P Value	OR	95% CI	P Value
Live Outside of Albuquerque	34.5%	65.5%	<0.01	1.47	[1.06, 2.06]	0.02
Previous Prolapse Surgery	38.5%	27.6%	0.02			
Previous Incontinence Surgery	40.7%	27.7%	0.01			
Current Partner (married, relationship)	61.9%	52.8%	<0.01	1.45	[1.04, 2.03]	0.03
PFDI-20	121.7	109.5	0.01			
POPDI-6	39.4	33.2	<0.01	1.01	[1.01, 1.02]	<0.01
UDI-6	56.5	50.9	<0.01			
POPQ Stage >/= 2	30.3%	23.2%	0.05			
Positive Empty Supine Cough Test	40.8%	25.1%	<0.01	2.37	[1.64, 3.43]	<0.01

Non-Oral Poster 53
THE ROLE OF LAPAROSCOPIC TRACHELECTOMY IN THE TREATMENT OF PELVIC PAIN IN PATIENTS WITH ENDOMETRIOSIS AFTER SUPRACERVICAL HYSTERECTOMY

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Objectives: Approximately 600,000 women undergo hysterectomy each year in the United States, of which 6% are supracervical. The most common indications for supracervical hysterectomy are: surgical difficulty, secondary to anatomic distortion, and patient preference. The chief complaint among endometriosis patients is pelvic pain and dysmenorrhea. Surgical management via hysterectomy is thought to alleviate this symptomatology. Endometriosis patients may have anatomic distortions that can predispose them to supracervical hysterectomy. Reports indicate that 22.8% of patients who undergo laparoscopic supracervical hysterectomy for pelvic pain will require trachelectomy. The purpose of our study was to determine if endometriosis carries an increased risk of trachelectomy in patients undergoing supracervical hysterectomy. Our secondary objective was to assess the morbidity and mortality of the procedure.

Materials and Methods: After obtaining IRB approval, a retrospective chart review of patients who underwent laparoscopic trachelectomy between July 1, 2007 and June 30, 2011 for bleeding, pelvic pain, or both was conducted. The surgical procedures were performed by one individual. The charts were reviewed to evaluate age, parity, BMI, pre-operative diagnosis, past medical and surgical history, intraoperative findings, pathology, and

complications. Patients who underwent laparoscopic trachelectomy with or without adnexal surgery were included in the review.

Results: Sixteen patients underwent trachelectomy at our institution during the study period. The mean patient age was 35.3 years. Three patients had a known history of endometriosis prior to trachelectomy. Twelve patients had a clinical diagnosis of endometriosis at time of surgery and three had confirmatory diagnosis via pathology. Three patients were noted to have adhesive disease intraoperatively. One patient was noted to have normal anatomy via laparoscopy and cystoscopy. Seventy-five percentage of patient undergoing laparoscopic trachelectomy at our institution were found to have a diagnosis of endometriosis based on intraoperative findings and or pathology. The estimated blood loss for all of our cases was less than or equal to 50 cc. Three patients had post-operative complications. One patient was evaluated in the Emergency Room twice for vaginal bleeding that did not require surgical intervention. Another patient experienced a vaginal cuff dehiscence, requiring surgical repair. The final patient was treated on an outpatient basis for vaginal cuff granulation tissue. There were no patient deaths. We had an overall complication rate of 18%.

Conclusion: Patients with endometriosis are more likely to undergo trachelectomy after supracervical hysterectomy. We recommend that patients with endometriosis are counseled about the high rate of repeat surgery after supracervical hysterectomy, and that physicians consider performing total hysterectomy at time of initial procedure for these patients.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Mathew Davies: Nothing to disclose
Janis L. Green: Surgical Instructor, Honorarium Surgical Instructor
Gerald J. Harkins: Surgical Instructor, Honorarium Surgical Instructor

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Non-Oral Poster 54
SURGICAL OUTCOMES OF OBSTETRIC FISTULA REPAIR, WEST DARFUR EXPERIENCE/SUDAN

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Objectives: The purpose of this study was to examine surgical outcomes and factors affecting the outcomes among the obstetric fistula repaired cases.

Materials and Methods: A prospective study was conducted at the Zalingie Hospital at West Darfur State- Sudan, from May 2005 to September 2009. 438 cases experienced obstructed labour and underwent surgical repair for obstetrical fistula. The study was completed by designed protocol. The data were analyzed using the SPSS. Confidentiality was ensured.

Results: Out of 438 cases, 354 cases (81%) were successful on the first attempt. 84 cases (19%) were surgical failures. Among them, 9 cases (2%) were successful at the second attempt and 3 cases (0.7%) at the third attempt. 15 cases (3.4%) with successful fistula repair had stress incontinence. 253 cases (57.7%) were married, 170 cases (38.8%) were divorced after the development of a fistula, 5 cases (1.1%) were widows, and 10 cases (2.2%) were single mothers, two of which were reported as rape cases.

There was no significant association between the success and failure of the operation in relation to age, parity, mode of delivery and duration of fistula among the cases.

Conclusion: Access to obstetric emergency care is one of the major challenges in preventing the development of obstetric fistula for women in obstructed labour. Fistula prevention involves many strategies including health promotion and education for local communities about the cultural, social, and physiological factors that contribute to the risk for fistula. Governmental commitment is crucial in support, training, and obstetric upgrading to prevent obstetric fistula.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Mutasim AbdAlla: Nothing to disclose
Khalifa Elmusharaf: Nothing to disclose
Atif B. Fazari: Nothing to disclose
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Salih Najim: Nothing to disclose
Sarah St. Louis: Nothing to disclose

Non-Oral Poster 55
RECOGNITION AND MANAGEMENT OF NEUROPATHIC PAIN DUE TO SUTURE ENTRAPMENT AFTER UTERSACRAL LIGAMENT SUSPENSION

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Objectives: To examine incidence, risk factors, and characteristics of neuropathic pain related to nerve entrapment after uterosacral ligament suspension.

Materials and Methods: A retrospective review of our patients who underwent uterosacral ligament suspension from January 2007 to August 2011 was performed. Patients with neuropathic pain due to nerve entrapment from uterosacral ligament suspensory suture placement were identified. Factors including surgeon's dominant hand, side of pain, onset of pain, day of suture removal, number of sutures placed, number of sutures removed, patient's age, and body mass index (BMI) were collected. Follow-up of patients with nerve entrapment pain was obtained both at post-operative visits and phone contacts to assess continuation of pain, pain duration, and recurrent pelvic organ prolapse after removal of suture.

Results: During the study interval 515 patients, median age of 63.4 years (range 29 to 88.5), BMI of 26.8 kg/m2 (range of 16.9 to 45.8), parity of 3 (range 0 to 10), pre-operative stage of 3 (range 1 to 4) underwent the surgical procedure with a median of 3 (range 0 to 6) sutures placed on the right side, 3 (range 0 to 4) placed on the left side for a total of 6 (range 2 to 8). Eight patients (1.6%) had post-operative neuropathic pain requiring uterosacral ligament suspensory suture removal from the side affected. All eight had sutures placed bilaterally. The post-operative pain was recognized by the patients following discontinuation of intravenous narcotics on post-operative day one. The patients described the pain as a sharp shooting, radiating from buttocks into the legs and low back with resulting difficulty in sitting and walking. Five of the 8 initially had all suspensory sutures on the affected side removed between post-operative days 2 and 6. All had immediate resolution of the pain upon awakening from anesthesia. Three patients had only the most lateral suture on the affected side removed between days 1 and 7. Their pain did not resolve completely, so the remaining sutures on the affected side were removed later between post-operative days 2 and 21. Pain significantly improved immediately after removal of all sutures on the affected side. The procedure to remove all the sutures was performed transvaginally with general anesthesia. Six (75%) of these 8 patients had pain on the side opposite to the operating surgeons' dominant hand which is not different from chance (95% CI is 35 to 97%). Patients with neuropathic pain did not differ from those without in age ($p = 0.32$), BMI ($p=0.48$), pre-operative prolapse stage ($p=0.61$), and parity ($p=0.74$), nor in the number of sutures placed on either side ($p > 0.44$). None of the eight had recurrent pelvic organ prolapse after suture removal with a median follow-up of 1.5 years (range 0.24 to 3.7 years).

Conclusion: 1.6% of our patients undergoing uterosacral ligaments suspension had post-operative neuropathic pain. Removing only the most lateral suture did not relieve the pain. The pain resolved only after all sutures were removed on the affected side. The removal of sutures was not associated with recurrent pelvic organ prolapse.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Christopher Chung: Nothing to disclose
Thomas J. Kuehl: Nothing to disclose
Wilma Larsen: Nothing to disclose
Bob Shull: Nothing to disclose
Paul Yandell: Nothing to disclose

Non-Oral Poster 56
DO SYMPTOMS OF VOIDING DYSFUNCTION PREDICT URINARY RETENTION?

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Objectives: We assessed whether patient symptoms of voiding dysfunction correlate with urinary retention based on post void urine residual volume (PVR).

Materials and Methods: After IRB approval, we conducted a retrospective cohort study of women presenting for initial urogynecology evaluation from

February through July 2011. We collected patient-reported urinary and pelvic floor symptoms from a standard questionnaire completed prior to initial visit. We also abstracted demographics and physical exam findings. Symptoms of dysfunctional voiding were: sensation of incomplete bladder emptying, slow urine stream, urine dribbling or double voiding, or straining to void. Urinary retention was defined as PVR ≥100cc measured by bladder ultrasound scanner. We excluded women with prior diagnosed urine retention, current catheter use, and incontinence procedure within 6 months. Data are presented as median (interquartile range) or proportion; test characteristics (sensitivity, specificity, and predictive values) are reported with 95% confidence intervals.

Results: After excluding 7 women, 646 were eligible. The median age was 55.1 years (42.8-67.3), median parity was 2.0 (0.0-3.0), and median BMI was 25.9 (23.1-30.1). More than half (57.7%) were postmenopausal and 58.4% were sexually active. Eighteen (2.8%) women had a prior anterior repair and 48 (7.4%) had a prior incontinence procedure. Urinary incontinence was reported by 424 (65.6%) women and 215 (33.3%) reported constipation. On examination, prolapse was present in 389 (60.2%) women, with a median POP-Q stage of 1.0 (0.0-2.0), while 273 (42.3%) had short, tight pelvic floor.

The median PVR was 17.0 (0.0-50.0), and 57 (8.8%) women met the PVR criteria for urinary retention. Of these women, 25 (43.9%) did not report any symptom of voiding dysfunction. In the remaining women, the most common symptom was incomplete emptying (27.4%). Only 8.8% reported slow urine stream. Six (10.5%) women had incontinence procedure and 2 (3.5%) had prior anterior repair. Constipation was reported by 20 (35.1%) women and incontinence symptoms by 38 (66.7%). Twenty (35.7%) women had short, tight pelvic floor and 12 (21.1%) had anterior prolapse of stage 2 or greater.

When compared with PVR-defined retention, sensitivity and positive predictive values of voiding dysfunction were low. For example, incomplete emptying had a sensitivity of 47.4% (34.4-60.3%), positive predictive value of 13.9% (9.0-18.7%), specificity of 71.5% (67.8-75.1%) and negative predictive value of 93.4% (91.1-95.7%).

Of 257 women who reported symptoms of voiding dysfunction, 225 had normal PVR. Among women with PVR<100cc, those with symptoms of voiding dysfunction, were significantly more likely to have incontinence (P=0.0009), constipation (P=0.0002), short, tight pelvic floor (P=0.01), and prolapse (P=0.02), compared with women without symptoms. There were no other significant differences.

Conclusion: Patient symptoms do not predict urinary retention. It is not uncommon for women with an elevated PVR to report no symptoms. Reported voiding dysfunction with a normal PVR may indicate abnormality related to other pelvic floor dysfunction. Screening for urinary retention with PVR measurement should remain part of the urogynecologic evaluation.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Amos Adelowo: Nothing to disclose
Eman Elkadry: Nothing to disclose
Michele R. Hacker: Nothing to disclose
Anna Merport: Nothing to disclose

Non-Oral Poster 57
COMPARING THE RISK OF URETHROLYSIS BETWEEN TWO RETROPUBIC MESH SLINGS

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Objectives: Long-term outcome data exist with TVT, yet few comparisons have been made to newer retropubic sling delivery systems, especially with regards to urethrolysis. Our objective was to compare the odds of sling revision between two types of retropubic mesh sling kits.

Materials and Methods: We performed a case-control study comparing Gynecare TVT™ Tension-free Support for Incontinence (TVT) versus Bard Align® Urethral Support Systems (Bard Align). We identified all surgical procedures described as urethrolysis, sling revision, sling loosening or sling lysis performed by urogynecologists at one academic institution between 1/2007- 6/2011. A separate investigator reviewed operative notes of the initial sling procedure to identify the type of retropubic sling performed, ensuring that the primary investigator remained blinded to the type of sling delivery system. We excluded cases in which slings were originally placed at outside institutions. Controls were selected sequentially in a blinded fashion while matching for concomitant procedures and within the same academic cycle. We required a sample size of 103 subjects in order to detect a 6-fold difference in odds of urethrolysis between TVT and Bard Align with an alpha of 0.05 and 80% power, using a 3:1 ratio of controls to cases (26 urethrolysis and 81 non-urethrolysis).

Results: Of 818 total slings placed during the study period, there were 28 (3.4%) urethrolysis cases, which were matched to 84 controls. Among urethrolysis cases, 6/28 (21.4%) had received TVT, while 22/28 (78.6%) had received Bard Align slings. Of the 84 matched controls, 30/84 (35.7%) had undergone TVT and 54/84 (64.3%) had undergone Bard Align. In bivariate analyses, neither sling type nor the outcome of urethrolysis was associated with demographic factors, preoperative anticholinergic use, prior prolapse or incontinence surgery, or preoperative urodynamic variables. When directly comparing the two delivery systems, there was no significant difference in the odds of urethrolysis following the use of TVT or Bard Align retropubic mesh slings (OR 2.0, 95%CI: 0.74-5.6, p=0.17). In a logistic regression model adjusting for age, BMI, prior history of anti-incontinence surgery, preoperative anticholinergics, or preoperative valsalva voiding on urodynamics, there was still no significant difference in the odds of urethrolysis among TVT versus Bard Align sling recipients, (OR 1.6, 95%CI: 0.46-5.9, p=0.45). Obstructive voiding (78.6%) was the most common presenting symptom reported by those who underwent urethrolysis. Irritative symptoms alone occurred in 10.7% and a combination of obstructive and irritative symptoms occurred in another 10.7%. The median time between the placement of the original sling and subsequent urethrolysis was 23.5 days (IQR 8.3, 80.8).

Conclusion: Despite inherent differences between the instruments of the delivery systems, there was no significant difference in the risk of urethrolysis following TVT or Bard Align retropubic sling.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Autumn L. Edenfield: Nothing to disclose
Amie Kawasaki: Nothing to disclose
Nazema Y. Siddiqui: Speaker, conference participant, Honorarium
Anthony G. Visco: Nothing to disclose
Jennifer Wu: Consultant, Consulting fee

Non-Oral Poster 58
A COMPARISON OF HOME VS. HOSPITAL BASED SIMULATION FOR MASTERING FUNDAMENTALS OF LAPAROSCOPIC SKILLS (FLS) AMONG OB/GYN RESIDENTS

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Objectives: To assess if home based laparoscopic simulation training is as effective as hospital based simulation training using validated tasks and objective scores of competence.

Materials and Methods: 18 Ob/Gyn residents in post-graduate years (PGY) 1-4 were recruited to the study and randomized to either the traditional, faculty-led hospital based simulation training group (control) or the home simulation group. All 18 participants completed baseline FLS testing in the hospital laparoscopic simulation lab. After 6 weeks, all study participants were reassessed on the same five FLS skills. Precision of performance and speed factored into a score for each skill station. The final score was compiled by subtracting a penalty score (calculated by objectively evaluating precision of performance) from the timing score. The composite simulation performance score was calculated by adding the normalized scores for all five tasks and competence was defined as a score of > 270.

Results: In the control group, the residents had a statistically significant improvement in 2 of the 5 tasks (ligating loop and extracorporeal knot), and the home simulation group had a statistically significant improvement in 2 different tasks (peg transfer and pattern cut). Both groups had a statistically significant improvement in their overall laparoscopic performance.

A sub analysis was performed which looked at the laparoscopic performance of lower level residents (PGY 1 and 2) and upper level residents (PGY 3 and 4) within each group. All of the lower level residents in the study had a statistically significant improvement in their composite laparoscopic simulation performance regardless of site of training. However, only the upper level residents in the home simulation group (n=4) had a statistically significant improvement in their overall laparoscopic performance.

Overall FLS competency was improved in the home simulation group from 33% at baseline testing to 56% at the end of the study. This was comparable to the hospital simulation group which improved from 56% competency at baseline to 78% competency after 6 weeks.

Conclusion: Home based simulation may serve a role in the education of basic surgical skills but not as a replacement. Instruction and critique by senior surgeons are important in the achievement of competence with complex tasks.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Jennifer Brunet: Nothing to disclose
Rajiv B. Gala: Nothing to disclose

Non-Oral Poster 59

TRENDS IN INPATIENT SURGERY ON THE OCTOGENARIAN AND OLDER IN THE UNITED STATES, 1979–2006

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Objectives: To describe trends in major inpatient non-cardiac surgical procedures on octogenarians and older from 1979 to 2006 using the National Hospital Discharge Survey Database. To assess trends in comorbid conditions, complications, and mortality.

Materials and Methods: The National Hospital Discharge Survey (NHDS) was analyzed for patient and hospital demographics, as were International Classification of Diseases, Ninth Revision, Clinical Modification diagnostic and procedures codes from 1979-2006. Age-adjusted rates (AARs) per 1000 women 80 years and older were calculated using the 2000 US Census data.

Results: There was an increase in the age-adjusted rates (AAR) of procedures performed in the octogenarian and older, from 39.1 in 1979 to 61.3 in 2006. AARs for vascular and orthopedic surgery increased from 20.0 to 97.4 per 1000 patients, and 58.6 to 510.5, from 1979 to 2006, respectively. In contrast, AAR of inpatient gynecologic, urologic, and colorectal procedures declined. AAR of total complications increased from 242.1 in 1979 to 411.6 in 2006, with little change occurring after 1990. AAR rates of total comorbidities increased from 448.2 to 744.7 over the study-period. The most drastic changes occurred in the rates of hypertension and diabetes, which increased from 31.5 to 475.1, and 94.1 to 577.1. Importantly, the AAR of mortality declined from the 1979 rate from 43.4 to 29.0 per 1000 patients.

Conclusion: Age-adjusted rates of inpatient, non-cardiac, surgical procedures increased for octogenarian and older women from 1979 to 2006. While the rates of complications and comorbidities increased, there was a slight decrease in mortality during this time period.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Oz Harmanli: Nothing to disclose
Keisha Jones: Nothing to disclose
Jerry L. Lowder: Nothing to disclose
Julia K. Shinnick: Nothing to disclose
Peter St Marie: Nothing to disclose

Non-Oral Poster 60

URETHRAL AFFERENT NERVE FUNCTION BEFORE AND AFTER PELVIC SURGERY

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Objectives: The majority of urethral neuromuscular function data focuses on efferent innervation. Our primary aim was to determine if afferent nerve function is affected by reconstructive pelvic surgery (RPS). Secondarily, we compared afferent urethral innervation in women with and without SUI undergoing RPS.

Materials and Methods: After IRB approval, consenting women planning RPS underwent 2 forms of afferent urethral neurophysiologic testing prior to surgery and again 1-2 days post-operatively. Current Perception Threshold (CPT) testing quantifies function of different populations of afferent nerves (A-β, A-δ, and C) by applying stimuli at 3 frequencies (2000 Hz, 250 Hz, and 5 Hz). Urethral Anal Reflex (UAR) testing applies electrical stimuli to urethra with responses recorded at anal sphincter, measuring latency between stimulus and reflex response. UAR reflects integrity of urethral afferents, pelvic plexus and efferent pathways. Longer latencies are associated with denervation at some point along the reflex pathway.

Wilcoxon signed ranked test was used to compare pre- and postoperative measures, and Mann-Whitney test was used to compare measures in women with and without SUI. Spearman's correlations were calculated for CPT thresholds and UAR latencies.

Results: Twenty-one women (91% Caucasian) with mean age of 59±12 completed baseline and postoperative testing. At baseline, 12 (57%) had POP and SUI symptoms, 5 (24%) only POP, and 4 (19%) only SUI.

Urethral CPT thresholds increased significantly after RPS, consistent with decreased urethral afferent function. Although, UAR latencies did not differ before and after surgery, UAR latencies and urethral sensitivity to CPT stimuli were inversely correlated at 2000Hz, 250Hz and 5Hz (rho=-.67, p<.013, rho=-.78, p<.003, rho=-.841,p<.001), likely reflecting alterations in urethral afferent function, with preservation of some efferent activity (Table 1).

Preoperative urethral CPT thresholds at 5 and 250Hz were lower in SUI women [10(IQR 5-29), 40 (32-750] compared to continent women [63(14-99), 73(51-109) (p=0.45, p=.020)], signifying increased urethral sensation or easier activation of urethral afferents in SUI women. Neither postoperative urethral CPT values nor UAR latencies differed among UI groups (p=.384).

Conclusion: Higher levels of stimuli were required to activate urethral afferent nerves (decreased urethral sensation) immediately after RPS, suggesting worse urethral afferent function immediately after surgery. Surprisingly, women with SUI required lower levels of stimuli to activate urethral afferent nerves prior to RPS, although UAR latencies (measure afferent and efferent pathways) were similar in women with and without SUI. Possibly, urethral afferent sensitivity increases in women with SUI due to guarding reflex and an effort to compensate for efferent neuromuscular decline. Further research is needed to advance understanding of these complex neuromuscular pathways.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Melinda Abernethy: Nothing to disclose
Linda Brubaker: Nothing to disclose
Carley Davis: Nothing to disclose
Kimberly Kenton: Nothing to disclose
Lior Lowenstein: Nothing to disclose
Elizabeth Mueller: PI - research, n/a

TABLE 1. Pre and Postoperative CPT and UAR Values

	Pre-operative (μV) Median (IQR)	Post-operative (μV) Median (IQR)	p-value
Urethra CPT 5Hz	22 (6−57)	56 (34−114)	0.001
Urethra CPT 250Hz	59 (37−94)	112 (53−185)	0.003
Urethra CPT 2000Hz	139 (91−200)	232 (111−327)	0.014
UAR Latency (ms)	47 (36−70)	67 (36−91)	0.221

Non-Oral Poster 61

RESIDENT AND FELLOW BENCHMARKS FOR ROBOTIC PERFORMANCE TIMES

A. K. Crane, E. J. Geller, C. A. Matthews. *Obstetrics and Gynecology, Division of Urogynecology and Reconstructive Pelvic Surgery, University of North Carolina at Chapel Hill, Chapel Hill, NC*

Objectives: To establish benchmarks for trainee involvement in robotic cases using performance times.

Materials and Methods: This was a retrospective analysis of all robotic hysterectomies and sacrocolpopexies performed in our division between September 2008 and August 2011. All elements of robotic surgical cases were recorded, including time spent in each step of the hysterectomy and sacrocolpopexy. Performance times are recorded in real time on a standardized paper form housed in the operating rooms. Fellow and resident surgeons participated in all cases. The operative times and the proportions of the case done by trainees were obtained to assess trends in trainee performance times by year of training and establish benchmarks for trainee involvement in robotic cases.

Results: In the 3-year time period, there were 106 cases that had trainee times designated to portions of the operation. The average times for a robotic hysterectomy and sacrocolpopexy were 69 minutes and 74 minutes, respectively. The proportion of performance time spent on each step of the hysterectomy by all trainee levels was: right side (30%), left side (30.2%), bladder flap (13.6%), colpotomy (20.3%), and cuff closure (29.2%). The

proportion of performance time spent on each step of the sacrocolpopexy by all trainee levels was: sacral and peritoneal dissection (18.6%), anterior cuff dissection (12.8%), posterior cuff dissection (9.3%), anterior mesh attachment (20.6%), posterior mesh attachment (24.7%), sacral mesh attachment (16.1%), and peritoneal closure (11.6%) Table 1 presents the breakdown of hysterectomy mean performance times by level of training. Table 2 presents the breakdown of sacrocolpopexy mean performance times by level of training.

Conclusion: Using historic operative times, we have established benchmarks for trainee participation in robotic cases at an academic center. This information may be useful for residency and fellowship training programs with robotic capabilities in terms of skill development and performance assessment.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Andrea K. Crane: Nothing to disclose
Elizabeth J. Geller: Speaker, Honorarium
Catherine A. Matthews: Speaker, Honorarium

TABLE 1. Mean Performance Times and Proportion of Trainee Participation for Hysterectomy

	Hysterectomy (Average Total Time 69 Minutes)				
Level of Training	Right side	Left side	Bladder Flap	Colpotomy	Cuff Closure
PGY-3	16.5 (24.1)	–	–	–	–
PGY-4	20.4 (29.1)	17.1 (27.2)	13 (20)	9.7 (16.6)	17.5 (32.8)
PGY-5	22.2 (28.7)	23.7 (28.9)	3.7 (5.4)	15.1 (17.9)	16 (25)
PGY-6	20.4 (34.2)	31.3 (46.5)	10.5 (16.3)	27 (41.3)	21.2 (30.8)
PGY-7	22.8 (35.8)	17 (27.5)	11.8 (15)	11.9 (16.2)	18 (26.1)

Data presented as mean time in minutes and (proportion of total case time).

TABLE 2. Mean Performance Times and Proportion of Trainee Participation for Sacrocolpopexy

	Sacrocolpopexy (Average Total Time 74 Minutes)						
Level of Training	Sacral and peritoneal dissection	Anterior dissection	Posterior dissection	Anterior mesh attachment	Posterior mesh attachment	Sacral mesh attachment	Peritoneal closure
PGY-5	3 (4.9)	7 (11.5)	6 (9.8)	16.8 (22.4)	18.7 (29)	10.7 (18.4)	8 (13.1)
PGY-6	14.4 (19.8)	5.8 (7.2)	12.2 (12.7)	15.5 (18.9)	18 (20.7)	11.6 (15.5)	8 (10.5)
PGY-7	11.8 (19.2)	11.9 (14.6)	6.6 (8.4)	13.4 (19.6)	15.5 (24)	11.5 (16)	6.5 (10.2)

Data presented as mean time in minutes and (proportion of total case time).

Non-Oral Poster 62
ANATOMIC RELATIONSHIPS OF SINGLE INCISION MIDURETHRAL SLINGS: A CADAVER STUDY

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Objectives: Retropubic hematomas requiring reoperation are reported complications of single incision midurethral slings. As recommended, the arms of these slings are anchored within the obturator internus muscle and should not enter the retropubic space. The objectives of this study are to evaluate the typical location of the anchor points within the obturator internus muscle in two common trajectories recommended for single incision midurethral sling placement (45 and 90 degrees from midline), and to assess the relationship of the anchor points to the obturator canal and to vascular structures in the retropubic space region.

Materials and Methods: Dissections were performed in twenty embalmed female pelvic halves. The pelves were bisected at the mid symphysis pubis and placed in supine position. From the external urethral opening, 45 and 90-degree angle orientations were established using a protractor. These angles were marked with a string that was fixed along the perineal surface. The retropubic space was then exposed and a suburethral tunnel was made at the level of the mid urethra and directed towards the inferior pubic ramus. In order to simulate the path of a single incision sling arm, a 3 mm straight probe was passed through the suburethral tunnel in the respective direction of the previously established 45 and 90-degree angles. The points where the tip of the probe contacted the pelvic wall at the 45 and 90-degree angles were labeled as anchor points. These points were tagged from a retropubic location by inserting metal pins over the obturator internus fascia. Distances were then measured between the anchor points and the obturator canal, main and accessory obturator vessels, dorsal vein of the clitoris and external iliac vessels.

Results: In all specimens, the anchor points were noted within the obturator internus muscles below or distal to the pelvic floor muscles. The average distance from the midline of the suburethral incision to the anchor points was 3.3 cm at the 45-degree angle and 3.7 cm at the 90-degree angle. Distances from the anchor points to the retropubic structures are summarized in the Table. The closest distance between the 45-degree anchor point and the obturator canal was 2.0 cm, and 1.6 cm for the 90-degree anchor point. Accessory obturator vessels were identified in thirteen out of twenty (65%) pelvic halves. The closest distance to the accessory obturator vessels from each anchor point was 1.8 cm. The closest distances to the dorsal vein of the clitoris were 2.3 and 3.0 cm, respectively, for the 45 and 90 degree anchor points.

Conclusion: Injury to retropubic vessels may result from inadvertent entry into the retropubic space during single incision sling arm placement. A margin of safety of at least 1.6 cm exists when single incision slings are anchored within the obturator internus muscle an average distance of 3 - 4 cm from the midline of the suburethral incision.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Marlene M. Corton: Nothing to disclose
Teodoro I. Montoya: Nothing to disclose
Jennifer J. Street: Nothing to disclose

Distances Between Single Incision Midurethral Sling Anchor Points and Retropubic Structures (n=20)

	Obturator Canal	Accessory Obturator Vessels	Dorsal vein of clitoris	External Iliac Vein
45 degree anchor point	2.7 (2.0–3.6)	2.8 (1.8–3.5)	2.6 (2.3–3.0)	5.2 (4.2–6.1)
90 degree anchor point	2.6 (1.6–2.9)	2.7 (1.8–3.4)	3.6 (3.0–4.2)	5.3 (4.1–6.0)

Measurements in cm, Average (Range).

Non-Oral Poster 63
CLINICAL DECISION ANALYSIS STUDY FOR EVALUATING AND MANAGING STRESS URINARY INCONTINENCE AT THE TIME OF REPAIR OF PELVIC ORGAN PROLAPSE

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Objectives: To study the most clinically effective strategy for evaluation and treatment of stress urinary incontinence (SUI) associated with repair of pelvic organ prolapse.

Materials and Methods: Patients and providers are faced with the problem of deciding whether to take on the risk of additional surgery at the time of prolapse repair or to accept the risk, inconvenience and additional cost that go with undergoing a possible second surgery within a year of the index surgery. A clinical decision tree of commonly used management options was created (Figure 1). These included: 1) Combined surgery (prolapse and SUI) 2) Prolapse surgery only 3) Urodynamics 4) Simple cystometry 5) Basic office exam (BOE). Parameter estimates and confidence intervals were derived by reviewing the literature. Expert clinical judgment was used to derive utilities for outcomes. Analysis was performed using TreeAge software.

Results: Using our baseline assumptions, performing continence surgery with prolapse repair was most effective. One way sensitivity analysis showed that this decision was sensitive to disutility assigned to unnecessary SUI surgery. At disutility of <0.035, combined surgery was preferred. At higher values, BOE was preferred. Among input probabilities, the only threshold value falling in the clinical plausible range was the positive predictive value

(PPV) of the BOE. If PPV is > 0.625, BOE is preferred, at lower value, combined surgery is preferred.

Conclusion: Combined surgery is preferred on initial analysis. However, the choice between combined surgery and BOE depends on disutility assigned to unnecessary SUI surgery and PPV of BOE. Further research is needed to explore these parameters.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

James Dolan: Nothing to disclose
Erin Duecy: Nothing to disclose
Varuna Raizada: Nothing to disclose

Non-Oral Poster 64
GERIATRIC COMPLICATIONS AFTER HYSTERECTOMY IN OLDER WOMEN

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Objectives: Our objective was to estimate the occurrence of geriatric complications (mortality, admission to skilled nursing facility(SNF), falls, delirium, electrolyte imbalance, and decubitus ulcers) after hysterectomy in older women(≥80 years).

Materials and Methods: We conducted a retrospective chart review of 134 women age 80 or above who underwent hysterectomy at Yale New Haven Hospital from July 2007 to May 2011. Demographics and clinical characteristics were collected. Preoperative Braden scores (a validated measure of decubitus ulcer risk) was collected. The Braden Score has 5 categories with a maximum score of 23. A score range from 18-23 depicts no risk of developing decubitus ulcer. The Morse Fall Risk Score(MFRS), a fall risk assessment scale, was also recorded. The MFRS has 6 categories with a maximum score of 125. A score of 45 or higher indicates high risk of fall. Our primary outcome was the occurrence of geriatric morbidities, namely mortality, admission to SNF, inpatient falls, delirium, postoperative electrolyte imbalance, and decubitus ulcers. Descriptive statistics and comparative statistics were performed as appropriate using STATA 11.0.

Results: Of the 134 women included, 91 women underwent hysterectomy for a pathologically confirmed cancer diagnosis and 43 women for benign indications. The mean age of the cancer cohort was 84.4 years (±3.2). The majority of women in the cancer cohort were white (98.9%) and the median parity was 3(range 0-11). The mean length of stay was 4 days(±6.2) with the maximum stay 50 days. The occurrence of geriatric morbidities in the cancer cohort included: inpatient mortality 1.1%(n=1), admission to SNF 56.0%(n=51), inpatient falls (n= 0), postoperative delirium 3.3%(n = 3), electrolyte imbalance 6.6%(n=6) and decubitus ulcers(n=0). One women in the cancer cohort expired in the hospital. She underwent a complete cancer staging with bowel resection and expired on postoperative day number 8 after developing necrotic large and small bowel.

The mean age of the benign cohort was 84 years(±4.2). The majority of women in the benign cohort were white(93%) and the median parity was 3(range 0-8). The mean length of stay was 4 days (±3.8) with the maximum stay of 22 days. The occurrence of geriatric morbidities in the benign cohort included: inpatient mortality (n=0), admission to SNF 27.9%(n=12), inpatient falls (n=0), postoperative delirium (n=0), electrolyte imbalance 7.0%(n=3), and decubitus ulcers (n=0).

The majority of women in the cancer cohort 71.7% and the benign cohort (85.5%) had a normal Braden score (>18) indicating no risk for pressure ulcers, however 9.0% of the cancer cohort and 2.7% of the benign cohort were at moderate, high or very high risk of development of pressure ulcers. 43.2% of the cancer cohort and 21.6% of the benign cohort were identified as being high risk for falls by the MFRS. Despite these identified risks, there were no inpatient occurrences of falls or pressure ulcers.

Conclusion: Overall we found the occurrence of inpatient geriatric complications in older women(≥80 years) undergoing hysterectomy for cancer and benign to be low. Even though women were in the high risk category for pressure ulcers and falls, these complications were not observed.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

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Elena S. Ratner: Nothing to disclose
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Lisa C. Zuckerwise: Nothing to disclose

Non-Oral Poster 65
ULTRASOUND GUIDED DRAINAGE OF ABSCESS AFTER PARTIAL LEFORT COLPOCLEISIS

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Objectives: To describe a novel method of drainage of retained intravaginal and uterine abscess after partial LeFort colpocleisis and dilation and curettage.

Materials and Methods: After obtaining IRB exemption, treatment course of this patient was reviewed. The patient is an 85-year-old vaginally multiparous Caucasian female with significant dementia, schizophrenia, stage III pelvic organ prolapse, significant urinary retention and urge incontinence that was unable to retain multiple pessaries. After much discussion, the patient and her daughter opted to have her undergo definitive surgery. The patient underwent an uncomplicated partial LeFort colpocleisis, dilation and curettage, cystoscopy, and perineorraphy. The daughter reported minimal vaginal bleeding after surgery. Ten days later the patient presented febrile with increased mental status changes to the emergency room. CT imaging of the abdomen and pelvis demonstrated a 3 cm upper vaginal/intra-uterine abscess with induration consistent with a likely endomyometritis and a white blood cell count (WBC) of 30.

Results: The patient was admitted for broad spectrum antibiotic treatment and did demonstrate some minimal reduction of her WBC to 18 on hospital day number 3. Interventional radiology was consulted for possible abscess drainage, but declined involvement due to the thickness of the uterus. On hospital day #3/ postoperative day #14, with the help of an ultrasound/genetics attending and technician, the patient underwent transperineal ultrasound which revealed a significant fluid collection at the upper aspect of the vagina and the uterus consistent with a likely upper vaginal abscess and pyometra. Under transperineal ultrasound guidance, a chorionic villi sampling (CVS) catheter with guidewire was introduced under sterile conditions via the partial LeFort canal into the abscess. Some resistance was met suggesting occlusion of the canal was preventing drainage of purulent fluid. Transperineal ultrasound guidance allowed successful catheter advancement without injury to surrounding organs. No sedation or anesthesia was required and the patient tolerated the procedure well. Twenty milliliters of purulent fluid was removed under aspiration using the CVS catheter. An 8 French Foley catheter was then threaded into the uterus via the same canal and left in place, but fell out later that day. The patient remained afebrile with significant reduction in her white count to normal range after the drainage.

Conclusion: Transperineal ultrasound guided drainage of vaginal abscess/ pyometra after partial LeFort using a CVS catheter without sedation is not only feasible, but also highly effective for the treatment of post-operative abscess in these medically frail patients.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Rebecca James: Nothing to disclose
Sarah Kane: Nothing to disclose
Sangeeta T. Mahajan: Nothing to disclose

Non-Oral Poster 66
USE OF SUPRAPUBIC TUBE TO ASSESS VOIDING FUNCTION AFTER SYNTHETIC MID URETHRAL SLINGS

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Objectives: Up to 50% of patients are unable to void immediately after mid urethral sling (MUS) procedures. The objective of this study was to present our case series of use of suprapubic tube (SPT) to assess voiding function following MUS procedures.

Materials and Methods: This was a retrospective cohort study of patients who underwent MUS procedures along with insertion of SPT between January 2007 and August 2010.

Results: A total of 123 patients were identified. Among patients who met criteria for SPT removal within 4 weeks, mean number of days of SPT use was 6 (4.6) days. One patient is using SPT on a long term basis. Eleven patients switched from using SPT to clean intermittent self-catheterization. One major complication involved a urinoma following SPT removal. Major and minor complications are listed in Table 1.

Conclusion: SPT use after MUS procedures is practical and may be cost effective. In most cases, it takes up to a week for voiding function to return to normal.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Miriam Bentley-Taylor: Nothing to disclose
Erin Kate Cassiere: Nothing to disclose
Douglass S. Hale: Consultant, Consultant Fee, Investigator, Study Support
Seshadri Kasturi: Nothing to disclose
Patrick Woodman: Nothing to disclose

Complications Arising From Suprapubic Tube

Event	Count (%)
Minor Complications	
Erythema at SPT site	8 (6.5%)
Urinary tract infection	6 (4.9%)
Drainage from the SPT site (asymptomatic)	3 (2.4%)
Drainage from SPT insertion site requiring removal of SPT and insertion of Foley catheter	1 (0.8%)
SPT malfunction leading to unwanted drainage of urine from the SPT	1 (0.8%)
Major complications	
Urinoma after removal of SPT leading to renal failure and readmission	1 (0.8%)

Non-Oral Poster 67
SUBJECTIVE AND OBJECTIVE VOIDING ASSESSMENT IN FEMALES

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Objectives: Problem voiding presents a challenge in clinical diagnosis. Subjective urinary complaints are often inconsistent with objective measurements. Urodynamic voiding diagnoses lack precision to characterize voiding dysfunction; therefore, we hypothesize that multichannel urodynamic measures (capacity, first desire, sensations, etc) do not correlate with physician-recorded International Continence Society (ICS) bladder sensation and voiding symptoms, while bladder diary measures (e.g. bladder capacity, number of daytime voids, etc.) do.

Materials and Methods: This retrospective cohort study investigated all patients having office urodynamic evaluation from January 2007 through December 2008. Further inclusion criteria were: (1) Completion of pre-visit validated pelvic floor surveys, (2) a completed three-day bladder diary, and (3) a complete standardized office assessment that included record of ICS bladder sensation and voiding symptoms. Three hundred seventy-five charts were reviewed and thirty-one met inclusion criteria. Survey, diary, office assessment and urodynamic measures were individually compared and Spearman correlations determined for the parameter pairs (e.g. number of daytime voids on bladder diary vs. a complaint of voiding more than others on questionnaire). Student T-tests were used to determine the significance of correlations. Composite scores were then computed for the survey, diary, office assessment and urodynamic measures. Using published normal values; zero points were assigned for findings consistent with normal while one point was assigned for each abnormal patient measurement. Points were summed and a score assigned for the survey, diary, office assessment and urodynamic measures. Spearman correlations were determined and again assessed for significance using a Student T-test.

Results: Of significance maximum cystometric capacity on multichannel urodynamics correlates with functional bladder capacity on diary (0.54 P=.002) and nocturia reported in the interview correlates with nocturia episodes on bladder diary (0.43 P= .02). All other measures did not reach statistical significance. Individual responses to the surveys, office assessment, and diaries do not correlate with urodynamic measures.

Conclusion: The negative correlation (-0.53, P=0.002) between urodynamic score and office assessment score indicate that more patient bladder function complaints are correlated with normal urodynamic bladder function findings. Multichannel urodynamic findings do not correlate with physician-recorded ICS bladder sensation and voiding symptoms in our sample; however, neither did validated survey or bladder diary findings. It is unclear what objective or subjective measure best describes female voiding function.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Lauren C. Lessard: Nothing to disclose
James L. Whiteside: Nothing to disclose

Non-Oral Poster 68
ROBOTIC OBJECTIVE STRUCTURED ASSESSMENT OF TECHNICAL SKILLS (ROSATS): MULTICENTER ONLINE CURRICULUM PILOT STUDY

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Objectives: To determine utility of a structured robotic online curriculum for gynecology & urology residents and measure comprehension & retention of material.

Materials and Methods: After receiving institution-specific IRB approval or exemption, residents from 8 obstetrics/gynecology and urology programs throughout the US were invited to participate in a pilot study during 7/2010-7/2011. Faculty content-experts designed the online portion of the ROSATS curriculum utilizing Moodle©, an open source course management system(http://moodle.luhs.org). Test questions based on the curriculum were developed and pretested on attending level urologists(3) & gynecologists(8) with expertise in laparoscopic & robotic surgery. These on-line modules were developed: Robot Setup & Docking(RSD), Anatomy of the Anterior Abdominal Wall(AAAW), Anatomic Relationships in the Abdomen & Pelvis(ARAP), Physiology of Pneumoperitoneum(PP), and Basic Laparoscopic & Robotic Principles(BLRP).

Residents completed module-specific pre-test questions prior to each module. Posttest questions were completed immediately following the module & 9-11 months later. Other items website included: a robotic practice log, case log, skills & suturing videos, & links to the Intuitive Surgical® robotic procedural videos. Participants evaluated lectures & other aspects of the ROSATS website via an online survey at study conclusion. Paired T tests were used to evaluate scores. STATA(ver.11.2) was used for analysis.

Results: Of 167 residents enrolled in the ROSATS curriculum, a limited number of participants reported watching the 5 online lectures: RSD(50%), AAAW(45%), ARAP(41%), PP(35%), and BLRP(35%). Of these, the majority who completed the conclusion survey found them helpful/quite helpful/very helpful: RSD(76/84), AAAW(73/75), ARAP(66/68), PP(57/59), and BLRP(55/59). A lesser proportion found the other aspects of the ROSATS website to be helpful/quite helpful/very helpful: Dry Lab Log(47/66), Robotic Case Logs(39/63), Video Links(58/63), and links to the Intuitive Surgical videos(52/59).

Complete pre- and immediate posttest data were available for varying numbers of participants for the following lectures: RSD(35%), AAAW(30%), ARAP(22%), PP 18%), and BLRP(16%). When comparing pretest scores to immediate posttest scores, there was significant improvement in scores for each lecture: RSD(3.1±1 vs 5.9±1, p<.001); AAAW(3.1±1 vs 4.7±1, p<.001); ARAP(5.7±2 vs 9.0±1, p<.001); PP(3.8±1 vs 5.5±1, p<.001); and BLRP(2.8±1 vs 3.8±1, p<.001). When participants were retested several months later, these scores were significantly worse than the immediate posttest scores for all lectures: RSD(6.0±1 vs 4.4±2, p<.001); AAAW(4.7±1 vs 3.7±1, p<.001); ARAP(9.2±1 vs 6.4±2, p<.001); PP(5.5±1 vs 3.8±1, p<.001); and BLRP(3.7±1 vs 3.0±1, p<.001).

Conclusion: Less than half of residents who volunteered to participate in a multicenter, web-based robotic curriculum successfully completed the curriculum. The majority of residents who completed the curriculum, however, considered it helpful. Given the increasing use of on-line training programs, further study should be undertaken to understand barriers to using such resources.

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Non-Oral Poster 69
VESICOVAGINAL FISTULA AFTER CESAREAN AND VAGINAL DELIVERY: THE ROLE OF PROLONGED LABOR VERSUS SURGICAL TECHNIQUE

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Objectives: In professional communications and multidisciplinary regional fistula conferences, there is a growing consensus of opinion that poor surgical technique causes the majority of genito-urinary fistula in women delivered abdominally. Given the paucity of data on this subject, we undertook post-hoc analysis of cesarean delivery (CD) as a risk factor for obstetric fistula in women presenting to the General Referral Hospital of Panzi, Bukavu, Democratic Republic of Congo (DRC).

Materials and Methods: This is a secondary analysis of 215 patients evaluated for obstetric fistula at Panzi Hospital from April to December 2009 using student t-test to compare CD and vaginal delivery (VD) groups.

Results: Of 215 women with fistula, 120 occurred after vaginal delivery (13 vacuum, 2 symphysiotomy); 79 occurred subsequent to CD; 11 associated with gynecologic procedures; none with sexual assault, and 5 with cause unknown. The mean age was 27.4 years (range 18 - 65) with no difference in parity between CD and VD patients [CD 33 (41.7%) primiparous, 46 (58.2%) multiparous; VD 46 (38.7%) primiparous and 73 (61.3%) multiparous (p = NS].

All CD (100%) and 53 (59%) of VD occurred in hospital (p = < 0.001). Stillbirth rate, high in both groups, was lower 63 (82.9%) in the CD than in the VD group 109 (90.9%) p = < 0.001. Fifty CD (76.9%) labored for greater than 2 days, 23 (85%) primiparous and 27 (75.0%) multiparous. Of the 88 VD women laboring for more than 2 days, 39 (92.9%) were primiparous and 49 (82.5%) multiparous, with no difference between rates of fistulae in CD and VD patients in relation to length of labor (p = 0.8).

Of 215 women, 7 fistulas were ureteric (5 CD, 0 VD, 2 missing data) and 12 uterine (8 CD, 4 VD). Of those involving the ureter after CD, 1 labored for greater than 2 days, one for <1 day (3 missing data). Of fistula involving the uterus after CD, 5 labored for 2 or more days, 1 labored for <1 day (2 missing data).

Fifty-seven (73.1%) of CD and 83 (73.5%) of VD patients underwent primary fistula repair at Panzi Hospital. Of the 215 women, 22 underwent abdominal fistula repair, 3 VD and 19 CD.

Conclusion: These data show obstructed labor tissue necrosis typically underpins obstetric fistula after both vaginal and cesarean delivery, making poor cesarean technique as sole or primary etiologic factor for upper tract uterine and ureteric fistulae less likely than currently opined. In these data, only 2 of the 79 abdominal deliveries carried a high index of "poor technique" etiologic factor. Any woman delivered by cesarean or vaginally whose labor lasts more than 2 days suffers tissue necrosis and is at risk for fistula, making timely access to operative delivery for prolonged labor is essential.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Tracy Capes: Nothing to disclose
Lauri Romanzi: Advisory Board, honoraria
Edward Stanford: Nothing to disclose

Non-Oral Poster 70
OBJECTIVE STRUCTURED ASSESSMENT OF TECHNICAL SKILLS USING TWO DIFFERENT MODELS FOR OBSTETRICAL ANAL SPHINCTER REPAIR: A RANDOMIZED STUDY

V. Sun, C. E. Dancz, J. Chen, R. Nelken, N. Bender, E. Randel, B. Özel. *University of Southern California, Los Angeles, CA*

Objectives: Our aim was to compare the objective structured assessment of technical skills (OSATS) for 3rd and 4th year obstetrics & gynecology residents using two models for anal sphincter laceration repair and determine if confidence in performing repairs improves with one model versus the other.

Materials and Methods: Sixteen 3rd and 4th year residents were randomized to perform the sponge or beef tongue model of obstetrical anal sphincter (OAS) laceration repair at a 1:1 ratio. After a short lecture, the participants performed their assigned model and were evaluated using a task specific checklist (TSC) of 14 items and the global rating scale (GRS) (Total score = 45). They then performed the alternate model and were evaluated using the same scales. The participants rated their comfort level with performing anal sphincter repairs on a 10 point Likert scale prior to the lecture and again after completing each model. Responses were analyzed using Mann Whitney U test or Wilcoxon rank sum test.

Results: The number of 3rd and 4th year residents in each group was equal. The average number of previously performed anal sphincter repairs in each group did not differ. There was no difference in the median score on the TSC for the first or the second model between the two groups and no change in median score within each group (Table 1). There was no difference in the median score on the GRS for the first or the second model between the two groups and no change in median score within each group (Table 1). There was a significant increase in confidence level after performing the first model in both groups (Table 2) with no significant difference between the two groups. However, in the group that performed the sponge model first, performing the beef model second resulted in further increase in confidence level (Table 2). After the first model, only one participant in each group felt no improvement. However, after the second model, half of the participants in the beef model first group felt no further improvement in confidence level after completing the sponge model second while all participants who completed the sponge model first felt significant further improvement in confidence after completing the beef model second (p=0.02).

Conclusion: We found no difference in the OSATS using the two different models. Resident confidence increased with both models. There was a further increase in confidence when the beef model was performed after the sponge model.

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Nicole Bender: Nothing to disclose
Judy Chen: Nothing to disclose
Christina E. Dancz: Nothing to disclose
Rebecca Nelken: Nothing to disclose
Erin Randel: Nothing to disclose
Vanessa Sun: Nothing to disclose
Begüm Özel: Nothing to disclose

TABLE 1. OSATS-Task Specific Checklist and Global Rating Scale

Task specific checklist	Sponge first	Beef first	p for difference between groups*
First model	14 (10–14)	13 (12–14)	0.50
Second model	14 (13–14)	14 (11–14)	0.52
p for change within group†	>0.05	>0.05	
Global rating scale	Sponge first	Beef first	p for difference between groups*
First model	43 (41–45)	42 (34–45)	0.13
Second model	40 (34–45)	44 (38–45)	0.19
p for change within group†	>0.05	>0.05	* Mann Whitney U † Wilcoxon paired signed rank test

TABLE 2. Participant comfort level after completing both models

	Baseline comfort level	After first model	p within each group compared to baseline within each group†	After second model	p within each group compared to after first model†
Sponge first	3 (1–7)	6.5 (5–8)	0.02	7.5 (6–9)	0.01
Beef first	2 (1–6)	6 (1–8)	0.02	7 (6–8)	>0.05
p between the two groups*	0.5	0.72		0.44	* Mann Whitney U † Wilcoxon paired signed rank test

Non-Oral Poster 71
KNOWLEDGE AFTER SIMULATED OBSTETRIC LACERATION REPAIR: A COMPARISON OF TWO SURGICAL MODELS

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Objectives: Our aim was to compare improvement in clinical knowledge among obstetrics and gynecology residents completing two different simulation models for anal sphincter laceration repair.

Materials and Methods: Sixteen 3rd and 4th year residents were randomized to perform the sponge or beef tongue model of anal sphincter laceration repair. Each resident completed a survey of previous experience and a pretest of clinical knowledge, followed by a 10 minute lecture. The residents then performed their assigned model, repeated the written test, and then performed the alternate model. After finishing both models participants answered questions on a 10 point Likert scale about model realism and ease of use. Their overall preference was recorded on a scale of 1-5, where 1 indicated preference for the sponge model and 5 indicated preference for the beef model. Responses were analyzed using a t-test, Mann Whitney U test or Wilcoxon rank sum test as appropriate.

Results: The number of 3rd and 4th year residents in each group was equal (50% in each group). The average number of previous anal sphincter repairs performed by the participants in each group did not differ (median 2.5 vs 3, p=0.56 for sponge and beef model first, respectively).

All participants performed significantly better on the posttest of clinical knowledge than on the pretest (90% correct vs 62%, p=<0.001) after completing the first model with no difference in percent improvement between groups (43% increase in score for sponge first, 52% increase for beef first, p=0.55).

The two models were reported to be equally easy to understand (8.4 vs 8.1, p=0.38 for beef and sponge model, respectively). The beef model was felt to be more realistic than the sponge model (8.4 vs. 6.1, p<0.001). All participants considered the beef model to be equally or more preferable to the sponge model (median 4.5, range 3-5).

Conclusion: Both the beef and sponge model for anal sphincter repair improve resident knowledge of anal sphincter laceration repair. Residents found the beef model more realistic and preferred it to the sponge model.

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Nicole Bender: Nothing to disclose
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Christina E. Dancz: Nothing to disclose
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Erin Randel: Nothing to disclose
Begüm Özel: Nothing to disclose

Non-Oral Poster 72
MRI DEFECOGRAPHY DEMONSTRATES POSTERIOR VAGINAL WALL PROLAPSE IN THE ANTERIOR-POSTERIOR DIRECTION: CLINICALLY RELEVANT DIMENSION OF POSTERIOR VAGINAL PROLAPSE NOT DEFINED BY THE POPQ SYSTEM

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Objectives: To describe two dimensional movement of the mid-posterior vaginal wall as measured by magnetic resonance imaging (MRI) defecography. To compare movement of the mid-posterior vaginal wall in the cranial-caudal direction to the anterior-posterior direction.

Materials and Methods: The MRI defecography studies of 29 patients with pelvic organ prolapse were reviewed and coordinates of the point of maximal prolapse of the mid-posterior vaginal wall were identified at rest and during defecation. The point of maximal descent of the posterior wall was assumed to approximate POPQ point Bp. The cranial-caudal and anterior-posterior movement of the mid -posterior wall was recorded by a radiologist who was blinded to the clinical POPQ measurements. The best midline image of the resting and straining sequence of each MRI study was selected. The mid-pubic line (MPL)- line drawn through the longitudinal axis of the pubic bone passing through its midequatorial point- was selected to approximate the level of the hymen for MRI measurement of prolapse in the cranial-caudal direction. Anterior-posterior movement was calculated as the difference between the anterior most point of the mid-posterior vaginal wall at rest compared with maximal anterior position during defecation. A comparison of anterior-posterior and cranial-caudal movement of the mid-posterior vaginal wall was made using the Wilcoxon signed rank test.

Results: The range of movement of the mid-posterior vaginal wall from resting to straining in the anterior-posterior direction was -4.6 cm to +5.5 cm. This represents anatomic variation of 10 centimeters that is not part of the POPQ clinical assessment. Despite the high range of anterior-posterior movement, more movement was observed in the cranial-caudal direction than the anterior-posterior direction (mean difference= 1.5cm +/- 2cm SD).

Conclusion: Evaluation of posterior compartment prolapse using MRI defecography demonstrated significant anterior-posterior movement of the mid-posterior vaginal wall. This represents clinically relevant anatomic defects that are not described by the present POPQ system. The large range of anterior-posterior movement of rectoceles suggests that there are limitations to the clinical POPQ exam in the assessment of posterior vaginal wall defects. Women undergoing surgery for pelvic organ prolapse may benefit from preoperative MRI defecography to determine if concomitant posterior surgery may be warranted.

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Non-Oral Poster 73
RISK FACTOR FOR EXTENDED LENGTH OF STAY IN PATIENTS UNDERGOING ROBOT-ASSISTED LAPAROSCOPIC MYOMECTOMY

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Objectives: To asses pre-operative and operative data in patients undergoing a robot-assisted laparoscopic myomectomy to determine risk factors for extended length of stay.

Materials and Methods: A retrospective chart review comparing the patients undergoing a robot-assisted laparoscopic myomectomy who went home the same day with those who stayed at least one night in the hospital. 239 patients from 6/2006 though 8/2011 were assessed. All patients were treated at a University hospital under the care of the senior author. At the onset of this time period, changes in insurance approvals mandated that these surgeries be considered as outpatient. However, by insurance and hospital regulations, patients scheduled for outpatient surgeries may stay up to 23 hours without incurring independent charges. Should a patient remain overnight, the hospital is responsible for incurring the additional expense of the extended patient care. In this study, all patients were counseled that the surgery was scheduled as outpatient but that they would be evaluated in the recovery room and would be given the option to stay overnight if they were too uncomfortable to go home. Demographic, pre-operative and surgical data was evaluated in relation to hospital length of stay.

Results: Of the 239 patients, 143 (59.8%) patients went home the same day and 92 (38.5%) were discharged on post-operative day 1 and 4 on post-operative day 2 (1.7%). Only estimated blood loss, the mass of the myomas, and the duration of the surgery were found to be independently related to the length of stay in the hospital. (Table 1).

Conclusion: A larger amount of blood loss, surgical duration and the mass of the myomas removed increases the risk that the patient will not choose to be discharged on the day of the surgery. Knowledge of this may help in guiding post-operative expectations.

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Charles J. Ascher-Walsh: Nothing to disclose
Tracy Capes: Nothing to disclose
Lauren G. Rascoff: Nothing to disclose
Alicia Robbins: Nothing to disclose
Alejandro D. Treszezamsky: Nothing to disclose

	Same day discharge	At least one night stay	p value
Number of patients	143	96	
Age (std dv)	36.72 (5.00)	37.42 (5.90)	0.327
BMI (std dv)	24.34 (4.55)	24.97 (5.66)	0.345
Parity (std dv)	0.20 (0.61)	0.20 (0.56)	0.950
Duration (min) (std dv)	142.40 (49.28)	169.72 (58.87)	0.000
EBL (cc) (std dv)	213.90 (239.76)	309.43 (313.56)	0.006
Fibroid mass (gms) (std dv)	295.29 (254.71	415.19 (406.79)	0.006
Myoma Number (std dv)	3.23 (2.74)	3.39 (2.88)	0.662
Clinical Size of uterus (weeks) (std dv)	14.50 (3.55)	15.10 (4.08)	0.331

Non-Oral Poster 74
A COMPARISON OF SURGICAL PARAMETERS AND COMPLICATIONS BETWEEN PATIENTS HAVING A LAPAROSCOPIC SUPRACERVICAL HYSTERECTOMY (LSH) AND A ROBOT ASSISTED LAPAROSCOPIC MYOMECTOMY (RALM)

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Objectives: To asses differences in operative and post-operative outcomes between patients having a LSH and those having a RALM.

Materials and Methods: Patients are becoming involved in the decision making. Even after childbearing is complete, many women want to keep their uterus when n faced with problems that traditionally would have been treated with hysterectomy. When counseling patients, gynecologists typically warn of the increased surgical risk of a myomectomy as compared to a hysterectomy without actual comparative data. When choosing a hysterectomy, many women now prefer to keep their cervix, this decreases the risk of bladder injury and decreases blood loss. When choosing a myomectomy, patients may be candidates for a RALM if they have a small number of fibroids visible laparoscopically. This study is a retrospective chart review comparing patients who had a RALM with those who had a LSH. 460 patients from 6/2006 though 8/2011 were assessed. All patients were treated at a University hospital under the primary care of one surgeon. Demographic, pre-operative, surgical and post-operative data was compared.

Results: Of 460 patients, 239 had RALM and 221 had LSH. Patients undergoing LSH were older and more parous. They had a greater BMI, and lower pre-op Hct. The mass of the tissue removed was greater in LSH while the surgical length was shorter. A larger number of women in the LSH group stayed overnight. The complication rate was not different. The RALM group had 10 complications (4%): 2 conversions to minilap, 2 transfusions, 1 urinary retention, 3 incisional cellulitis, 1 UTI, 1 venous vascular injury. LSH group had 6 complications (3%): 1 urinary retention, one vascular injury requiring conversion to laparotomy for repair, 2 cellulitis, 1 UTI, 1 ureteral injury repaired laparoscopically. The number of previous pelvic surgeries was less for RALM group.

	LSH	RALM	p value
Number of patients	239	221	
Age (std. dv)	47.41 (6.58)	37.10 (5.49)	0.000
Parity (std dv)	1.46 (1.52)	0.20 (0.59)	0.000
BMI (std dv)	27.20 (6.04)	24.57 (5.01)	0.000
Duration (min) (std dv)	131.94 (48.81)	153.70 (54.16)	0.000
EBL (cc) (std dv)	246.04 (277.98)	257.84 (286.54)	0.655
Mass Removed (gms) (std dv)	536.37 (427.91)	342.63 (328.53)	0.000
Overnight stay %	54.55%	40.42%	0.002
Clinical size of uterus (weeks) (std dv)	14.85 (4.05)	14.72 (3.76)	0.752
Pre-op Hct (std dv)	35.89 (3.99)	36.64 (3.53)	0.034
Complications %	3%	4%	0.401
Previous Pelvic Surgery %	24%	9%	0.000

Conclusion: While the length of surgery was longer for RALM, the complication rates for both groups were small and not different. Although the two groups are different patient populations, the risks in RALM were not significantly greater to justify using that as a reason to recommend a LSH over a RALM. Patients who desire uterine conservation and are a candidate for RALM, it is reasonable to offer it as an alternative to LSH as long as they understand the risk of recurrence. They may benefit from a shorter hospital stay as a result.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Charles J. Ascher-Walsh: Nothing to disclose
Tracy Capes: Nothing to disclose
Lauren G. Rascoff: Nothing to disclose
Alicia Robbins: Nothing to disclose
Alejandro D. Treszezamsky: Nothing to disclose

Video Presentation 01
VAGINAL HYSTERECTOMY TEACHING MODEL - AN EDUCATIONAL VIDEO

T. M. Smith, D. E. Fenner. *Obstetrics and Gynecology, University of Michigan, Ann Arbor, MI*

Objective: The hallmark of the gynecologic surgeon is the ability to perform vaginal hysterectomies. However the total number of vaginal hysterectomies being performed in the US is decreasing and therefore providing fewer surgical learning opportunities for Gynecologic residents. To address surgical competence, residency training programs may introduce alternative surgical teaching models into their educational curriculum. To date, there is no standard vaginal hysterectomy model accepted across residency training programs.

This video presents a feasible, inexpensive and applicable surgical teaching model for the vaginal hysterectomy for Gynecology residents in training. The objectives of this video are 1) to provide instruction for model assembly and performance and 2) to demonstrate the basic key steps of the vaginal hysterectomy on both the model and from a live surgery to demonstrate proper technique.

Description: This video uses a combination of live surgical footage in addition to video clips of performance on the model to show how the model can be used to facilitate vaginal hysterectomy teaching. An expert vaginal surgeon at our institution designed the model using a simple, inexpensive and standardized method. The basic structure of the model is a fabric, cotton stuffed uterine model that is suspended within a gallon milk carton, simulating the pelvic bony structure. Trainees then use typical surgical instruments including clamps, scissors, and suture to simulate the principal steps of a vaginal hysterectomy.

Conclusion: The surgical model presented in this educational video will provide a feasible, inexpensive and applicable vaginal hysterectomy model for residents to aid in learning this common gynecologic surgery. Future work to create a validated assessment tool for model performance is planned.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
Dee E. Fenner: Nothing to disclose
Tovia M. Smith: Nothing to disclose

Video Presentation 02
MODIFIED MAYO MCCALL'S CULDOPLASTY - A CADAVERIC DISSECTION

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Objective: The purpose of this video is to describe our modification to the traditional McCall's posterior culdoplasty as a treatment for apical prolapse along with prophylactic suspension for vaginal cuff and to demonstrate the application of the Vaginal Bookwalter self retaining retractor.

Description: The traditional McCall's posterior culdoplasty has been shown to be an effective technique to treat apical prolapse. The external McCall's suture is placed through the vaginal cuff and suspended to the distal uterosacral ligament. Our modification has two components. The midline McCall's suture is placed through the vaginal cuff and bilateral uterosacral ligaments. The ipsilateral McCall's suture is placed through 3 and 9 o'clock of the vaginal cuff and suspended to ipsilateral uterosacral ligaments. All three sutures are placed 1 cm

distal to the ischial spine. The vaginal Bookwalter self retaining retractor is utilized and application of the retractor is demonstrated.

Using this technique, we allow excellent, efficient visualization of the uterosacral ligament, while minimizing risk of ureteral injury. Cystoscopy is routinely performed following vaginal hysterectomy and modified McCall's culdoplasty.

This technique is utilized at our institution as an approach to treat apical prolapse. Also, suspension of the vaginal cuff is completed using this approach during routine vaginal hysterectomy.

Conclusion: Our modification to the traditional McCall's culdoplasty is an effective technique for apical suspension and has the benefit of suspending the lateral vaginal fornices creating a more anatomic shape of the vaginal canal. The cadaveric model is reproducible and allows teaching of this technique outside of the operating room.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Karen Gold: Nothing to disclose
Rosanne Kho: expert opinion on medical device, Honorarium
Johnny Yi: Nothing to disclose

Video Presentation 03
ENDOMETRIAL CANCER FOLLOWING LEFORT COLPOCLEISIS: A CASE DIAGNOSED AND TREATED WITH MINIMALLY INVASIVE APPROACHES WITHOUT DISRUPTING THE COLPOCLEISIS OR PELVIC FLOOR SUPPORT

O. Harmanli, P. Yadav, T. K. Myers, K. Jones, H. Celik. *OB/GYN, Tufts University School of Medicine, Springfield, MA*

Objective: To present a case of endometrial cancer following LeFort colpocleisis, which was diagnosed and treated with minimally invasive approaches without disrupting the colpocleisis or pelvic floor support.

Description: LeFort colpocleisis is the procedure of choice for elderly women with multiple comorbidities, who do not wish to maintain coital function. To our knowledge, there has been only one reported case of endometrial carcinoma after colpocleisis. In this video presentation, we report one such case and its management. A 74-year-old widowed lady with stage III prolapse chose to undergo LeFort colpocleisis due to her multiple comorbidities and lack of interest in retaining coital activity. Fourteen months after her uncomplicated procedure, she presented with postmenopausal vaginal bleeding. We successfully performed vaginohysteroscopy and removed her polypoid mass via one of the channels. Upon the diagnosis of endometrial clear cell carcinoma, robotic total hysterectomy, bilateral salpingoophorectomy, and pelvic and paraaortic lymph node dissection were accomplished without any complications. Assistance and specimen retrieval were achieved through one the colpocleisis channels. The patient recovered without any incident. The procedure was considered curative as no myometrial invasion was noted on the final pathological analysis. Her colpocleisis remained intact with no recurrence of her prolapse. This video includes the challenges which may be encountered during this process.

Conclusion: Endometrial cancer after LeFort colpocleisis can be diagnosed and treated with minimally invasive approaches without disrupting the colpocleisis or pelvic floor support.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Hatice Celik: Nothing to disclose
Oz Harmanli: Nothing to disclose
Keisha Jones: Nothing to disclose
Tashanna K. Myers: Proctor, Salary
Parul Yadav: Nothing to disclose

Video Presentation 04
LAPAROSCOPIC ENTEROCELE REPAIR FOR RECURRENT POSTERIOR VAGINAL WALL PROLAPSE

S. Kasturi, D. S. Hale. *Urogynecology, Indiana University, Indianapolis, IN*

Objective: We present a 62 year old G5P3 with recurrent posterior wall prolapse after a rectocele repair. The prolapsing mass had broken through the vaginal incision raising suspension for protrusion of rectum.

Description: A combined vaginal and laparoscopic procedure was performed. Laparoscopic survey revealed dense adhesions in the recto-vaginal space and a large cul-de-sac. Laparoscopic assessment also confirmed that the prolapsing mass was complex with components of enterocele sac, sigmoidocele and sigmoid epiploica. Lysis of adhesions and enterocele repair was performed in a Moschcowitz fashion.

Conclusion: The patient may have initially presented with an enterocele mimicking a rectocele. Following 'rectocele repair', the enterocele sac broke through the vaginal incision mimicking protrusion of rectum. In summary, we present a case of complex prolapse with components of enterocele sac, sigmoidocele and sigmoid epiploica.

Compared to vaginal approach, the laparoscopic approach, in this case has provided several benefits including the ability to establish a definitive diagnosis, performing lysis of adhesions and minimizing the risk of bowel injury while performing the enterocele repair.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Douglass S. Hale: Consultant, Consultant Fee, Investigator, Study Support
Seshadri Kasturi: Nothing to disclose

Video Presentation 05
LAPAROSCOPIC SACRAL COLPOPEXY: SIMULATION TRAINING MODEL

T. M. Muffly, E. Tunitsky-Bitton, M. R. Paraiso, M. D. Barber, J. E. Jelovsek. *Department of Obstetrics and Gynecology, Cleveland Clinic, Cleveland, OH*

Objective: The purpose of this video presentation is: 1) To discuss the importance of simulation-based training for Female Pelvic Medicine and Reconstructive Surgery, 2) To illustrate the design of a simulator for sacral colpopexy, and 3) To demonstrate laparoscopic and robotic-assisted approaches for this procedure.

Description: Laparoscopic sacral colpopexy has been shown to have similar outcomes to abdominal sacral colpopexy. Despite this data the adoption of laparoscopic sacral colpopexy is not widespread because the learning curve remains steep for laparoscopic suturing.

The simulator construction is affordable and easily reproducible. The components of the model are the following: a Fundamentals of Laparoscopic Surgery trainer, Rowden uterine manipulator injector handle with an adjustable bracket, rubber stent, a sock made of swimsuit material to simulate the vagina, and neoprene to simulate the anterior longitudinal ligament over a plastic block. The strengths of the training system for sacral colpopexy include that the model is: portable, utilizes prior available simulation technology, employs actual surgical instruments and materials, and transferable to other platforms.

Conclusion: Laparoscopic suturing is a challenging step yet one that can be easily reproduced in a simulation model. Our model serves as a platform for a novice physician to practice suturing skills and for an experienced surgeon to refine their technique. In addition, the model may be used as an assessment tool to determine competency prior to performing a live surgery.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Matthew D. Barber: Nothing to disclose
John E. Jelovsek: Nothing to disclose
Tyler M. Muffly: Nothing to disclose
Marie Fidela R. Paraiso: Nothing to disclose
Elena Tunitsky-Bitton: Nothing to disclose

Video Presentation 06
ROBOTIC ASSISTED LAPAROSCOPIC RUDIMENTARY UTERINE HORN RESECTION

N. Crawford, J. Kim, E. Wilson, B. Carr. *University of Texas Southwestern, Dallas, TX*

Objective: The objective of this video is to demonstrate the resection of an obstructed, non-communicating rudimentary uterine horn in a nulliparous female using robotic assisted laparoscopy.

Description: A seventeen year old female with history of chronic pelvic pain and dysmenorrhea was found to have a unicornuate uterus with an obstructed, non-communicating uterine horn. A unicornuate uterus results from failure in development of one mullerian duct, and a rudimentary uterine horn is present in up to 65% of cases. Robotic assisted laparoscopy was chosen in order to obtain optimal visualization and allow precise dissection while maintaining a minimally invasive approach. A 10mm umbilical camera port and two 8mm lateral ports were used and docked to the robot. A 12mm assistant port was also placed in the right upper quadrant. Upon entry, the patient was found to have an obstructed left uterine horn with adhesions to the

left fallopian tube and ovary as well as implants of endometriosis. Resection of the rudimentary horn was then accomplished using the PK graspers and monopolar scissors in the robotic arms and the EnSeal device in the assistant port. Care was taken not to disrupt the cavity of the functional right uterine horn in this nulliparous female, and post-operatively she resumed regular menses with resolution of her dysmenorrhea.

Conclusion: Robotic assisted laparoscopy allows for excellent visualization of anatomy and careful dissection in patients with mullerian anomalies, especially when preservation of future fertility is a priority.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Bruce Carr: Nothing to disclose
Natalie Crawford: Nothing to disclose
Jonathan Kim: Nothing to disclose
Ellen Wilson: Nothing to disclose

Video Presentation 07
ROBOTICALLY ASSISTED OVARIAN TRANSPLANTATION

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Objectives: The objective of this video is to describe the technique of using the surgical Robot (Da-Vinci) in performing orthotropic transplantation of cryopreserved-thawed hemi-ovaries.

Materials and Methods: Laparoscopic oophorectomy with subsequent slow freezing of the ovarian hemi-cortex was performed. One week later, the frozen tissue was thawed and orthotopically transplanted to a freshly created medullary surface of the remaining ovary using the surgical robot (Da-Vinci). Transplantation was completed using 8-0 prolene stitches.

Results: All transplantations were completed successfully. The operating time was 64 (61.75, 65.75) in. The actual suturing time in the Robotic group 30.5 (28.25, 32.75) min. The primordial follicle count per high power field was comparable in fresh, frozen- thawed and transplanted ovarian tissue.

Conclusion: Robotically assisted transplantation of hemiovaries is technically feasible.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:

Ehab Barkat: Nothing to disclose
Mohamed A. Bedaiwy: Nothing to disclose
Luiz Carvalho: Nothing to disclose
Michelle Catencci: Nothing to disclose
Tommaso Falcone: Nothing to disclose

Video Presentation 08
LAPAROSCOPIC LARGE OVARIAN CYSTECTOMY, APPENDECTOMY, AND REMOVAL THROUGH A NATURAL ORIFICE IN A 16 YEAR OLD FEMALE

A. Gojayev, A. Katz, E. C. Dun, C. H. Nezhat. *Atlanta Center for Minimally Invasive Surgery and Reproductive Medicine, Atlanta, GA*

Objective: To demonstrate a step by step approach to the laparoscopic excision of an 18 cm ovarian cyst in a 16 year old female.

Description: In this video, the laparoscopic excision of an 18 cm mucinous, multiloculated right ovarian cyst and appendix are demonstrated using 5 mm laparoscopic abdominal incisions. The patient was a 16 year old female who presented with abdominal distension initially thought to be due to urinary retention. After 3 months of expectant management including an extensive genitourinary workup, she had an MRI suggestive of an enlarging adnexal mass and mild bilateral hydronephrosis. The cystectomy was performed through four 5 mm laparoscopic abdominal ports and a 12 mm posterior colpotomy. Controlled entry into a large ovarian cyst and no-spill evacuation of the cyst fluid are demonstrated. The cyst wall is enucleated through an elegant and hemostatic technique. The laparoscopic appendectomy is performed with an Endo GIA stapler. Laparoscopic closure of the posterior colpotomy, and survey of the pelvis complete the procedure.

Conclusion: Laparoscopic management of a benign ovarian cyst with preservation of the ovary is an acceptable and preferable method in young reproductive age females.

Key words: laparoscopy, large ovarian cyst, mucinous cystadenoma, appendectomy, natural orifice surgery.

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Erica C. Dun: Nothing to disclose
Anar Gojayev: Nothing to disclose
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Ceana H. Nezhat: Nothing to disclose