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SOCIETY OF
GYNECOLOGIC SURGEONS

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Dear Colleagues, Friends and Guests,

Welcome to sunny California! As President of the Society of Gynecologic Surgeons, it is my honor to welcome you to the 42nd Annual Scientific Meeting in Palm Springs, California April 10th-13th, 2016. Eric Sokol and the SGS Program Committee have put together what is going to be an informative, exciting and may be even a little controversial program for the scientific meeting and postgraduate courses this year.

One primary component of the SGS mission is to promote excellence in gynecologic surgery. Innovation, when properly applied, is one of the key factors in furthering surgical excellence and, in that spirit, the theme of our meeting this year is "*Innovative ways to improve surgical care, research, and education in gynecologic surgery.*" The Keynote and TeLinde Lecturers will expound upon this topic looking at different sides of the coin, addressing how to promote what works and how to make surgery work more effectively. The SGS debate series has always been lively and this year's will be no exception– with 4 renowned surgeons discussing what the patient expects from surgical innovation. The oral and poster presentations, video sessions and round table discussions span the spectrum of gynecologic surgery (including general gynecology, oncology, minimally invasive surgery, reproductive endocrinology and urogynecology). Postgraduate courses on advanced minimally invasive surgical techniques for straight stick laparoscopy, vaginal hysterectomy and pelvic pain will be of interest to both the young and experienced gynecologic surgeons alike. Finally, we are sure you are going to be excited about our innovations this year for the typically early morning round table discussions.

The scientific sessions and social program, as always, will provide a unique opportunity to collaborate with old friends and meet new ones. The glamour and stark beauty of the Palm Springs area – with world class golfing, amazing outdoor recreation and incredible dining all set against the stunning backdrop of the Renaissance Indian Wells Resort and Spa will leave you spellbound long after the meeting has ended. I look forward to seeing you all in Palm Springs in 2016, as we learn how and when to innovate so that we can continue to provide the best surgical care to our patients.

Most Sincerely,

Andrew J. Walter, MD

SGS President

1 Reasons for unplanned 30-day readmission after hysterectomy for benign disease

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OBJECTIVES: Readmission is used as a proxy for quality of care, but there is a paucity of information regarding readmission after hysterectomy. The purpose of this study is to characterize the most common reasons for unplanned readmission following hysterectomy.

MATERIALS AND METHODS: A retrospective descriptive study was performed using the American College of Surgeons National Surgical Quality Improvement Project database (ACS NSQIP) participant user file for 2012 and 2013. Information was extracted on patients undergoing hysterectomy at participating hospitals. The most common readmission diagnoses based on the International Classification of Diseases, Ninth Revision, Clinical Modification were identified. Reasons for readmission were divided into 10 categories including surgical site infection, infectious reasons not including surgical site infection, surgical injury, non-infectious wound complications, gastrointestinal, genitourinary, venous thromboembolic, pain, medical, and other reasons. Results were stratified based on surgical approach.

RESULTS: The readmission rate after hysterectomy was 2.8% (1,131/40,676). Rates varied significantly by surgical approach, complicating 3.7% of abdominal versus 2.6% of laparoscopic, and 2.1% of vaginal hysterectomies. Readmission rates were significantly more likely when hysterectomy was performed abdominally (OR 1.76, 95% CI 1.47-2.11) or laparoscopically (OR 1.23, 95% CI 1.04-1.45) compared with a vaginal approach. Surgical site infection, non-surgical site infections, and surgical injuries were the primary reason for admission of 56.1% of abdominal, 59.4% of laparoscopic, and 66.8% of vaginal hysterectomies. Medical complications such as cardiovascular events and venous thromboembolism accounted for 5.7% of abdominal, 6.9% of laparoscopic, and 8.8% of vaginal hysterectomies. The proportion of gastrointestinal complications was higher after abdominal hysterectomies than that observed among laparoscopic or vaginal hysterectomies. The proportion of cases readmitted for surgical complications after laparoscopic and vaginal hysterectomy was higher than that observed for abdominal cases.

CONCLUSION: The most common reason for readmission for any surgical approach is surgical site infection. More than half of all readmissions were related to issues typically considered surgical. Medical complications were relatively uncommon, accounting for less than 10% regardless of surgical approach.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Courtney Penn: Nothing to disclose; Daniel M. Morgan: Nothing to disclose; Jose Alejandro Rauh-Hain: Nothing to disclose; Laurel W. Rice: Nothing to disclose; Shitanshu Uppal: Nothing to disclose.

Table. Reasons for unplanned readmission by surgical approach

	Vaginal (N=8,457)			Laparoscopy (N=22,310)			Abdominal (N=9,909)			Total (N=40,676)		
	N	% of readmissions	% of vaginal surgeries	N	% of readmissions	% of laparoscopic surgeries	N	% of readmissions	% of abdominal surgeries	N	% of readmissions	% of total surgeries
Overall unplanned readmissions	181	100	2.14	583	100	2.61	367	100	3.70	1,131	100	2.78
Surgical site infection (superficial, deep, organ-space)	59	32.60	0.70	164	28.13	0.74	134	36.51	1.35	357	31.56	0.88
Infectious – non SSI (pneumonia, urinary tract infection, pyelonephritis, sepsis, septic shock, cellulitis)	34	18.76	0.40	90	15.44	0.40	45	12.26	0.45	169	14.94	0.42
Gastrointestinal (nausea, vomiting, dehydration, ileus, obstruction, electrolytes)	16	8.84	0.19	57	9.78	0.26	79	21.53	0.80	152	13.44	0.37
Surgical (ureter injury, visceral injury, bleeding, hematoma)	28	15.47	0.33	92	15.78	0.41	27	7.36	0.27	147	13.00	0.36
Wound (non-infectious) (dehiscence, herniation, seroma)	5	2.76	0.06	45	7.72	0.20	27	7.36	0.27	77	6.81	0.19
Other	9	4.97	0.11	50	8.58	0.22	17	4.63	0.17	76	6.72	0.19
Venous thromboembolic (deep vein thrombosis, pulmonary embolism)	12	6.63	0.14	32	5.49	0.14	18	4.90	0.18	62	5.48	0.15
Pain	8	4.42	0.09	35	6.00	0.16	12	3.27	0.12	55	4.86	0.14
Genitourinary (acute kidney injury, hydronephrosis, urinary retention)	6	3.31	0.07	10	1.72	0.04	5	1.36	0.05	21	1.86	0.05
Medical (myocardial infarction, pulmonary edema, shortness of breath)	4	2.21	0.05	8	1.37	0.04	3	0.82	0.03	15	1.33	0.04

2 A comparison of vaginal and robotic hysterectomy for commonly cited relative contraindications to vaginal hysterectomy

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OBJECTIVES: Numerous relative contraindications to vaginal hysterectomy have been suggested including a uterine size >12 weeks gestation (280 grams), no vaginal parity, desired oophorectomy at the time of hysterectomy, obesity, endometriosis, and a history of laparotomy or cesarean delivery. The aim of this study was to compare the patient outcome profile for each relative contraindication stratified by route of surgery: vaginal or robotic.

MATERIALS AND METHODS: A retrospective chart review was performed and a cohort of women who underwent hysterectomy for benign disease at our institution between January 1, 2009 and December 31, 2013 was created. Among the patients with the

contraindication of interest, variables were compared between patients with a vaginal versus robotic hysterectomy using the chi-square test or two-sample t-test. Surgical characteristics, outcomes, and complications analyzed included: utilization of intraoperative uterine debulking techniques, blood transfusion, intraoperative and postoperative complications including stratification for Accordion Classification 3+ complications, route conversion, operative time, hospital length of stay, change in hemoglobin, and readmission rate.
RESULTS: Data on 1165 patients was collected: 692 vaginal (59%) and 473 robotic hysterectomies (41%). Two hundred seven patients (18%) had a pathologic uterine weight >280 grams, 502 had an oophorectomy (unilateral or bilateral) (43%), 353 had no vaginal parity (30%), 273 had a prior cesarean delivery (23%) and 70 had a preoperative diagnosis of endometriosis (6%), and 469 were obese (BMI $\geq$ 30 kg/m^2) (40%). The outcomes below are consistently reported as (vaginal vs robotic). Uterine weight >280 grams: There was a statistically significant difference in requirement of uterine debulking techniques (88% vs 73%), intraoperative complications (0% vs 5%), mean operative time (89 vs 200 min), postoperative complications (5% vs 18%), and readmission rate (0% vs 8%). Planned oophorectomy: There was a difference in mean operative time (67 vs 154 min) and a length of hospital stay of 0-1 days (81% vs 90%); however, the mean length of stay for both groups was 1 day. No vaginal parity: Patients with a vaginal parity of zero only differed in mean operative time (73 vs 156 min). Prior cesarean delivery: Patients with at least one cesarean delivery were compared and differences included: uterine debulking procedure required for delivery of the uterus (29% vs 12%) and mean operative time (74 vs 153 min). Cystotomy rates were low in both the vaginal and robotic groups (1% for both groups), and there was one bowel injury in the robotic group (0.6%). Notably, there was no difference in rate of conversion (3% vs 2%). Complication differences did not worsen when further stratified by number of cesarean deliveries. Endometriosis: The only difference was in mean operative time (59 vs 140 min). Obesity: The only difference was in mean operative time (77 vs 167 min).
CONCLUSION: The surgical outcomes of patients with the commonly cited relative contraindications to vaginal surgery who had a vaginal hysterectomy performed had similar or better outcomes than those with robotic hysterectomy.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Jennifer Schmitt: Nothing to disclose; Daniel Carranza: Nothing to disclose; John A. Occhino: Nothing to disclose; Michaela Mcgree: Nothing to disclose; Amy Weaver: Nothing to disclose; John Gebhart: AMS, Advisory Board, Royalties; UpToDate, author, royalties; Elsevier, author, royalties.

3 Effect of different chairs on work-related musculoskeletal discomfort during vaginal surgery

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OBJECTIVES: To compare the effect of different chairs on work-related musculoskeletal discomfort during vaginal surgery.
MATERIALS AND METHODS: This is a crossover randomized study. Four surgeons were randomly assigned to 4 chairs using a 4 x 4 Latin square model: round stool, round stool with backrest, saddle chair with backrest and Capisco chair. Subjective assessments of surgeon discomfort were performed using a validated body discomfort survey (CMDQ)(*1*) and workload using the SURG-TLX(*2*). Objective postural load was quantified using inertial measurement units (IMUs)(*3*) with RULA limits (*4*). Subjective and objective assessments of chair comfort were performed by 10-point Likert scale and seat interface pressure mapped distributions, respectively. The primary outcome was difference body discomfort scores. The secondary outcomes were difference in chair comfort scores, postural load and seating interface pressure mapped distribution. For each outcome measure, comparisons between chairs were based on fitting a linear mixed model handling surgeon as a random effect and chair type as a fixed effect.
RESULTS: Data was collected for 48 vaginal procedures that were performed for pelvic organ prolapse. The mean duration of surgery was 122.3 (SD, 25. 1) minutes. Surgeons reported body discomfort during 31/47 (66%) surgeries. Subjective increase in discomfort from the preoperative state was noted most commonly in right shoulder (28%), lower back (28%) followed by upper back (16%), left shoulder (14%) and neck (14%). The change in body discomfort scores did not differ with respect to the type of chair used. Chair discomfort scores for the round stool and saddle chair were significantly higher compared to the round stool with backrest and the Capisco chair ($p<0.001$). While the average modified-RULA postural scores demonstrated moderate to high musculoskeletal risk in the neck and shoulders across surgeons, the chairs did not have an effect on the postural scores. The saddle chair had significantly reduced dispersion of seated pressure as compared to the round stool with backrest ($p\leq0.001$, as depicted by the number of cells with pressure values >5 mm Hg). An increased dispersion of pressure across the chair surface was associated with increasing comfort, Spearman correlation=0.40 p=0.006.
CONCLUSION: Musculoskeletal strain and associated discomfort is very high in vaginal surgery. Chair type can impact comfort, with chairs having a more uniform distribution/fewer pressure points being more comfortable. However the chair used in surgery did not influence the musculoskeletal postural load findings.

REFERENCES:

1. C. U. E. Web. vol. 2014.
2. M. R. Wilson *et al.*, Development and validation of a surgical workload measure: the surgery task load index (SURG-TLX). *World J. Surg.* **35**, 1961 (Sep, 2011).
3. A. Salarian *et al.*, iTUG, a sensitive and reliable measure of mobility. *IEEE Trans Neural Syst Rehabil Eng* **18**, 303 (Jun, 2010).
4. L. McAtamney, E. Nigel Corlett, RULA: a survey method for the investigation of work-related upper limb disorders. *Appl. Ergon.* **24**, 91 (Apr, 1993).

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Ruchira Singh: Nothing to disclose; Daniel Carranza: Nothing to disclose; Melissa M. Morrow: Nothing to disclose; Tamara L. Vos-draper: Nothing to disclose; Michaela Mcgree: Nothing to disclose; Amy Weaver: Nothing to disclose; Sandra M. Woolley: Nothing to disclose; Susan Hallbeck: Stryker Endoscopy, speaker, Honorarium; ECRI, speaker, Honorarium; AMS, Advisory board, Royalties; Elsevier, Author, Royalties; UpToDate, Author, Royalties; John

Gebhart: Stryker Endoscopy, speaker, Honorarium; ECRI, speaker, Honorarium; AMS, Advisory board, Royalties; Elsevier, Author, Royalties; UpToDate, Author, Royalties.

4 Patient-reported functioning outcomes after surgery compared to pessary for the treatment of pelvic organ prolapse using the patient reported outcomes measurement system

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OBJECTIVES: The objective of this study is to compare comprehensive physical, social, and emotional functioning outcomes after surgery versus pessary for symptomatic POP.

MATERIALS AND METHODS: This secondary analysis of a prospective observational cohort study included women with any type of POP surgery or long-term pessary for symptomatic stage 2 or greater POP. Patient Reported Outcomes Measurement System (PROMIS®) surveys measured: 1) Physical function 2) Satisfaction with Participation in Social Roles 3) Satisfaction with Participation in Discretionary Social Activities 4) Anxiety and 5) Depression at baseline and 6-12 months. PROMIS includes standardized tools to measure comprehensive patient-reported well-being in physical, mental, and social domains which have been validated across multiple medical conditions, allowing for comparison across disciplines. However, use in pelvic floor disorders and surgical interventions has been limited. We compared mean changes in raw scores for each PROMIS domain using independent and paired t-tests within and between surgery versus pessary groups.

RESULTS: Of 160 women enrolled, follow-up was available in 134 (83.8%). We excluded 8 that crossed-over from pessary to surgery and 14 that discontinued pessary. We included 72 (90%) that underwent surgery and 42 (52.5%) that continued pessary use in the final analysis. Statistically significant improvements were seen between pre- and post-treatment PROMIS scores in all 5 domains for surgery and 4 of 5 domains for the pessary group (the depression domain did not improve with pessary use). Comparing between groups, women who underwent surgery had significantly greater improvement in physical function (mean change 5.1 vs 2.4 points, P=0.02) and depression (mean change 2.4 vs 0.03 points, P=0.01) scores compared to pessary. Mean changes for participation in social roles (4.4 vs 2.9, P=0.3), social activities (3.8 vs 2.1, P=0.2), and anxiety (3.1 vs 2.1, P=0.4) were higher with surgery, but this was not statistically significant between the two groups.

CONCLUSION: Women undergoing either surgery or pessary for symptomatic POP experience improvements in physical, social and emotional functioning. Surgery is associated with greater improvements in physical functioning and depression compared to pessary for women with POP.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Annetta M. Madsen: Nothing to disclose; Christina A. Raker: Nothing to disclose; Vivian Sung: Nothing to disclose.

Table. PROMIS domain scores before and after surgery versus pessary for treatment of pelvic organ prolapse

PROMIS Domain	Pre-Treatment Score	Post-treatment Score	Change in Score	P-value within groups	P-value between groups
1. Physical Function					
Surgery (n=71) Pessary (n=37)	40.8 (6.3) 43.7 (5.6)	45.9 (6.3) 46.2 (5.6)	5.06 (6.3) 2.4 (4.6)	<0.0001 0.005	0.02
2. Social Roles					
Surgery (n=66) Pessary (n=41)	35.5 (8.2) 28.6 (7.4)	30.8 (6.8) 31.3 (5.3)	4.4 (7.9) 2.9 (6.4)	<0.0001 0.007	0.3
3. Social Activities					
Surgery (n=70) Pessary (n=41)	24.4 (7.8) 28.8 (7.8)	28.4 (7.5) 28.9 (7.4)	3.8 (6.9) 2.1 (6.4)	<0.0001 0.04	0.2
4. Anxiety					
Surgery (n=70) Pessary (n=41)	16.1 (6.9) 15.1 (5.6)	13.1 (6.0) 13.0 (5.0)	3.1 (6.4) 2.1 (5.2)	0.0001 0.03	0.4
5. Depression					
Surgery (n=71) Pessary (n=39)	15.4 (6.9) 13.2 (4.6)	13.0 (6.4) 13.2 (4.6)	2.4 (6.7) 0.03 (3.8)	0.004 0.9	0.01

Data in Mean (SD)

5 Mindfulness-based stress reduction as a novel treatment for interstitial cystitis/bladder pain syndrome: A randomized controlled trial

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OBJECTIVES: Interstitial cystitis/bladder pain syndrome (IC/BPS) is a poorly understood condition with variable response to treatment, and can be exacerbated by life stressors. Mindfulness-based stress reduction (MBSR), a standardized program including components of meditation and yoga, has been successful in the treatment of other chronic pain conditions. This study's objectives were to 1) explore whether MBSR, when used in addition to first and second line therapies as recommended by the American Urological Association guidelines, offered additional symptom improvement in IC/BPS based on validated questionnaires and 2) investigate MBSR's feasibility and acceptability in patients with IC/BPS.

MATERIALS AND METHODS: This Randomized Controlled Trial (RCT) included IC/BPS patients undergoing first or second line IC/BPS therapies with baseline O'Leary-Sant Symptom and Problem Index (OSPI) scores >8. Participants were randomized to continue usual care (UC) or an 8-week MBSR class (MBSR) in addition to usual care. Participants were administered several baseline questionnaires including the OSPI, a visual analog pain scale (VAS), the Short Form Health Survey (SF-12), the Female Sexual Function Index (FSFI) and the Pain Self-Efficacy Questionnaire (PSEQ). After the 8-week study period, both groups repeated these questionnaires and completed the Global Response Assessment (GRA). Continuous variables were analyzed using Student's t test and categorical ones using chi-squared. Changes in patient responses between the 2 groups were analyzed using MANOVA, and reported with the Wilks-Lambda test statistic.

RESULTS: Eleven patients were randomized to UC, and 9 to MBSR. One MBSR subject was lost to follow-up after randomization. There were no significant differences in the patient characteristics between groups. All MBSR participants attended at least 50% of the classes. Compared to the UC group, more MBSR subjects rated their post-treatment symptoms based on the GRA to be improved (7/8 (87.5%) vs. 4/11 (36.4%), p=0.03) with 2/8 (25%) vs. 0/11 rating their symptoms as markedly improved (p=0.08). The MBSR group had greater improvement in OSPI total scores (p=0.049) and OSPI problem scores (p=0.004) (Figure 1). Changes in OSPI symptom scores did not differ between the two groups (p=0.119). Patients' pain self-efficacy (PSEQ) scores also significantly improved in the MBSR group compared to the UC group (p=0.04). Changes in VAS scores, SF-12 quality of life score and FSFI scores did not differ between groups. Eighty-six percent (6/7) of the MBSR group stated they felt more empowered to control their bladder symptoms post-

treatment. Sixty-two percent (5/8) of the MBSR group practiced home meditation after the course, with the same number noting improvement in symptoms after a meditation session. All 8 participants said they would continue to incorporate MBSR in their care plans for IC/PBS.

CONCLUSION: This trial provides initial evidence that MBSR is a promising adjunct therapy to treat IC/BPS. This study suggests that the benefit of this intervention may come from patients' empowerment and ability to cope with symptoms.

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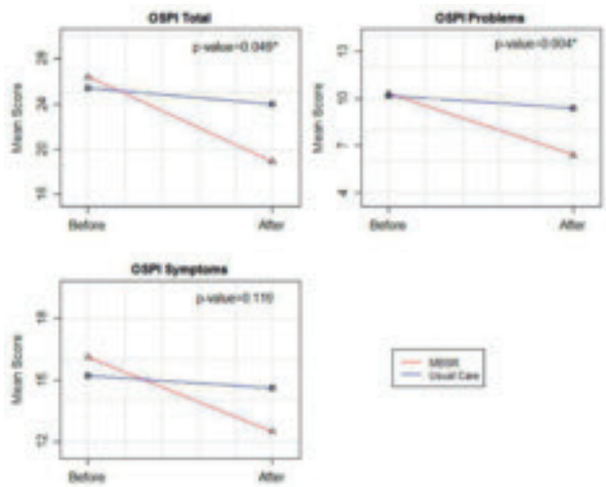

6 Comparison of robotic and other minimally-invasive routes of hysterectomy for benign indications

C. W. Swenson, N. S. Kamdar, D. M. Morgan
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OBJECTIVES: To compare clinical outcomes and estimated cost of robotic-assisted hysterectomy to all other routes of minimally-invasive hysterectomy for benign indications.

MATERIALS AND METHODS: Data from a statewide database were used to analyze utilization and outcomes of minimally-invasive hysterectomy performed for benign indications from July 1, 2012 – July 1, 2014. Using a propensity score-match analysis to help control for demographic, clinical and hospital factors, a one-to-one match was performed between women who had a hysterectomy with robotic-assistance versus other minimally-invasive (MIS) routes (laparoscopic and vaginal, with or without laparoscopy). Perioperative outcomes, intraoperative bowel and bladder injury, 30-day postoperative complications, readmissions and reoperations were compared between the propensity-matched cohorts. Cost estimates were derived from published data on hospital costs by hysterectomy route, surgical site infection (SSI) and postoperative blood transfusion.

RESULTS: A total of 11,004 hysterectomy cases were identified: 6,222 performed using robotic-assistance and 4,782 performed using other MIS routes. During the study period, the proportion of hysterectomies performed using robotic-assistance ranged from 43-45%, 10-13% for laparoscopy, and 19-24% for vaginal, with or without laparoscopy. A total of 1,338 women from each group were successfully matched using propensity score-matching. Robotic-assisted hysterectomies had lower estimated blood loss (94.2 ± 124.3 vs. 175.3 ± 198.9 mL, p <.0001), longer surgical time (2.3 ± 1.0 vs 2.0 ± 1.0 hours, p<.0001) and larger specimen weights (178.9 ± 186.3 vs 160.5 ± 190 g, p <.0001) compared to other MIS routes (Table 1). Intraoperative bowel and bladder complications were similar between groups. Overall, the rate of any postoperative complication was lower with robotic-assisted versus other MIS hysterectomy routes (3.5% (n=47) vs 5.6% (n=75), p=.01) and driven by lower rates of superficial SSI (0.07% (n=1) vs 0.7% (n=9), p =.01) and blood transfusion (0.8% (n=11) vs 1.9% (n=25), p=.02). Readmission and reoperation rates did not differ between groups. Using hospital cost estimates from published data for different hysterectomy routes and considering the incremental costs associated with SSI and blood transfusion complications, non-robotic MIS routes had an average net savings of $3,519 per case, or 35% lower cost, compared to robotic-assisted hysterectomy ($9,910 vs $13,429). This calculation does not take into consideration purchase or maintenance cost of the robot.

CONCLUSION: With the exception of superficial SSI and blood transfusion rates, complications, readmissions, and reoperations were similar for hysterectomies done for benign indications using robotic-assistance versus other MIS routes. In the absence of substantial reductions in clinically and financially burdensome complications, it will be challenging to find a scenario in which robotic-assisted hysterectomy is cost-effective.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Carolyn W. Swenson: Nothing to disclose; Neil S. Kamdar: Nothing to disclose; Daniel M. Morgan: Nothing to disclose.

Table 1. Perioperative outcomes and complications within 30 days of hysterectomy, comparing propensity-score matched cases of robotic-assisted versus other MIS routes

Perioperative Outcome	Robotic (n=1338)	Other MIS Routes (n=1338)	P Value
Estimated Blood Loss, mL	94.2±124.3	175.3±198.9	<.0001
Surgical Time, hours	2.3±1.0	2.0±1.0	<.0001
Specimen Weight, grams	178.9±186.3	160.5±190	<.0001
Length of Stay, days	1.0[1,1]	1.0[1,1]	<.02*
Complications			
Any Complication	3.5(47)	5.6(75)	.01
Intraoperative Complications			
Bowel	0.6(8)	0.2(2)	.06
Bladder	0.8(10)	0.8(10)	1.00
Postoperative Complications			
Any Surgical Site Infection (SSI)	0.8(11)	1.4(18)	.19
Superficial SSI	0.07(1)	0.7(9)	.01
Deep/Organ Space SSI	0.6(8)	0.8(10)	.64
Deep Venous Thromboembolism	0.07(1)	0.07(1)	1.00
Pulmonary Embolism	0.07(1)	0.3(4)	.18
Myocardial Infarction/Stroke	0	0	–
Pneumonia	0.07(1)	0.07(1)	1.00
Sepsis	0.7(9)	0.8(10)	.82
Urinary Tract Infection	1.4(19)	1.6(21)	.75
Blood Transfusion	0.8(11)	1.9(25)	.02
Readmission	3.0(39)	2.9(37)	.81
Reoperation	2.0(26)	2.2(28)	.79
Death	0	0	–

Data presented as means ± SD, % (n), or medians (IQR). P values determined using Chi-square, student's t-test, or Fisher's exact.
*Medians and interquartile ranges are reported; however, the p-value was calculated from Welch's robust test for differences of means.

7 Randomized clinical trial of postoperative belladonna and opium (B&O) suppositories in vaginal surgery

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OBJECTIVES: Following vaginal surgery oral and parenteral narcotics are commonly used for pain relief and their use may exacerbate the incidence of sedation, nausea, and vomiting; ultimately delaying convalescence. Previous studies have demonstrated that rectal analgesia following surgery results in lower pain scores and less intravenous morphine consumption (1-2). Belladonna and opium (B&O) rectal suppositories may be used to relieve pain and minimize side effects; however their efficacy has not been confirmed. We aimed to evaluate the use of B&O suppositories for pain reduction in vaginal surgery.

MATERIALS AND METHODS: A prospective, randomized, double-blind, placebo-controlled trial using B&O suppositories following inpatient or outpatient vaginal surgery was conducted. Vaginal surgery was defined as: (1) vaginal hysterectomy with uterosacral suspension or (2) post-hysterectomy prolapse repair including uterosacral suspension and/or colporrhaphy. B&O 16A (16.2/60 mg) or placebo suppositories were administered rectally immediately following surgery and every 8 hours for a total of 3 doses. Patient reported pain was collected using a visual analog scale (VAS) at 2, 4, 12, and 20 h postoperatively. Opiate use was measured and converted into IV morphine equivalents. The primary outcome was pain and secondary outcomes included pain medication, antiemetics, and a quality of recovery questionnaire. A priori power analysis aimed for 80% power (α .05) to detect a difference of 2 points. Adverse effects were surveyed at 24 hours and 7 days. Concomitant procedures for urinary incontinence or pelvic organ prolapse did not preclude enrollment.

RESULTS: Ninety women were randomized consecutively at a single institution under the care of a fellowship trained surgeon group. Demographics did not differ between the groups with mean age 55, procedure time 97 minutes, and prolapse 51%. Postoperative pain scores were equivalent among both groups at each time interval. The B&O group used a mean of 57 mg morphine compared to 66mg for placebo (p=0.43) in 24 hours. Patient satisfaction with recovery was similar (p=0.59). Antiemetic and ketorolac use were comparable among groups. A subgroup analysis of patients with prolapse did not reveal differences in pain scores. The use of B&O suppositories was uncomplicated and adverse effects were similar among groups including constipation and urinary retention.

CONCLUSION: B&O suppositories are safe for use following vaginal surgery. B&O suppositories did not reveal a statistically significant reduction in narcotic use compared to placebo; however the treatment group used fewer narcotics with similar recovery satisfaction which may offer clinical significance and/or reduced healthcare cost. Further investigation is warranted to identify a population that may optimally benefit from B&O use.

REFERENCES:

1. Cobby TF, et al. Rectal paracetamol has a significant morphine-sparing effect after hysterectomy. British Jour of Anes. 1999; 83.
2. Ng A, et al. Does the opioid-sparing effect of rectal diclofenac following total abdominal hysterectomy benefit the patient? Brit Jour of Anes. 2002; 88.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Kristina A. Butler: Nothing to disclose; Johnny Yi: Nothing to disclose; Jennifer Klauschie: Boston Scientific, Speaker, Honorarium; Intuitive, Speaker, Honorarium; Proctor, Speaker, Honorarium; Debra L. Ryan: Nothing to disclose; Joseph G. Hentz: Nothing to disclose; Jeffrey L. Cornella: Nothing to disclose; Paul Magtibay: Nothing to disclose; Rosanne Kho: Nothing to disclose.

8 Inferior gluteal neurovascular anatomy in female cadavers: Clinical applications to pelvic reconstructive surgeries

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OBJECTIVES: Gluteal pain is common following sacrospinous ligament fixation (SSLF) procedures. Reported rates range from 12.4-55.4% in the postoperative period and from 4.3-15.3% at 4-6 weeks postoperatively. The neuroanatomy associated with the sacrospinous ligament (SSL) has not been thoroughly examined from a gluteal perspective relative to SSLF. The inferior gluteal nerve has not been carefully evaluated and data on thickness and height of SSL at its midportion is scarce. This information should provide insights into safe suture placement and on the source of gluteal pain following SSLF. The objectives of this study were to characterize the IGN and other neurovascular anatomy associated with the SSL, to determine thickness and height of SSL at its midpoint, and to correlate findings to prolapse repair procedures that use the SSL as a fixation site.

MATERIALS AND METHODS: Detailed dissections were performed in unembalmed female cadavers. From a gluteal approach, distances from nerves and vessels to ischial spine (IS) and to midpoint of SSL were recorded. Origin and width of the IGN were documented. Closest neurovascular structure to IS and to midpoint of SSL was noted. Length and height of SSL and thickness of coccygeus-sacrospinous ligament (C-SSL) complex were documented. Distance from IS to fusion point of SSL and sacrotuberous ligament (STL) was recorded. From a pelvic approach, sacral nerves perforating the ventral surface of coccygeus muscles were documented. Closest structure to superior border of midpoint of SSL was examined. Branches from sacral plexus that coursed between the SSL and STL were noted and their origin and termination determined. Descriptive statistics were used for data analysis.

RESULTS: Ten cadavers were examined. From a gluteal perspective, the closest structure to dorsal surface of IS was the pudendal nerve, median distance 2mm (range 0−8mm). Median distance from IGN to IS and to midpoint of SSL was 31.5mm (21-53mm) and 30.5mm (10-47mm), respectively. The IGN arose from dorsal surface of L5-S1 nerves in 100% of specimens; a contribution from S2 was noted in 47% of hemipelvises. Median thickness of C-SSL complex at its midpoint was 4 mm (2-7mm) and median height of SSL was 14mm (3-20mm). Fusion of SSL and STL was noted a median distance of 19mm (10-36mm) from IS. From a pelvic perspective, the closest structure to superior border of SSL at its midpoint was the S3 nerve, median distance 3mm (0−11mm). In 70% of specimens, 1-3 branches from S3 and/or S4 nerves perforated or coursed ventral to the STL, before perforating the gluteus maximus or the cutaneous tissue just superficial to the muscle. Branches from S3 and/or S4 perforated the ventral surface of coccygeus muscles in all specimens.

CONCLUSION: It is improbable that the inferior gluteal nerve is implicated in postoperative gluteal pain following SSLF procedures. More likely, direct branches from S3 and/or S4, coursing between the SSL and STL may be injured with deep penetration of the SSL. Nerve

branches to the coccygeus muscles are likely to be disrupted, even when sutures are placed in the recommended location. Suture placement should be kept on the lower portion of the SSL to avoid nerve injury.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Maria E. Florian-Rodriguez: Nothing to disclose; Adam Hare: Nothing to disclose; John Phelan: Nothing to disclose; Kathryn Chin: Nothing to disclose; Christopher Ripperda: Nothing to disclose; Marlene Corton: Nothing to disclose.

9 The wasted vaginal hysterectomy—an argument for tracking in obstetrics and gynecology residency programs

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OBJECTIVES: To predict the increase in vaginal hysterectomies (VH) and other limited procedures performed by each resident if obstetrics and gynecology (OB/GYN) residency programs initiated tracking programs based on a resident's anticipated career path.

MATERIALS AND METHODS: We analyzed of the *OB/GYN Case Logs National Data Report* published by the Accreditation Council for Graduate Medical Education (ACGME) and the *Fellowship Match Trends by Specialty Report* published by the National Resident Matching Program (NRMP) from 2010-2014. *Fellowship Match Trends by Specialty Report* was used to determine the number of incoming matched fellows in all ABOG certified subspecialties in each year: Female Pelvic Medicine and Reconstructive Surgery (FPMRS), Gynecologic Oncology (GO), Reproductive Endocrinology (REI), and Maternal Fetal Medicine (MFM). Minimum thresholds for OB/GYN procedures were obtained from the ACGME Memorandum published in 2012. Assumptions for this analysis are as follows: (1) practitioners with subspecialty training in MFM, REI, and GO are unlikely to perform VH (2) practitioners with subspecialty training in REI, GO, and FPMRS are unlikely to perform operative vaginal deliveries (3) practitioners with subspecialty training in MFM are unlikely to perform laparoscopic hysterectomies (4) OB/GYN specialists and those with training in Family Planning, Minimally Invasive Gynecology, Pediatric and Adolescent Gynecology, and other subspecialties are likely to practice the full scope of OB/GYN (5) tracking programs would redistribute limited procedures so that residents with 'unlikely to perform' career paths would no longer be performing specific procedures.

RESULTS: From 2010-2014, the number of residents entering fellowship in the potentially tracked subspecialties has increased by 22% (195 vs. 239). During this timeframe, the average number of vaginal hysterectomies and laparoscopic hysterectomies has significantly increased (19.7±9 vs. 25.9±11, $p<.001$ and 27.5±18 vs. 43.3±20, $p<.001$, respectively). Operative vaginal deliveries, on the other hand, have decreased (28.6±16 vs. 24.9±12, $p<.001$). Based on reports from 2014 of 1,213 residents, tracking would result in 4.78 (18.5%) more VH per resident, representing a 31% increase over the current minimum threshold of 15 VH. Tracking would also result in 3.38 (13.5%) more operative vaginal deliveries per resident, representing a 22% increase over the minimum threshold of 15 operative deliveries, and 3.63 (8.4%) more laparoscopic hysterectomies, representing an 18% increase over the minimum threshold of 20.

CONCLUSION: Tracking residents going into ABOG certified subspecialties has the potential to significantly increase VH training for residents going into fields where VH should be routinely performed in women needing a hysterectomy. Despite the lower cost and morbidity with the procedure, numbers of VH in US are relatively low. Tracking may offer an opportunity to restore specialists in Obstetrics and Gynecology's confidence with VH.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Bhumy Dave: Nothing to disclose; Alix Leader-Cramer: Nothing to disclose; Katarzyna Bochenska: Nothing to disclose; Alexandria Alverdy: Nothing to disclose; Margaret G. Mueller: Nothing to disclose; Christina Lewicky-Gaupp: Nothing to disclose; Kimberly Kenton: Nothing to disclose.

10 Determining the optimal route of hysterectomy for benign indications: A clinical decision tree algorithm

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OBJECTIVES: Despite ACOG's recommendation for vaginal hysterectomy when feasible, surgical approach for benign indications are surgeon-dependent and highly variable. We retrospectively applied an evidence-based clinical algorithm to evaluate the surgical approach to simple hysterectomy for benign indications.

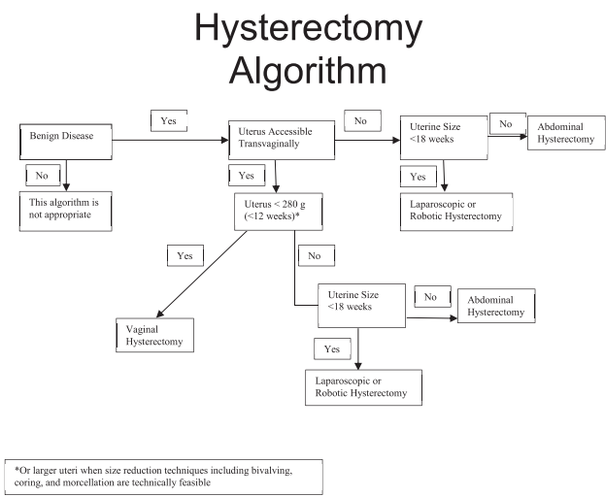
MATERIALS AND METHODS: A retrospective cohort (Cohort A) of women who underwent a hysterectomy for benign indications at our institution between January 1, 2009 and December 31, 2013 was identified and the expected route of hysterectomy was determined from a clinical decision algorithm utilizing vaginal access and uterine size (Figure 1). The chi-square test was used to compare outcomes between surgeries that were and were not performed with the expected route per the algorithm. A second cohort (Cohort B) between January 1, 2004 and December 31, 2005 was also identified and analyzed to evaluate practice change after introduction of robotic hysterectomy in 2007 at our facility. Finally, an estimate of the cost implications to the institution for the operating room and hospital stay was performed comparing the expected and actual routes of hysterectomy in Cohort A. Exclusion criteria included: cancer, adnexal indications, concomitant urogynecologic or non-gynecologic surgery, risk reducing and emergent surgery.

RESULTS: There were 1335 patients in Cohort A and 497 in Cohort B. Due to documentation issues involving the preoperative examination, 145 (8%) of the patients were excluded due to inability to assign an expected route. The 2 cohorts were similar in proportion of uteri >280g, no vaginal parity, and prior laparotomy (including cesarean delivery). Despite these similarities, there was a shift in practice pattern after the introduction of robotic-assisted hysterectomy. In Cohort B, 68% of hysterectomies were performed vaginally and 32% via laparotomy; 15% were performed via laparotomy when a vaginal hysterectomy was the expected route as determined by the algorithm. In Cohort A, 55% were vaginal, 32% robotic, 11% via laparotomy; 5% underwent laparotomy and 21% robotic when the route expected was vaginal. Among patients expected to have a vaginal approach in Cohort A, those who had a robotic hysterectomy had significantly longer operating times, higher rates of surgical site and urinary tract infections, with no difference in readmission rates or postoperative complications, when compared to those who had a vaginal approach. Conversely, if patients were expected to have a robotic hysterectomy and had a vaginal, they had fewer postoperative complications than those who had the robotic route. When stratified by individual surgeon, the percentage of surgeries following the

algorithm when the expected route was vaginal varied from 50-100%. Our cost estimates suggest that following this algorithm in Cohort A would have saved $800,800 in hospital and operating room costs over a 5-year period.

CONCLUSION: Vaginal hysterectomy, when performed as expected by the clinical algorithm, was associated with shorter operative times, fewer complications and lower health care delivery costs. Prospective use and subsequent validation of a clinical decision tree algorithm is warranted.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Jennifer Schmitt: Nothing to disclose; Daniel Carranza: Nothing to disclose; Amy Weaver: Nothing to disclose; John A. Occhino: Nothing to disclose; Sean Dowdy: Nothing to disclose; Jamie Bakkum-Gamez: Nothing to disclose; Kalyan Pasupathy: Nothing to disclose; John Gebhart: AMS, Advisory Board, Advisory Board; UptoDate, Author, Royalties; Elsevier, Author, Royalties.



11 Impact of surgical training on performance of proposed quality measures for hysterectomy for pelvic organ prolapse

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OBJECTIVES: The advent of Physician Quality Measure Reporting has increased the interest of specialty groups in the development of quality measures. Within a large healthcare maintenance organization (HMO), we assessed adherence to proposed quality measures for performance of hysterectomy for pelvic organ prolapse (POP) stratified by surgical training. The four measures were: offering conservative treatment of POP, quantitative assessment of POP (Pelvic Organ Prolapse-Quantification or Baden-Walker), performance of an apical support procedure at time of hysterectomy, and performance of cystoscopy during the procedure.

MATERIALS AND METHODS: Patients undergoing hysterectomy for POP from January 1-December 31, 2008 were identified by procedural codes within the electronic medical record of a HMO. Half the medical records were subject to extensive review including: demographic and clinical data, surgeon training background (gynecologic generalist, fellowship-trained surgeon in Female Pelvic Medicine and Reconstructive Surgery [FPMRS], "grandfathered" in FPMRS), performance of four proposed quality measures and outcome measures within and beyond 12 months after surgery. Data was analyzed using descriptive statistics. Inferential statistics with chi-squared tests were performed to compare performance rates of quality measures stratified by surgical training. P-values less than 0.05 were considered statistically significant.

RESULTS: Six hundred sixty-two relevant surgeries were performed in 2008. Of the 328 patients with complete records (three excluded for missing data), gynecologic generalists performed 140 hysterectomies, fellowship-trained surgeons performed 133, and "grandfathered" surgeons performed 55. Frequencies and percentages for individual measures and cumulative performance based on surgeon type are shown in the Table. Fellowship-trained surgeons had the highest performance rates for each measure and cumulative performance of all measures. "Grandfathered" FPMRS surgeons performed significantly fewer measures than fellowship-trained surgeons and more than gynecologic generalists.

CONCLUSION: Within a large HMO, fellowship-trained FPMRS surgeons were significantly more likely to perform proposed quality measures relating to hysterectomy for POP, compared to those without such training. "Grandfathered" FPMRS surgeons performed measures more frequently than generalists but less than fellowship-trained surgeons. Further study is indicated to correlate with outcome measures.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Emily Adams-Piper: Nothing to disclose; Noelani Guaderrama: Nothing to disclose; Emily Whitcomb: Nothing to disclose.

Table. Performance Rates of Proposed Quality Measures Based on Surgeon Type

Proposed Quality Measures	Generalist (n=140)	Fellowship-trained (n=133)	"Grandfathered" (n=55)	P-value
Conservative treatment offered	107 (76.4%)	125 (94%)	48 (87.3%)	0.0002
Quantitative preoperative assessment of POP	102 (72.9%)	131 (98.5%)	51 (92.7%)	<0.0001
Apical repair	97 (69.3%)	127 (95.5%)	45 (81.8%)	<0.0001
Cystoscopy	101 (72.1%)	130 (97.7%)	50 (90.9%)	<0.0001
Performance of all measures	53 (38.3%)	116 (88.7%)	34 (63.4%)	<0.0001

12 Costs associated with instrument sterilization in gynecologic surgery

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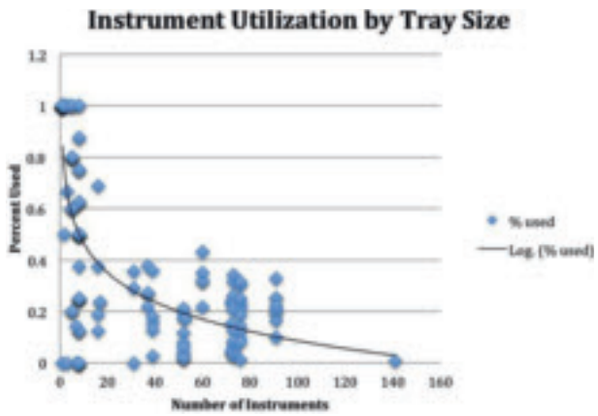
OBJECTIVES: With rising healthcare expenditures, hospitals need to contain costs in ways that maintain high quality patient care. Previous research has shown that 56% of perioperative costs are associated with materials and supplies and as many as 87% of reusable instruments on surgical trays go unused, which may account for up to $20,400 in annual excess costs from processing unused instruments within a single surgical tray. Reorganizing Gynecologic laparoscopic trays to contain fewer instruments has resulted in cost savings estimated at $13,889 for a single tray type within one institution. In the field of Operative Gynecology, there has been considerable attention to the various costs and surgical outcomes associated with hysterectomy performed in the abdominal, vaginal, and laparoscopic approaches, however little research has been done on the cost differences associated with reusable instruments in these approaches. This study aimed to identify the percent utilization of instruments within Gynecologic surgery and identify differences by surgical approach. We further aimed to estimate the costs of sterilizing surgical instruments and thus estimate the excess costs associated with processing unused instruments.

MATERIALS AND METHODS: This was a single site observational study. Specific instruments used from incision to closure were recorded on operating room count sheets via direct observation of surgeries performed in the Gynecologic operating rooms by a trained investigator. Cost data on instrument transportation, employee wages, and instrument replacement was obtained from institutional Supply Chain Management.

RESULTS: In total, 28 surgical cases (5 abdominal, 11 laparoscopic, and 12 vaginal) have been analyzed, with an average of 2 hours 37 minutes OR time and 5.4 instrument trays for each case. 150 trays were observed. Trays had an average of 38 instruments per tray (range 1-141). Surgeons used an average of 37.5 instruments of 190 instruments per case, for a utilization rate of 20.2±2.8%. A significant difference existed between utilization rates in abdominal cases (26.3±6.5%) and vaginal cases (13.6±3.3%) but not between laparoscopic (19.4±4.2%) versus other approaches. Instrument utilization was inversely correlated with number of instruments, with an average utilization rate of 17.4% for trays containing 20 or more instruments. Total institutional cost associated with instrument processing was estimated at $8,025,800, or $3.19 per instrument on average.

CONCLUSION: Instrument utilization in the Gynecologic operating room is low but comparable to other surgical specialties, and the cost of processing instruments is significant. Availability of certain instruments is necessary for patient safety in the event of rare unexpected events. However, given that significantly less than half of the instruments pulled for surgery are utilized and that total processing cost per instrument exceeds three dollars, careful review of what instruments are included in each tray and elimination of wasted resource allocation can result in significant cost savings without reducing safety.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Mary M. Van Meter: Nothing to disclose; Rony Adam: Nothing to disclose.



13 Genetic determinants of pelvic organ prolapse in women of european american descent: The women's health initiative

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OBJECTIVES: Approximately 3-5% of U.S. women are affected by pelvic organ prolapse (POP), with European American women (EA) at particularly high risk. Recent evidence suggests a moderate genetic predisposition to POP, yet very few genetic loci have been identified. Thus, we used validated measurements of POP from the Women's Health Initiative (WHI) Hormone Therapy (HT) trial and extant genome wide genotyping data to perform a genome wide association study (GWAS) of POP in European American (EA) study participants.

MATERIALS AND METHODS: This study was performed using participant data from the baseline pelvic exam data (evaluated for the presence and severity of rectocele, cystocele, and uterine prolapse) for which genotype data were available. POP was classified as grades 0-3. Cases were defined as women with any POP (grades 1-3) or moderate/severe POP (grades 2-3). Women with grade 0 prolapse were classified as controls. WHI participants were genotyped on five different platforms; we therefore combined platform-specific logistic regression analyses evaluating 1000 genomes-imputed SNPs and POP (grade 0 vs. 1-3 and grade 0 vs. 2-3), adjusting for age at POP ascertainment, body mass index, parity, and global ancestry using fixed-effects meta-analysis.

RESULTS: A total of 1040 any POP cases, 72 moderate/severe POP cases, and up to 5124 controls were included in our final analyses. For any POP, we identified a genome-wide significant common (minor allele frequency = 43%) intergenic variant rs60934399 located 1.5kb upstream of several transcription factors and 4kb downstream of the LINC00557 gene. Each unit increase in the T allele vs. the G allele was associated with increased risk for POP with odds ratio (OR) of 1.35 (95% CI: 1.28, 1.42), $p=3.7x10^{-8}$. Meta-analysis of severe POP did not yield genome-wide significant associations.

CONCLUSION: POP is multi-factorial, with a substantial, but currently underexplored genetic basis. Our study is the first to identify a genome-wide significant POP locus. Further studies are needed to expand power to find additional loci underlying POP.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Amy J. Park: Nothing to disclose; Marielisa Graff: Nothing to disclose; Ayush Giri: Nothing to disclose; Jennifer M. Wu: Nothing to disclose; Renee M. Ward: Nothing to disclose; Todd L. Edwards: Nothing to disclose; Digna Velez Edwards: Nothing to disclose; Barbara V. Howard: Nothing to disclose; Nawar M. Shara: Nothing to disclose; Christy L. Avery: Nothing to disclose; Kari E. North: Nothing to disclose.

14 Perioperative bundles and timely feedback for surgical site infection prevention in hysterectomy: An institutional experience

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OBJECTIVES: Surgical site infections (SSI) are a major cause of both morbidity and increased hospital costs. The objective of this study is to determine the efficacy of a perioperative gynecology bundle designed to reduce the rates of SSI in hysterectomies.

MATERIALS AND METHODS: A single institution retrospective chart review examining SSI rate in hysterectomies after the institution of a 6-point gynecological perioperative infection prevention bundle. The bundle consisted of chlorhexidine pre-operative wipes, pre-operative warming, intra-operative maintenance of normothermia, standardization of surgical preparation technique, implementation of an institution-specific antibiotic dosing protocol and surgical dressing maintenance. The antibiotic protocol consisted of administration of 2 grams cefazolin (3 grams if weight >120 kilograms) one hour or less prior to incision, re-dosing at three hours or for blood loss of greater than or equal to 1.5 liters and addition of pre-operative metronidazole for any case with possible bowel involvement. The implementation of the bundle was overseen by an interdisciplinary team consisting of gynecology, anesthesiology, hospital epidemiology infection control staff, and perioperative nursing. Perioperative staff were educated on protocol implementation and data collection in the electronic medical record. The team reviewed electronic medical record reports on a monthly basis and investigated deviations from the protocol providing those involved with prompt feedback of findings. SSI rates were reviewed from January 1, 2012, through June 30, 2015, with the primary outcome being the SSI rate pre and post bundle implementation. The secondary outcome examined was cost per surgical episode.

RESULTS: During the 42-month period, 2739 hysterectomies were completed with a net reduction in SSI rate following the implementation of the gynecological perioperative bundle of 41%. The net cost savings per open case was 11.97% while the net cost saving per laparoscopic (including robotic) case was 5.49%. The total cost savings per case was 4.00%.

CONCLUSION: The implementation of a gynecological perioperative infection prevention bundle with timely feedback to frontline staff is associated with a significant reduction in SSI rate after hysterectomy, leading to reduced morbidity and hospital costs. Further studies are needed to further analyze the most effective aspects of the bundle in terms of reducing SSI and to further assess cost savings by type of hysterectomy performed and areas where cost saving is greatest.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Sarah E. Andiman: Nothing to disclose; Vrunda Desai: Nothing to disclose; Michelle N. Whitbread: Nothing to disclose; Heidi Rillstone: Nothing to disclose; John M. Boyce: Nothing to disclose; Linda Fan: Nothing to disclose.

15 Chlorhexidine-alcohol compared with povidone-iodine for surgical-site antisepsis after abdominal hysterectomy

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OBJECTIVES: The objective of this study is to determine whether the choice of skin antiseptic agent independently affects the rate of surgical site infections (SSI) in patients undergoing abdominal hysterectomy.

MATERIALS AND METHODS: A retrospective cohort study was performed of patients undergoing abdominal hysterectomy from July 2012 to February 2015 in the Michigan Surgical Quality Collaborative (MSQC). The primary predictor was skin antiseptic choice of either chlorhexidine gluconate in alcohol (alcohol-CHG) or povidone iodine in water (aqueous-PI). The primary outcome was the development of a superficial, deep, or organ space SSI within 30 days of surgery. Multivariable logistic regression models estimated the independent effect of skin antiseptic choice on the rate of SSI.

RESULTS: A total of 5,074 abdominal hysterectomies were available for analysis. The overall rate of any SSI was 3.6% (n=180). Alcohol-CHG was the skin preparation agent in 73.4% (n=3,722) and aqueous-PI in 26.6% (n=1,352). Compared to aqueous-PI group, the patients in the alcohol-CHG group had several demographic and perioperative factors associated with SSI development. Patients receiving alcohol CHG were more likely to have body mass index $\geq$ 30 (53% vs 47%, p<0.001), American Society of Anesthesiology (ASA) Class $\geq$ 3 (30.3 vs. 21.8, p<0.001), dependent functional status (1.1% vs. 0.2%, p=0.002), malignancy as a preoperative indication for surgery (12.6% vs. 3.5%, p<0.001), estimated blood loss greater than 250 cc (56% vs 36%, p<0.001) and surgery lasting more than 3 hours (20.1% vs. 12.9%, p<0.001). The crude rates of SSI for the groups of patients treated with alcohol-CHG and aqueous-PI was 3.5% (n=129) and 3.8% (n=51), respectively. With adjustment for differences between populations using multivariate logistic regression, patients receiving alcohol-CHG were 30% less likely to develop an SSI (OR 0.71, 95% CI 0.51-0.98, p=0.037).

CONCLUSION: The choice of preoperative skin antiseptic given prior to abdominal hysterectomy is an important predictor of SSI. Alcohol-CHG based skin antiseptic resulted in an overall lower odds of SSI compared to aqueous-PI when adjusted for patient and perioperative factors. Future randomized controlled trials examining skin preparation antiseptic would be beneficial to improve evidence-based decisions for patients and surgeons.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Ali Bazzi: Nothing to disclose; John Harris: Nothing to disclose; Daniel Morgan: Nothing to disclose; Mark D. Pearlman: Nothing to disclose; R Kevin Reynolds: Nothing to disclose; Darrell A. Campbell: Nothing to disclose; Shitanshu Uppal: Nothing to disclose.

16 The sunshine act: Shedding light on the inaccuracy of financial disclosures

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OBJECTIVES: We aimed to describe concordance between individuals' financial disclosures listed in the abstract book from the 41st Annual Society of Gynecologic Surgeons (SGS) Scientific Meeting compared to physician payments reported to the Center for Medicaid and Medicare Services' (CMS) Open Payments database for the same year. The Physician Payments Sunshine Act requires publicly traded companies to report all transactions with physicians. SGS author abstract instructions state that authors should disclose conflicts "whether or not this relationship is directly related to the material being presented."

MATERIALS AND METHODS: We identified authors and board members responsible for the content of the 41st SGS Scientific Meeting as listed in the published abstract book. We excluded all non-physicians and anyone from outside the United States. We collected financial conflicts using the CMS Open Payments database from 2014 (http://www.cms.gov/openpayments). Company names, number of transactions, amount paid, and payment types were recorded. Companies listed for each individual in CMS were compared to abstract book disclosures to determine the disclosure rate. For individuals with more than one abstract, disclosures were summed across abstracts and compared in total to the CMS report and checked for concordance. Two authors reviewed each non-disclosed CMS listing to determine whether the company and its product line were related to the content of the abstract. Listing was deemed relevant if consensus was reached between the two reviewers.

RESULTS: The abstracts and disclosures of 335 individuals meeting inclusion criteria were reviewed. Board members without abstracts did not have separate conflict of interest disclosures listed. Two hundred nine of 335 (62%) individuals had financial transactions reported in CMS. Twenty-four of 335 (7.2%) individuals listed specific companies with their abstracts; 5 of those 24 authors accurately included all of their companies listed in CMS. The total amount of money from CMS transactions equaled $1.98 million: 71.6% labeled "general transactions," 28.3% "research transactions," and 0.1% "investments." The total of all non-disclosed transactions equaled $1.3 million. The range of money associated with a single individual was from $11.72 to $405,903.36. One hundred twenty-two companies were listed as having financial ties with authors in CMS, ranging from 1 to 22 companies per individual. Medtronic (33.5%), American Medical Systems Inc. (30%), and Astellas Pharma Inc. (29%) were the companies most often affiliated with individuals in CMS. Of the 187 without any abstract disclosures but with CMS transactions, the majority (65%) had at least one company listed in CMS that was determined to be related to the subject of their abstract.

CONCLUSION: Voluntary disclosure of financial relationships with publicly traded companies was poor, and the majority of unlisted disclosures in the abstract book were companies related to the subject of the abstract. Part of this discrepancy may be due to physicians' unfamiliarity of what is reported to CMS. Regardless, better transparency is needed by individuals responsible for the content presented at scientific meetings.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Jennifer Thompson: Nothing to disclose; Katherine Volpe: Nothing to disclose; Lindsay Bridgewater: Nothing to disclose; Fares Qaedan: Nothing to disclose; Gena Dunivan: AMS, DSMB Chair, Honorarium; UptoDate, Author, Royalties; McGraw Hill, Author, Royalties; Pelvalon, Research Support, Research Support; Yuko Komesu: Nothing to disclose; Sara Cichowski: Nothing to disclose; Peter C. Jeppson: Nothing to disclose; Rebecca Rogers: AMS, DSMB Chair, Honorarium; UptoDate, Author, Royalties; McGraw Hill, Author, Royalties; Pelvalon, Research Support, Research Support.

17 Comparing methods of nsaid delivery for postoperative pain

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OBJECTIVES: To compare differences in pain perception and satisfaction with pain control in women receiving either intravenous ibuprofen or intravenous ketorolac after urogynecologic surgery.

MATERIALS AND METHODS: This was a prospective randomized controlled trial including patients undergoing surgery in the division of Female Pelvic Medicine and Reconstructive Surgery between September 2013 and April 2015. After surgery, all patients were randomized to either the ibuprofen or ketorolac groups. Patients were placed on a patient controlled analgesia (PCA) of hydromorphone with standardized settings and given scheduled, oral acetaminophen. On the first postoperative day before noon, three visual analog scores were obtained from the patient to assess pain at rest, ambulation, and satisfaction with pain control. Demographic data and surgical data were collected including the type of surgery (vaginal, laparoscopic, or open) as well as concomitant procedures. The amount of hydromorphone used and the length of time with the PCA were recorded. Statistical analysis was performed using SAS v9.3. Continuous variables were summarized using means and standard deviations; categorical variables were summarized using counts and proportions. Continuous and categorical variables were compared between the two arms using two-sample t-test and chi-squared test, respectively, with a $p<0.05$ defined as significant.

RESULTS: A total of 332 patients were approached for the study, of which twenty-four patients declined to participate, and 54 patients withdrew. The remaining 228 patients were enrolled and randomized in the study. Four patients were removed from analysis due to missing medication, resulting in a total of 224 patients (112 patients in each arm) to be included in the statistical analysis. The majority of patients were White (92%) with a mean age of 57 years old ($\pm$13 years). Only 16% of participants were taking narcotics prior to surgery. There were statistically significant differences in the two arms of the study, with more patients in the ketorolac arm who underwent a sacrocolpopexy (59% vs 46%, $p = 0.05$), and more patients in the ibuprofen arm received local anesthetic into the incision (84% vs 73%, $p= 0.05$). Overall, there was no difference in pain scores at rest or ambulation between the two study groups (Table 1). Additionally, there was no difference in patient satisfaction between the two pain regimens. There was no difference in the

amount of hydromorphone used in each of the two study arms (p = 0.58).

CONCLUSION: In this randomized trial, there were no significant differences when comparing intravenous ketorolac to ibuprofen as an adjunct for postoperative pain control after urogynecologic surgeries. Both regimens had a high level of postoperative satisfaction.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Stephanie D. Pickett: Nothing to disclose; Lieschen Quiroz: Nothing to disclose; Daniel Zhao: Nothing to disclose; Lisa Anderlik: Nothing to disclose; Mikio A. Nihira: Pancira, Primary Investigator, Unrestricted educational grant; Postsurgical Pain Congress, Consultant, Honorarium.

Table. Pain scores comparing ketorolac and ibuprofen

Study Arm	Ketorolac Arm (mean, SD)	Ibuprofen Arm (mean, SD)	p value
Pain at Rest	2.30 (±2.10)	2.60 (±2.34)	0.20
Pain with Ambulation	3.94 (±2.57)	4.16 (±2.73)	0.57
Satisfaction with Pain Regimen	1.87 (±2.74)	2.10 (±2.65)	0.50
Hydromorphone PCA Use	3.68 (±4.58)	4.84 (±4.97)	0.58

18 Unplanned thirty-day readmission rates as a quality measure: Risk factors and costs of readmission on a gynecologic oncology service

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OBJECTIVES: The rate of unplanned 30-day hospital readmission after discharge is considered a quality measure across U.S. hospitals and impacts Medicare-based reimbursements for inpatient care. Our study objectives were to calculate the 30-day readmission rate to our gynecologic oncology (GON) service, to identify risk factors for readmission, and to determine related costs.

MATERIALS AND METHODS: All admissions to a high volume, academic GON surgical service during a two-year study period (2013-2014) were queried. Minor surgical procedures were excluded. Patients (pts) requiring hospital readmission within 30 days of discharge were identified. Index admissions were compared for pts with and without readmission. Risk factors and costs of readmission were identified. GI disturbance was defined as high ostomy output, SBO, or ileus. Infection was defined as surgical site infection (SSI) including fever and/or leukocytosis. Data was collected on a diverse array of pt demographic and clinical variables, psychosocial factors and results of an institutional discharge screen survey (Table). Multiple logistic regression was used to identify factors associated with thirty-day readmission.

RESULTS: A total of 1606 women underwent surgical admission to the GON service. A total of 178 readmissions (11.1%) were observed. The average readmission interval was 11.82 days and average length of stay was 5.16 days. The most common reasons for readmission were GI disturbance (43%) and SSI (30%). Factors correlated with readmission included ovarian cancer cytoreductive surgery (OR 2.33, 95% CI 1.23-4.35), creation of an ostomy (OR 7.67, 95% CI 2.99-19.69), and positive discharge screen (OR 3.1, 95% CI 1.48-6.5). The mean cost of each readmission was $25,415; the costs associated with readmission for a GI disturbance were the highest at $32,432. The total inpatient cost related to readmission was $4,523,959.

CONCLUSION: Readmission to a high volume gynecologic oncology service was most associated with cytoreductive surgery for ovarian cancer, ostomy-related complications and post-discharge complex patient care needs, as identified by institutional discharge screening surveys. The costs of readmission represent a substantial financial burden for hospitals. These data may inform intervention studies to improve the quality of cancer care and reduce health care costs.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: MaryAnn B. Wilbur: Nothing to disclose; Diana B. Mannschreck: Nothing to disclose; Edward Tanner: Nothing to disclose; Rebecca Stone: Nothing to disclose; Kimberly Levinson: Nothing to disclose; Sarah Temkin: Nothing to disclose; Francis Grumbine: Nothing to disclose; Peter Pronovost: Nothing to disclose; Amanda Fader: Nothing to disclose.

Institutional Discharge Screening Survey

1. No discharge needs identified
2. Anticipated complex needs
3. Anticipated disposition other than home self-care
4. Anticipated need from home care infusion
5. Anticipated need for durable medical equipment
6. Unplanned hospitalization/Emergency Department visit >1 in past 6 months
7. Difficulty filling prescriptions in the past 12 months

Legend: A "positive discharge screen" was a defined as "yes" to any of the questions 2-7. This survey tool was utilized in all patients admitted to the gynecologic oncology service to identify complex care needs or poor social support after discharge.

19 Rates of inappropriate oophorectomy at the time of benign hysterectomy

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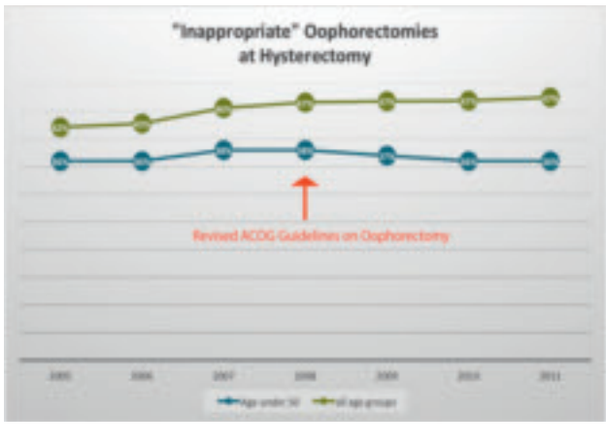
OBJECTIVES: Emerging evidence suggests that premenopausal oophorectomy is associated with worsened long-term health outcomes. As of 2008, the revised ACOG guidelines state, "strong consideration should be made for retaining normal ovaries in premenopausal women." Given recent findings that nearly one in five hysterectomies in the US may be unnecessary and due to the potential adverse health effects of oophorectomy, we sought to determine the rate of potentially unnecessary oophorectomies being performed in premenopausal women during hysterectomy for benign indications.

MATERIALS AND METHODS: We reviewed all non-radical inpatient hysterectomies performed in California from 2005-2011 using the Office of Statewide Health Planning (OSHPD) patient discharge database (PDD). The PDD includes all nonfederal hospital discharges. In addition to a primary diagnosis and procedure code each discharge includes up to 19 secondary procedure codes and 24 secondary diagnosis codes. Any diagnosis associated with cancer was excluded. Three independent investigators reviewed ICD-9 codes and created a master list of recognized indications for oophorectomy. We defined oophorectomies as "appropriate" if a supporting ICD-9 code (ovarian cyst, BRCA+ carrier status, endometriosis, etc.) was linked and "inappropriate" if no such codes were linked. "Premenopausal" was defined as age less than 50. STATA software was used for analysis and $p<0.05$ was considered statistically significant.

RESULTS: A total of 259,294 inpatient, non-radical hysterectomies were performed in California between 2005 and 2011 for benign indications. Of these, 96,976 (37.4%) were performed with concomitant removal of all ovaries (bilateral or removal of the remaining ovary). The majority (53.2%) of oophorectomies were performed in premenopausal women. Based on lack of supportive diagnoses, 32,860 (36.7%) premenopausal oophorectomies were classified as "inappropriate." Over the 7-year time period, the total number of inpatient premenopausal hysterectomies with oophorectomy decreased (10,166/year in 2004 to 4,672/year 2011); however, the percentage of "inappropriate" oophorectomy remained stable (36-38%). Logistic regression analysis identified Hispanic and Black race as the only demographic factors associated with an increased rate of "inappropriate" oophorectomy at the time of hysterectomy ($p<.001$), but hospital characteristics did not account for any observed differences. Endometriosis was the most common indication for "appropriate" oophorectomy.

CONCLUSION: Our study suggests that in premenopausal women undergoing benign hysterectomy and oophorectomy, over one-third of the oophorectomies may be "inappropriate." This rate does not appear to have decreased after publication of the revised ACOG guidelines. Even with a general decrease in the number of inpatient hysterectomies being performed, thousands of young women undergo potentially inappropriate oophorectomy each year with potential adverse long-term health implications.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Amandeep S. Mahal: Nothing to disclose; Chris Elliott: Nothing to disclose; Eric R. Sokol: American Medical Systems, National PI, Consulting Fees; Pelvalon, Advisor, Stock Options.



20 Transdermal light neuromodulation: First investigation of optogenetics in the urinary tract

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OBJECTIVES: This work is an initial exploration of the use of optogenetics on the lower urinary tract. This method combines genetics and optics to control the function of neurons in-vivo. Viral induced expression of a light sensitive opsin protein confers this capability to a target nerve and its branches. By genetically modifying the sciatic nerve and its tibial branch to express opsins, we aim to demonstrate a peripheral neuromodulation of bladder pain using a transdermal beam of light.

MATERIALS AND METHODS: 1) Methodology Confirmation and Application: We adapted the methodology of the Deisseroth lab (Iyer 2014). Six mice were injected with AAV6-hSyn-ChR2(H134R)-eYFP virus into their sciatic nerves. This encoded an excitatory opsin, enabling light-inducible stimulation. At four to six weeks after injection, we compared foot pain response to two blue lasers shone on the footpad. One laser was 475nm, an activating wavelength, and the other a 450nm laser, a non-activating wavelength. 2) Behavioral Pilot Study: Two additional mice were optogenetically primed. These mice and two control mice then underwent a behavioral observation. Capsaicin was instilled into their bladders via catheter under anesthesia. The catheters were then removed and the mice awoke in a chamber that exposed them to either blue 475nm light or no light. Groin licking was scored in a binary fashion by two blinded observers for 20 min divided into 5 sec intervals. Each episode of groin licking was scored as one positive event.

RESULTS: Methodology Confirmation and Application: All six mice, four to six weeks after viral injection, exhibited pain response to 475nm blue light either by licking of foot or avoidance of light (Video: https://goo.gl/NFUajY). Behavioral Pilot Study: The optogenetically primed mice had a 48% reduction in groin pain behavior when exposed to blue 475nm light whereas the control mice had a 18% reduction. (Table 1) (Video: https://goo.gl/NFUajY).

CONCLUSION: To our knowledge this is the first demonstration of the application of optogenetics to modulate sensation in the lower urinary tract. It suggests that the process of priming peripheral nerves for optogenetic modulation is feasible in mice using the sciatic nerve. It also suggests that the methodology can be used to study bladder pain response in mice. Optogenetics is a promising technique that may eventually elucidate the pathophysiology and treatment of both sensory and motor dysfunctions of the lower urinary tract.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Robert S. Kelley: Nothing to disclose; Shannon Wallace: Nothing to disclose; Giannina Descalzi: Nothing to disclose; John A. Fantl: Nothing to disclose; Charles Ascher-Walsh: Nothing to disclose.

1 Addition of pudendal blocks to pelvic floor physical therapy for the treatment of pelvic pain: A randomized, placebo controlled trial

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OBJECTIVES: Chronic pelvic pain (CPP) is a challenging clinical problem affecting 14-24% of reproductive aged women. Pelvic floor tension myalgia (PFTM) is increasingly noted in patients with CPP. The purpose of this study was to assess if the addition of pudendal blocks to pelvic floor physical therapy will result in lower pain scores and shorter treatment duration.

MATERIALS AND METHODS: Patients with newly diagnosed PFTM were randomized to weekly physical therapy with pudendal blocks or placebo saline injection for six weeks. The primary outcome measure was visual analog pain scale(VAS) at 8 weeks following treatment. Secondary outcomes measured included, tenderness and Oxford scores, Pelvic Floor Distress Inventory(PFDI), Pelvic Floor Impact Questionnaire(PFIQ), Female Sexual Function Index(FSFI) and vaginal electromyography(EMG) at rest and at maximal contraction. Randomization was performed in a 2:1 group assignment. The patient and physical therapist were blinded to the treatment assignment.

RESULTS: One hundred twenty-two patients were screened, with 40 patients enrolled in the study. Six patients dropped out following baseline examination and 34 patients completed the study (N=22 in the pudendal group, N=12 in the control group). Mean age of the group was 46 years old. No statistically significant differences were observed in baseline characteristics between groups or in baseline questionnaires. No difference was observed in the mean baseline VAS between pudendal and placebo (7.1 SD $\pm$ 0.6 vs 6.4 $\pm$ 0.8, P=0.699). Significant reduction in mean VAS were seen in the pudendal and placebo group over time (pudendal: 7.1 vs. 3.8; placebo 6.4 vs. 3.6, P<0.001). No significant differences were observed between the pudendal and placebo groups (3.8 vs. 3.6, P=0.725). Tenderness and Oxford scores significantly decreased in both groups over study duration (tenderness: P= 0.003, Oxford P=0.003), but no significant differences were observed between the pudendal and placebo groups. The PFDI and PFIQ showed significant improvement (PFDI: P=0.040, PFIQ: P=0.023), but no significant difference between groups. No significant differences over time nor group was seen in the FSFI (P=0.328) or EMG at rest. A significant difference was seen over time in EMG maximal contraction in the pudendal but not placebo group (13.74 vs.18.58, P=0.008). Eight Dindo Grade 1 adverse events were recorded during the study. The four complications in the pudendal group included 2 cases of transient leg numbness and 2 cases of vaginal bleeding. Four patients had vaginal bleeding in the placebo group that resolved with pressure.

CONCLUSION: Visual analog pain scales significantly improved over time for both groups but no group differences were observed. Significant improvement was also seen in muscle tenderness and strength over time in both groups. Patients undergoing pelvic floor physical therapy perceived less distress and less negative impact on quality of life at 8 weeks. No significant differences were seen between the pudendal and placebo groups, however this randomized trial was only powered to detect a 50% difference between groups. Smaller differences may have occurred and cannot be observed with this sample size.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Felicia L. Lane: Nothing to disclose; Karen Noblett: Nothing to disclose; Danielle Markle-Price: Nothing to disclose; Kathryn Osann: Nothing to disclose.

2 The effect of preoperative functional status and capacity on the incidence of perioperative adverse events in the super-elderly undergoing urogynecologic surgery

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OBJECTIVES: To determine the incidence of perioperative adverse events in super-elderly women undergoing urogynecologic procedures and to examine the effect of preoperative functional status and capacity on these outcomes.

MATERIALS AND METHODS: This is a retrospective analysis of all women $\geq$ 80 years of age who underwent any urogynecologic procedure (SUI, POP, SUI + POP) at a tertiary care urogynecology practice between 2006 and 2014. Subjects were identified by their CPT codes and the electronic medical record was queried for demographic, peri- and postoperative data. Functional status was recorded using data from the pre-operative anesthesia assessment, and included the functional status score (1—high functioning, 4—low functioning), and functional capacity evaluation (metabolic equivalents (METs): 1—low capacity, 8+—high capacity).

RESULTS: During the study period, 164 women who were $\geq$ 80 years of age underwent urogynecologic surgery. Mean age was 83 ($\pm$ 3, range 80-95). Procedures performed included: 5.5% SUI, 44.5% POP, 50% SUI + POP. Median follow-up after surgery was 60 (41-237) days. 66.3% of patients lived alone, 33.7% lived with family and/or a domestic partner. The median functional status and capacity (METs) scores were 2 (1-4) and 5.5 (1.75-8.0), respectively. The overall postoperative adverse event rate was 17.1% (95%CI 12.2,23.7); the incidence of serious events was 7.8% (95%CI 5.2,10.1). Most serious events were associated with medical conditions: history of MI, CHF, arrhythmia, peripheral vascular disease, history of CVA and COPD. Presence of $\geq$ 3 comorbid conditions was associated with a higher risk of postoperative readmission, need for transfusion and DVT/PE. 142 (88.2%) patients were discharged to home with self-care, 6 (3.7%) were discharged with home health services, and 13 (8.1%) were discharged to a skilled nursing facility (SNF). Functional status and capacity were not associated with postoperative adverse events. However, patients with poor functional status (scores of 3 or 4) were more likely to require services/SNF than patients with high functional status (scores of 1 or 2): 19.7% v. 7.6%, p=0.06. Lower METs scores were associated with a higher chance of postoperative need for services/SNF: 17/19 of these patients had METs scores $\leq$ 5.5 and patients with METs scores $\leq$ 4.5 were more likely to need services/SNF compared to patients with higher scores (28.9% v. 6.7%, p<0.0001; OR 4.3 95%CI 1.6,11.9). Dementia was also associated with SNF admission: 36.3% v. 10%, p=0.01; OR 3.6 95% CI 1.1,12.8. Women who lived alone and/or had a diagnosis of COPD and/or OSA were more likely to need SNF

admission, but this was not statistically significant. The association between functional capacity and need for home services/SNF admission remained significant when adjusting for BMI, COPD, OSA, dementia and marital status (adj OR 2.7 95%CI 1.7,7.8, p=0.02).

CONCLUSION: The incidence of serious postoperative adverse events is low in super-elderly patients undergoing urogynecologic procedures. Dementia and poor functional capacity appear to be associated with a higher need for postoperative home services or SNF admission.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Lisa Hickman: Nothing to disclose; Cecile A. Unger: Nothing to disclose; Blair E. Mitchell-Handley: Nothing to disclose; Matthew D. Barber: Nothing to disclose; Beri Ridgeway: Nothing to disclose.

3 Pelvic floor muscle motor unit recruitment: Kegels vs specialized movement

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OBJECTIVES: Pelvic floor exercise is clearly established as appropriate first line treatment for stress urinary incontinence and overactive bladder. The effectiveness of exercise relates to the degree of motor unit recruitment achieved during exercise. To date the Kegel exercise has been the most common recommendation for pelvic floor conditioning and rehabilitation. The purpose of this study is to compare the traditional Kegel exercise to specialized movements that incorporate voluntary pelvic floor contraction at a point in the movement where the pelvic floor is naturally engaged.

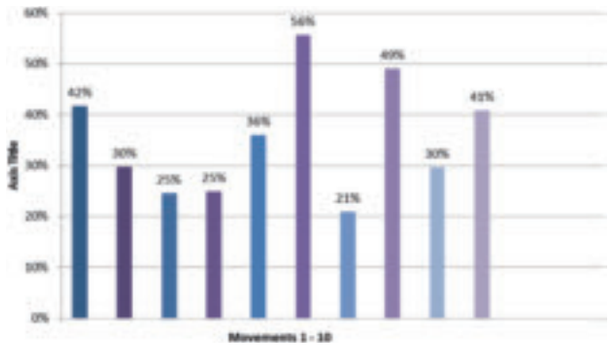
MATERIALS AND METHODS: Between January 2014 and May 2015 one hundred consecutive patients referred for pelvic floor rehabilitation were instructed as to how to perform 10 different movements know to naturally engage the pelvic floor. Subjects wore small wireless surface EMG sensors recording muscular activity from the pelvic floor, gluteals, lower abdominal muscles, and the lower extremity adductors. Video clips synchronized to 4-channel EMG were recorded for each movement. Each clip began with an isolated pelvic floor contraction before the subject performed one of the ten specialized pelvic floor movements. Mean peak pelvic floor activity during the isolated PF contraction were compared to the peak pelvic floor activity achieved during the movement.

RESULTS: Percent Greater Than Isolated Kegel

1. Lunge: 42% (0-80) p<0.001
2. Squat: 30% (-40-75) p<0.001
3. Side Lying Bent Knee Lift: 25% (14-72) p<0.001
4. Side Lying Straight Leg Circle: 25% (-33-63) p<0.001
5. Butterfly: 36% (-25-90) p<0.001
6. Bridge: 56% (15-82) p<0.001
7. Corkscrew: 21% (-50-57) p<0.001
8. Hovering: 49% (-12-80) p<0.001
9. All 4s Bent Knee Lift: 30% (-22-71) p<0.001
10. Cat Into Cow: 41% (-5-73) p<0.001

Each of the ten movements produced a mean statistically significant increase in PF activity than traditional (stationary) Kegel exercises.

CONCLUSION: Specialized movements, when performed in conjunction with voluntary pelvic floor contractions may provide greater motor unit recruitment than traditional Kegel exercises. Individuals vary as to the degree of enhanced engagement with any given movement.



DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Bruce S. Crawford: Nothing to disclose.

4 Long-term symptoms, quality of life and goal attainment after surgery versus pessary for pelvic organ prolapse

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OBJECTIVES: Pelvic organ prolapse (POP) has a negative impact on quality of life (QOL). However, treatment goals may be highly individualized as women are affected differently. When choosing between surgery and pessary, many women have information needs about long-term results and post-treatment expectations. Our objective was to compare long-term symptom and quality of life improvement and goal attainment between surgery versus pessary for POP.

MATERIALS AND METHODS: We conducted a prospective observational cohort study including women choosing surgery or pessary for symptomatic stage 2 or greater POP. Women undergoing any modality of POP surgery or those who were anticipating using a pessary long-term were eligible. Women completed questionnaires at baseline (pre-treatment) and at 6 and 12 months including: 1) Pelvic Floor Distress Inventory (PFDI) Pelvic Floor Impact Questionnaire (PFIQ) and Body Image Scale (BIS); and 2) pre-treatment goals, and post-treatment goals achieved. Treatment goals were categorized into "Symptom Goals" (prolapse, urinary, bowel, pain) or "Function Goals" (physical, social, emotional, sexual). Mean improvements in scores were compared using independent and paired t-tests. We defined a clinically meaningful improvement in symptoms as achieving at least the minimum important difference of 45 points on the PFDI. Multiple logistic regression was used to identify variables associated with not achieving goals.

RESULTS: One hundred sixty women were enrolled. Seventy-two (90%) surgical (mean follow up 12 months) and 64 (80%) pessary patients (mean follow up 8 months) had long-term data; 14 discontinued pessary use and 8 crossed over to surgery. Both surgery and pessary-continuation groups had significant improvement in PFDI, PFIQ and BIS scores (P<0.05 for all). More women choosing surgery had clinically meaningful improvements in PFDI compared to pessary users (68% vs. 45% p=0.02). In those women who did not have meaningful improvement, the majority still achieved all symptom and function goals regardless of surgery vs. pessary treatment (79% vs 83%, p=1.0 for symptom and 92% vs 100%, p=0.5 for function goals). Regarding goals, at baseline there was no difference between groups for the top pre-treatment goal type.

At follow-up, there was no difference between groups for women who achieved all symptom (85% vs 74%, P=0.2) and all function goals (89% vs 74%, P=0.2). On multiple logistic regression, only education level greater than college was associated with not achieving all goals (OR 3.0, 95% CI 1.2-7.6). Women who discontinued or crossed-over to surgery had smaller improvements in PFDI, PFIQ, and BIS scores and a lower proportion of goals achieved (P<0.05 for all) at the time of pessary discontinuation.

CONCLUSION: Women experience long-term improvements in symptoms and quality of life with either surgical or pessary treatment of POP. Although these improvements are higher in women who opt for surgical treatment, attainment of pre-treatment goals is successful with either treatment modality. This information can be useful for the decision-making process of women considering treatment for POP.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Kyle Wohlrab: Nothing to disclose; Christina A. Raker: Nothing to disclose; Vivian Sung: Nothing to disclose.

5 The low risk of concomitant adnexal surgery

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OBJECTIVES: Women undergoing laparoscopic hysterectomy for benign disease are counseled regarding prophylactic bilateral salpingectomy (BS) or salpingo-oophorectomy (BSO). We sought to determine the impact of concomitant adnexal surgery at the time of laparoscopic hysterectomy on operative time and complication rates.

MATERIALS AND METHODS: We identified patients who underwent laparoscopic hysterectomy for benign disease from 2006 through 2013 in the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database. Our inquiry was based on CPT codes for total laparoscopic hysterectomies (TLH), laparoscopic supracervical hysterectomies (LSCH) and laparoscopic assisted vaginal hysterectomies (LAVH) completed for benign disease. We identified two cohorts: women who underwent concomitant BS or BSO, and those who did not. Primary outcomes included operative time and 30-day complications. Variables were analyzed using Chi squared and Student t-tests. Multivariable logistic regression analyses were performed to control for confounding variables.

RESULTS: A total of 17,700 women underwent TLH (6251), LSCH (4483) or LAVH (6966) during the study period. Of those, 9596 (54%) underwent a concomitant BS or BSO. Women who underwent concomitant adnexal surgery were more likely to be older (48 vs 43, p<.001), non-African American (92% vs 84.6%, p<.001), be diagnosed with hypertension (25% vs 18.6%, p<.001) and have an ASA Level 3-5 (17.6% vs 11%, p<.001). Patients who underwent concomitant adnexal surgery at the time of TLH were more likely to have resident involvement (46.3% vs 38.6%, p<.001). Operative time was increased with concomitant adnexal surgery among patients undergoing LSCH (127.6 vs 119.4 min, p<.001), but not LAVH (123.6 vs 122.4 min, p=.408) or TLH (141.3 vs 144.6 min, p=.061). Overall 30-day complication rates were low (5%). The most common complications were superficial surgical site infection (n=160, 0.9%), urinary tract infection (n=390, 2.2%) and the need for blood transfusion (n=195, 1.1%). Patients undergoing LSCH without concomitant BS or BSO were more likely to require a blood transfusion than those who did undergo adnexal surgery (37 vs 11, p=.008). Adnexal surgery was associated with a decrease in the number of patients with organ/space surgical site infection (31 vs 45, p=.006) and sepsis (19 vs 11, p=.031) following LAVH. Otherwise there were no differences in complication rates between the two groups. After controlling for significant factors, there was no increase in overall morbidity or rates of reoperation among patients undergoing concomitant adnexal surgery.

CONCLUSION: Concomitant adnexal surgery at the time of laparoscopic hysterectomy for benign disease does not increase the risk for postoperative complications. Salpingectomy or salpingo-oophorectomy may increase the operative time of laparoscopic supracervical hysterectomy by a few minutes, although the clinical relevance of this difference is unclear. Further research should continue to determine the role of prophylactic salpingectomy or salpingo-oophorectomy at the time of gynecologic surgery.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Melinda Abernethy: Nothing to disclose; Brittany L. Vieira: Nothing to disclose; John Y. Kim: Nothing to disclose; K. E. Drury: Nothing to disclose; Kimberly Kenton: Nothing to disclose.

6 National assessment of advancing age on perioperative morbidity and length of stay associated with minimally invasive sacrocolpopexy

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OBJECTIVES: Sacrocolpopexy is considered the gold standard for apical prolapse repair. The use of minimally invasive sacrocolpopexy (MIS) has become popular as research shows similar outcomes and lower complication rates compared to open sacrocolpopexy. There is limited procedure specific information on perioperative outcomes for the geriatric population. The purpose of our study is to assess the impact of age on 30 day perioperative complications and length of stay (LOS) for MIS using a national database.

MATERIALS AND METHODS: We performed an IRB-exempt retrospective analysis of prospectively collected data, using the National Surgical Quality Improvement Program (NSQIP) database to analyze MIS performed at participating hospitals from 2010 to 2013. MIS was identified using CPT code 57425 as the primary procedure. Age was stratified into 5 categories: <60, 60-64, 65-69, 70-74, and >75years. Year of operation, race/ethnicity, ASA class, and body mass index (BMI) were controlled for. Complications were tabulated based on available NSQIP categories and only those with sufficient numbers were assessed using logistic multivariate regression. LOS was deemed abnormal if $\geq$ 3 days.

RESULTS: A total of 1201 patients were identified as having undergone MIS from 2010-2013 as their primary procedure. Mean patients age was 61.3 years old (+/-11.1). Most patients were White non-Hispanic (84%). A majority of patients had an ASA class of 2 (68.3%) or an ASA class of 3 (23.6%). Overall, older patients had a higher ASA class and lower BMI. The most common complications were urinary tract infection (UTI) (3.4%), readmission (2.7%), and return to the operating room (OR) (1.5%, Table 1). UTI (p=0.93), readmission (p=0.38), and return to the OR (p=0.17) were not significantly different between age groups. The most common length of stay was 1 day for all age groups. Adjusted odds ratios showed no statistically significant difference in patients requiring a hospital stay of $\geq$3 days versus 1 day across all age groups (Table 2).

CONCLUSION: Overall complication rates for MIS are low regardless of age. Return to the OR, readmission, and UTI were the most common adverse events and did not differ significantly between age groups. LOS did not significantly differ between age groups. Minimally invasive sacrocolpopexy appears to be safe among elderly patients.

Descriptive statistics of population and frequency of complications (Table 1)

		Number of occurrences			
Age	Number of patients	UTI	Readmission	Return to OR	Length of stay ≥3 days
<60	479	10	9	11	42
60-64	195	9	3	3	9
65-69	244	8	3	4	10
70-74	187	5	1	3	13
≥75	127	3	4	3	16

Adjusted odds ratios for having LOS 3+ days vs 1 days comparing age groups (Table 2)

	%	%	Odds				
Age	1 day	≥3	≥3 days vs 1 day	Odds ratio	Lower	Upper	p-value
<60	80.3	14	0.23	1.00	ref	ref	ref
60-64	86.1	6.8	0.1	0.44	0.19	1.03	0.06
65-69	87.4	12.3	0.17	0.72	0.38	1.36	0.31
70-74	90.3	14.5	0.28	1.19	0.61	2.32	0.61
≥75	76.8	20.3	0.34	1.53	0.78	3.03	0.22

(< 60 yrs as the reference age group)

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Zaid Chaudhry: Nothing to disclose; Seth Cohen: Nothing to disclose; Christopher Tarnay: Nothing to disclose.

7 Recurrent urinary tract infection after mid-urethral sling

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OBJECTIVES: Urinary tract infection (UTI) is a common complication following mid-urethral sling procedures, with reported incidence ranging from 25-50% in the first postoperative year. While recurrent UTI (≥2 UTI in 6 months or ≥3 UTI in 12 months) following mid-urethral sling is less common (2-3% reported incidence), it is more burdensome and costly. The purpose of this study is to identify risk factors for recurrent UTI in the first year after mid-urethral sling.

MATERIALS AND METHODS: This is a retrospective analysis of patients who underwent mid-urethral sling during the study period within a single FPMRS practice by 2 surgeons. Data were extracted from records of preoperative visits, operative records, and postoperative visits up to 1 year from mid-urethral sling. Data were comprised of baseline (age, BMI, parity, medical co-morbidities, history of recurrent UTI, asymptomatic bacteriuria on initial visit, sexual activity, pessary use, smoking, menopausal status, use of hormone replacement, prolapse stage, and post-void residual [PVR] on initial exam), surgical (estimated blood loss, cystotomy, additional reconstructive procedures, operative time, and antibiotic use), and postoperative characteristics (presence and duration of voiding dysfunction, sling revision if applicable, and resolution of urinary incontinence). The primary outcome was recurrent UTI within 1 year of surgery, defined by a positive urine culture or clinical symptoms requiring antibiotic treatment. Categorical variables were analyzed with Chi-square test, continuous variables with Student's *t*-tests. Unadjusted odds ratios (OR) with 95% confidence intervals (CI) were calculated on bivariate analysis comparing various covariates and recurrent UTI. Independent risk factors with OR and 95% CI were determined using multivariate logistic regression for all statistically significant covariates on bivariate analysis.

RESULTS: Five hundred patients underwent mid-urethral sling during the study period. One hundred twenty patients (24.0%) developed 1-5 UTIs and 29 patients (5.8%) met criteria for recurrent UTI. Variables significantly associated with recurrent UTI on bivariate analysis included history of recurrent UTI, asymptomatic bacteriuria on initial visit, cardiovascular disease, voiding dysfunction requiring catheterization, UTI within the first 6 postoperative weeks, PVR >100 mL at second and sixth postoperative weeks, and sling revision. On multivariate analysis, the only factors independently associated with recurrent UTI were prior history of recurrent UTI, UTI within the first 6 postoperative weeks, and PVR >100 mL at the second postoperative week (Table 1).

CONCLUSION: UTI is common within 1 year after midurethral sling; however, only 5.8% of patients develop recurrent UTI. Patients with prior history of recurrent UTI, at least 1 UTI within the first 6 postoperative weeks, and PVR >100 ml at the second postoperative week should be counseled regarding their increased risk of developing recurrent UTI within 1 year of midurethral sling surgery.

Multivariate Analysis Logistic Regression for Recurrent UTI

Variable	Odds Ratio	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound	p-value
History of Recurrent UTI prior to surgery	7.41	2.47	22.23	<0.001
UTI in first 6 weeks post-op	5.53	2.03	15.02	0.001
PVR > 100 mL at 2 weeks post-op	4.14	1.10	15.57	0.036

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Caryn Russman: Nothing to disclose; Susan Moore: Nothing to disclose; Christopher Pugh, DO: Nothing to disclose; Jaime Long: Nothing to disclose; Chi Chiung Grace Chen: Nothing to disclose.

8 Estimation of uterine size: How accurate are we?

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OBJECTIVES: Many surgical decisions are made based on estimation of weights and dimensions. The purpose of this study is to evaluate the accuracy of gynecologic surgeons at estimating uterine dimensions and uterine weight.

MATERIALS AND METHODS: Six model uteri of various sizes were created by the Virtual Education and Simulation Training (VEST) Center to simulate the size and consistency of a uterus, and displayed at 3 stations. The Visual Station (VS) comprised 2 specimens placed on an unmarked table. The Laparoscopic Station (LS) consisted of 2 model uteri, each placed in a separate simulated abdomen with a 0 degree video laparoscope and 2 operative trocars with standard instruments for frame of reference. The Blind Weight Station (BWS) consisted of blind palpation of 2 separately-weighted models (HM = heavier and LM = lighter). Participants visually estimated the dimensions of each model (height, width, and depth) for the VS and LS stations and blindly palpated the 2 BWS specimens to estimate weight. Accuracy of estimation was calculated as a variance (Actual minus Estimated measurements divided by Actual measurement). Comparative analysis was performed using the t-test and Chi-square where appropriate.

RESULTS: Participants included 15 residents, 27 attendings, and 6 medical students. There was no difference in estimation accuracy between gender or participant age. For the VS and LS groups, participants significantly underestimated all dimensions (VS variance= -15.0%; $p<0.001$ and LS variance= -31.9%; $p<0.0001$). Laparoscopic estimation of all dimensions was less accurate than direct vision ($p<0.0001$). Attendings and residents equally underestimated the 3 dimensions visually ($p=0.46$), but attendings were less inaccurate at estimating laparoscopic dimensions (-25.8% vs. -41.1%; $p=0.0001$).

All groups significantly overestimated model weights (HM = 92.5%; $p<0.001$ and LM = 132.0%; $p<0.0001$), with attendings less inaccurate than residents (39.7% vs. 167.6%; p=0.015 for HM and 52.0% vs. 238.5%; p=0.035 for LM). Over 50% of all participants missed by more than 30% for all measurements of dimension (50% for VS and 71.2% for LS) and weight (72.9% for HM and 89.6% for LM) with no difference between residents and attendings.

CONCLUSION: Gynecologic surgeons at all levels of training are inaccurate at estimating dimensions and weights. With surgical decisions often predicated on estimates, education is needed to improve estimation methods.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Tanya P. Hoke: Nothing to disclose; Babak Vakili: Medtronic, Proctor/Preceptor, Honoraria.

9 Decreasing length of stay for vaginal hysterectomy through quality improvement cycle

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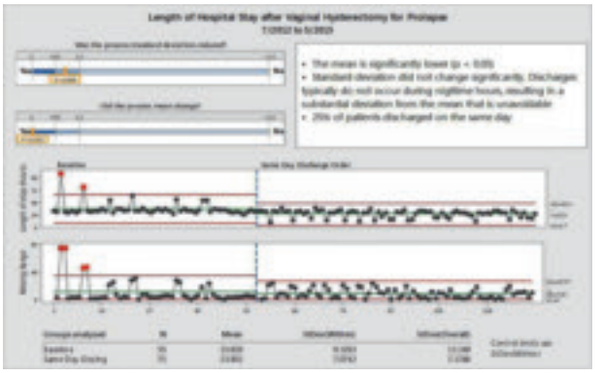
OBJECTIVES: The Division of Female Pelvic Medicine and Reconstructive Surgery at a large teaching institution performs over 60 vaginal hysterectomies (VH) for pelvic organ prolapse (POP) each year. This patient population has traditionally remained in the hospital overnight, but the length of stay is often not based on medical indications. Longer length of stay (LOS) correlates with increased cost and decreases hospital throughput. Outpatient VH protocols have been successfully implemented for more than two decades with multiple studies confirming their safety. We aimed to increase value of care by providing same-day discharge for patients undergoing VH for POP. The initial improvement cycle aim was to decrease LOS by 1 hour in patients undergoing VH for prolapse in the following 3 months. The second improvement cycle aimed to increase same-day discharges by 15% over 9 months.

MATERIALS AND METHODS: We included all subjects undergoing VH for POP with faculty Female Pelvic Medicine and Reconstructive surgeons from August 2011 to July 2013 at our institution to collect baseline LOS data. All patients undergoing VH from November 2013 to March 2014 were included in the improvement cycles. Three improvement cycles were completed (Table 1). Interventions included developing an anesthesia protocol for same-day patients, discharging patients based on criteria rather than pre-determined discharge date, and amending pre-operative counseling to ensure availability of rides home. Total hospital time for each patient was collected. After each process change, the standard deviation and mean hospital stay were analyzed for change, and displayed graphically using SPC charts by Minitab71.1 (Minitab Inc.).

RESULTS: No changes were identified following the first improvement cycle. In the study period following the second improvement cycle, the mean length of stay decreased from 34 hours to 24 hours ($p<0.05$). The standard deviation did not change significantly. A total of 25% of patients were discharged on the same day, improved from 0% prior to the improvement cycle (Figure 1). No statistically significant differences were noted following the third cycle. There was no increase in ER visits or emergent postop appointments or readmissions.

CONCLUSION: Same-day discharge is safe and feasible in the urogynecology population by changing discharge orders and instructions. Future steps include application of this model to other urogynecology procedures, including laparoscopic sacrocolpopexy and colpocleisis, and an analysis of factors leading to overnight stay.



DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Caroline E. Foust-Wright: Nothing to disclose; May Wakamatsu: Nothing to disclose; Angel Johnson: Nothing to disclose; Milena Weinstein: Nothing to disclose; Samantha J. Pulliam: Nothing to disclose.

10 Retropubic and sacrospinous anatomy using 3 dimensional imaging

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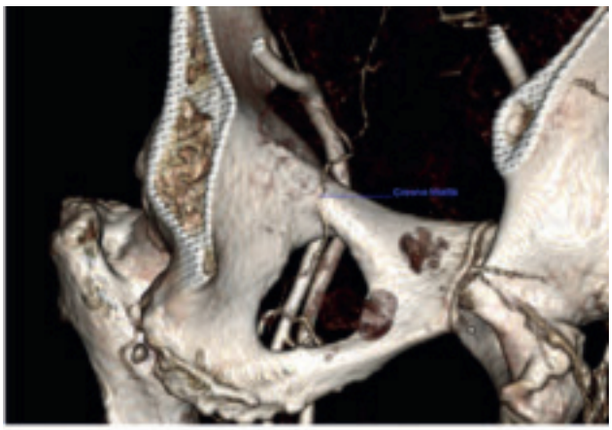
OBJECTIVES: Recent advances in digital imaging now allow for 3 dimensional study of anatomic relationships without the disruption caused by anatomic dissection. Our primary objective in this study is to record measurements and map out the important vasculatures of the retropubic space and ischial spine using a computed tomography (CT) 3D model studies. Secondary outcome is a comparison of our findings with previously published measurements of the same landmarks obtained using cadaveric studies.

MATERIALS AND METHODS: IRB approval was obtained. We retrieved the images of all adult females >18 who underwent a computed tomography (CT) pelvic angiograms within the past 5 years at our institution. The Original Digital Imaging and Communications in Medicine (DICOM) files were analyzed using the InvivoDental 5.0 (Anatomage Inc., San Jose, California) software. Tridimensional models were created using the DICOM files using the volume render component of the software. Measurements of the vascular anatomy of the retropubic space and the ischial spine were directly made on the 3D images and corroborated by 2D measurements. Participant characteristics were described with frequency and percent or mean and standard deviation. Analyses were run using Stata/MP 13.1 (StataCorp. 2013. Stata Statistical Software: Release 13; College Station, TX: StataCorp LP).

RESULTS: One hundred seventy-one studies were identified. Only the most recently obtained angiogram was used for subjects with multiple studies and 87 patients-studies were considered for the final analysis. The subject's mean (SD) age was 66.9 (± 14.4) years and mean BMI was 26.1 (± 6.3). Review of the subjects' medical records showed that 12.6% of subjects had a prior hysterectomy, 17.2% a prior laparoscopy, 2.3% a prior incontinence procedure and 1.1%

prior prolapse repair. Table 1 shows distance of several vessels from important anatomic landmarks. 27.9% of the subjects had a corona mortis. This vessel was located 45.8 (± 10.7) mm away from the midline of the symphysis pubis on the left side and 45.6 (± 10.2) mm on the right side. The obturator vessels were the closest vascular structure in regards the lower edge of the symphysis pubis with a mean distance in millimeters of 35.1 ± 7.9 and 35 ± 7.5 for the right and left obturator artery.

CONCLUSION: Corona mortis aberrant vessel is present in a relatively large proportion of our population. The presence of this aberrant vessel may be the source of significant bleeding for retropubic procedures. The vascular anatomy near the ischial spine in our analysis correlates well with prior cadaver dissections. 3-d imaging technology offers great opportunity for the study of anatomic relationships in the native undisturbed state.



View of the retropubic space showing the evidence of a corona mortis vessel

Table 1. Anatomical measurements for the ischial spine anatomy and the retropubic space anatomy.

Anatomical measurements	Mean (mm)	SD (mm)	Median (mm)
Ischial spine to left pudendal artery	8.0	3.0	7.75
Ischial spine to right pudendal artery	8.7	2.5	8.6
Midline to ischial spine left pudendal	51.3	13.4	51.5
Midline to ischial spine right pudendal	52.7	12.3	52.5
S2 to pudendal artery left	45.5	11.4	44
S2 to pudendal artery right	44.0	11.7	45
Obturator Vessels			
Midline to left obturator	35.1	7.9	35
Midline to right obturator	35.0	7.5	34.5

Anatomical measurements	Mean (mm)	SD (mm)	Median (mm)
Height of the symphisis pubis	41.8	4.4	42
midline to left inferior epigastric	56.1	10.2	56
Midline to right inferior epigastric	56.7	10.8	57
Sup border of sp to epigastric bifurcation	25.4	10.8	24.5
Midline to left external iliac artery	66.3	9.4	66
Midline to left external iliac vein	74.1	67.2	67.5
Midline to right external iliac artery	58.4	6.8	58
Midline to right external iliac vein	58.5	5.7	59
Midline to left side corona mortis	45.8	10.7	47.5
Midline to right side corona mortis	45.6	10.2	47

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Omar F. Duenas: Nothing to disclose; Youngwu Kim: Nothing to disclose; Katherine Leung: Nothing to disclose; Michael K. Flynn: Nothing to disclose.

11 Enhanced recovery safety in outpatient hysterectomy

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OBJECTIVES: Enhanced recovery in gynecologic surgery has been shown to reduce opioid use, hospital length of stay, and medical costs while having stable complication and readmission rates. Utilization of the enhanced recovery pathway in the outpatient gynecologic population has not been assessed. Inpatient populations previously examined include those undergoing staging laparotomy for gynecologic malignancies, cytoreductive surgery, or urogynecologic pelvic organ prolapse surgery. The primary objective of this study was to determine the safety of applying an enhanced recovery protocol to patients undergoing outpatient hysterectomy.

MATERIALS AND METHODS: Consecutive patients undergoing outpatient hysterectomy utilizing an enhanced recovery protocol between September 1, 2013 and August 31, 2014 were evaluated retrospectively. The primary outcomes were complication and readmission rates while secondary outcomes included perioperative data.

RESULTS: A total of 71 women met study inclusion criteria and underwent outpatient hysterectomy utilizing an enhanced recovery protocol (robotic hysterectomy, n=35; vaginal hysterectomy, n=28; laparoscopic hysterectomy, n=8). There were no intraoperative complications or hospital readmissions. Emergency department evaluation was required for 3 patients (4.23%) during the initial 6 week post-operative period. Despite successfully completing a postoperative voiding trial, urinary retention was seen in 2 patients (post-operative day number 1 and 4). Medication associated pruritus was seen in 1 patient. Primary indications for hysterectomy were bleeding (n=32, 45.07%), endometrial hyperplasia or cervical dysplasia (n=14, 19.72%), pain (n=9, 12.68%), uterine leiomyoma (n=6, 8.45%), carcinoma (n=5, 7.04%), pelvic mass (n=4, 5.63%), and prolapse (n=1, 1.41%). Patient demographics included a mean age of 49.76 years (SD=9.39), body mass index of 27.43 kg/m^2 (SD=7.22), American Society of Anesthesiologists class 1.82 (SD=0.57), and preoperative hemoglobin of 13.14 g/dL (SD=1.43). white race represented 90.14% of the cohort. Medications administered immediately prior to the hysterectomy included celecoxib (n=26, 36.62%), gabapentin (n=63, 88.73%), acetaminophen (n=64, 90.14%), and dexamethasone (n=45, 63.38%). Intraoperative medications administered included ketamine (n=36, 50.70%), ketorolac (n=42, 59.16%), and ondansetron (n=67, 94.37%). Blood loss was 75.28 mL (SD=72.23), no patients required blood transfusion, surgical duration was 83.08 minutes (SD=26.78), and uterine weight was 152 g (SD=104.20). Lymph node dissection was performed in 2 patients (2.82%) and adnexectomy in 33 patients (46.48%). The average postoperative length of stay was 6.31 hours (SD=1.97).

CONCLUSION: An enhanced recovery protocol can be safely incorporated into the management of patients undergoing outpatient hysterectomy. Use of this protocol does not increase the risk of complications or hospital readmission.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Megan Wasson: Nothing to disclose; Kristina A. Butler: Nothing to disclose.

12 Prevalence of urogynecologic diagnoses in women irradiated for pelvic cancer

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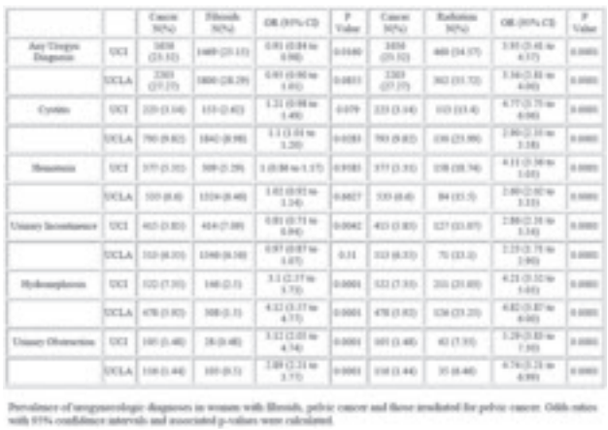
OBJECTIVES: There is currently scant evidence regarding bladder symptoms in irradiated pelvic cancer survivors; therefore, we sought to estimate the prevalence of urogynecologic diagnoses in women previously irradiated for pelvic cancer.

MATERIALS AND METHODS: Using ICD-9 diagnosis and procedure codes, we created a de-identified dataset via the University of California Cohort Discovery Tool containing all patients diagnosed with a pelvic cancer (ovary, uterine, endometrial, cervical, rectal/anal) and treated with radiation between 1992 and 2015 at University of California, Irvine (UCI) and University of California, Los Angeles (UCLA). All cases were further analyzed to determine prevalence of varying urogynecologic diagnoses. Similar variables were also measured in women with fibroids.

RESULTS: A total of 7,100 and 8,078 women at UCI and UCLA were diagnosed with a pelvic cancer between 1992 and 2015. Of these, 11.87% and 6.71%, respectively, were treated with radiation. A total of 5,842 and 20,505 women were diagnosed with fibroids. Prevalence of any urogynecologic diagnosis in the cancer and fibroid group was 23.32-28.29%, however, those exposed to radiation were diagnosed more than 50% of the time. On further stratification, odds of cystitis and hematuria were similar in the cancer and fibroid groups; yet, with radiation, the odds of diagnosis significantly increased by 2.9 to 4.7-fold. Prevalence of urinary incontinence was also significantly increased in women treated with radiation by 2.23 to 2.86-fold. Finally, relative to women with fibroids, those with cancer had an increased prevalence of hydronephrosis and urinary obstruction, which was further accentuated with radiation by 4.74 to 5.29-fold.

CONCLUSION: Radiation significantly increases the prevalence of almost every urogynecologic diagnosis relative to cancer and non-cancer controls.



Prevalence of urogynecologic diagnoses in women with fibroids, pelvic cancer and those irradiated for pelvic cancer. Odds ratios with 95% confidence intervals and associated p-values were calculated.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Sonia Dutta: Nothing to disclose; Felicia L. Lane: Nothing to disclose.

13 Validation of an educational simulation model for vaginal hysterectomy (VH) training design: Prospective cohort study

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OBJECTIVES: The Miya Model is a female pelvic anatomy model designed for realistic gynecologic surgical simulation. The model has life-like features to simulate actual surgical experiences including vaginal epithelium, pelvic viscera, realistic cutting and puncturing tensions, palpable surgical landmarks, a pressurized vascular system that bleeds, and an inflatable bladder that will leak if damaged. We hypothesized that for the performance of VH, the model would discriminate between novice and experienced surgeons using operative times, blood loss and overall surgical skills as judged on video review using the ACOG VH Assessment Tool (ACOG Simulation Consortium, ASSESS Course Instructor Manual).

MATERIALS AND METHODS: Twenty physicians, 10 Ob/Gyn residents (novice group) and 10 practicing gynecologists (experienced group, mean number of years in practice = 14.3 years) were recruited to participate in the study. All surgeons were instructed to perform a VH on the model according to the procedural steps outlined by the Society of Gynecologic Surgeons and ACOG. Each participant was given a maximum of 60 min and was filmed during the simulated surgery. Either the time taken to complete the procedure or the step that the surgeon reached at 60 min was recorded. Blood loss was measured. Participants evaluated the model using a post-simulation survey and the surgical videos were reviewed and scored by two independent pelvic surgeons using the ACOG assessment tool. The primary comparative outcome was surgical performance using operative time, blood loss and ACOG assessment score. Secondary outcomes included participant satisfaction with the model, realism the model offers and subjective value as surgical simulator.

RESULTS: A total of 10 residents (PGY2=5; PGY3=3; PGY4=2) and 10 attending surgeons were included. Procedure time, blood loss, incomplete procedures, and satisfaction scores are listed in the Table. All participants expressed high satisfaction with the simulation and reported the model offered a realistic educational opportunity consistent with their surgical experience. The videos of the procedures are currently being independently reviewed and scored and will be available for presentation at the meeting.

CONCLUSION: The Miya model was able to discriminate between novice and experienced surgeons using the ACOG assessment tool and operative time. All users scored the model as an objective, consistent and realistic training tool for the simulation of vaginal hysterectomy in this study.

Table.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Douglas Miyazaki: Miyazaki Enterprises, owner, ownership interest; Boston Scientific, Speaker, Honorarium; American Medical Systems, Speaker/Trainer, Honorarium; Pelvalon, Consultant, Consultant; Catherine Mathews: Miyazaki Enterprises, owner, ownership

interest; Boston Scientific, Speaker, Honorarium; American Medical Systems, Speaker/Trainer, Honorarium; Pelvalon, Consultant, Consultant; Amr Sherif El Haraki: Nothing to disclose.

14 Usefulness of phenazopyridine in intraoperative cystoscopy

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OBJECTIVES: Historically, intravenous indigo carmine was often used during intraoperative cystoscopy to aid in assessment of ureteral patency. Since this medication is no longer available pelvic surgeons are looking for an alternative to aid in assessment of ureteral patency during cystoscopy. Our objective was to evaluate the usefulness of preoperative phenazopyridine (PP) for confirmation of ureteral patency during intraoperative cystoscopy.

MATERIALS AND METHODS: This is a randomized study of preoperative PP use. Study candidates were consented at the preoperative visit and randomized to one of two groups. Subjects in the treatment group were given PP to take prior to reporting to the hospital on the day of surgery. Subjects in the control group were not given PP. Baseline demographics were collected, including age, body mass index, surgical and medical history, pelvic examination results. During the surgical procedure, time to visualize ureteral jets on cystoscopy was recorded. At the completion of each procedure, the attending surgeons completed a survey regarding confidence that ureteral injury was ruled out and overall satisfaction with the cystoscopy, and for the treatment group the surgeons commented whether or not PP was helpful. Procedure data were also collected: procedure performed, operative duration. Postoperatively, data on urethral pain and trial of void (TOV) results were collected. Power analysis indicated that 98 subjects were required to detect a difference in time to visualize ureteral jets. Student's t-test was used to evaluate cystoscopy time and surgeon questionnaires. Categorical variables were compared using Fisher's exact and chi square tests.

RESULTS: Although enrollment is ongoing, data for 55 subjects are available: 30 in the control, and 25 in the treatment group. No significant differences were found between group demographics. There were no adverse events related to PP use. Time to visualize ureteral jets was not significantly different between the groups with a mean time of 2.9 ($\pm$3.2) minutes in the control group and 2.2 ($\pm$2.1) minutes in the treatment group ($p=0.34$). Surgeons felt more confident that ureteral jets were visualized in the treatment group ($p<0.03$), and more frustrated in trying to visualize ureteral jets in the control group ($p=0.008$). Additionally, surgeons felt that the cystoscopy took longer than preferred in the control group ($p=0.01$). Among treatment group subjects, surgeons felt that PP was helpful in ureteral jet evaluation (mean 4.3 on a 5-point Likert scale) and that it rarely made evaluation of bladder mucosa difficult (mean 1.6 on a 5-point Likert scale).

CONCLUSION: While use of PP did not decrease time to visualize ureteral jets, it did have a significant impact on surgeons' confidence that ureteral jets were seen and improved overall satisfaction with cystoscopy. This information, together with an absence of adverse events, allows us to conclude that use of PP is helpful and safe for routine use in procedures where ureteral patency is evaluated using cystoscopy.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Katie Propst: Nothing to disclose; David M. O'Sullivan: Nothing to disclose; Christine LaSala: Nothing to disclose; Elena Tunitsky: Nothing to disclose.

15 The effect of surgery on sexual function in women with suspected gynecologic malignancies

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OBJECTIVES: The impact of surgery on sexual function is not well understood; thus, the objective of this study was to investigate the effect of surgery on sexual function in women undergoing surgery for presumed or known gynecologic malignancies.

MATERIALS AND METHODS: This is an ancillary analysis of a cohort study analyzing quality-of-life and operative outcomes in women undergoing gynecologic oncology procedures. Women $>$ 18 years who presented for primary surgical management were prospectively enrolled from 10/2013 to 10/2014. Demographics and medical data were abstracted from the medical record. Subjects completed the Patient-Reported Outcomes Measurement Information System Sexual Function and Satisfaction Questionnaire (PROMIS-SFQ) providing a preoperative baseline of sexual interest, desire and satisfaction, with follow up interviews at 1, 3, and 6 months post-operatively focused on sexual interest and desire. Student t-test and linear regression were used to compare mean score changes (difference of differences: DoD) between cancer types, surgical route, menopausal status (age $>$ 55) and postoperative complications.

RESULTS: Of 185 women enrolled, 167 women (90.3%) completed baseline PROMIS-SFQ, 165 (89.2%) completed 1 month, 150 (81.1%) completed 3 month, and 148 (80.0%) completed 6 month follow-up surveys. The mean age at enrollment was 56.5$\pm$13.3 years, and mean BMI was 32.8$\pm$9.1 kg/m^2. The majority of subjects were white (77.3%). Following surgery, 131 subjects (70.8%) were diagnosed with a malignancy – 88 (66.1%) with endometrial, 23 (18.1%) with ovarian, 17 (13.4%) with cervical and 3 (2.4%) with vulvar cancer. The mean baseline sexual interest score was 44.8$\pm$10.2. At 1 month postop, the mean decreased 3.8 pts from baseline. By 3 months, scores increased +1.9 pts, and at 6 months was +2.7 pts from baseline. There were no differences in the magnitude of change by cancer site, surgery type, or post-operative complication. Women age $<$ 55, however, had a greater decrease in sexual interest from baseline to 1 month than women age $>$ 55 (-5.5$\pm$1.0 vs -2.3$\pm$0.9, $p=0.02$). On multivariate analysis which adjusted for cancer diagnosis, minimally invasive surgery, and cancer site, age $<$ 55 remained associated with a larger decrease in sexual interest at 1 month postop (DoD: -4.59, 95%CI: -1.8, -7.4), as did having cancer vs. benign disease (DoD: -5.6, 95%CI: -9.6, -.15).

CONCLUSION: This study provides new normative data regarding the timing and magnitude of changes in sexual function following gynecologic oncology procedures. Notably relevant to pre-operative counseling, pre-menopausal age was associated with a greater temporary decline in sexual desire at 1 month postop. Increasing awareness of the impact of surgery on sexual function in this special cohort of patients will improve care and counseling for these women in the perioperative setting.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Carol E. Bretschneider: Nothing to disclose; Jeannette T. Bensen: Nothing to disclose; Elizabeth J. Geller: Nothing to disclose; Paola A. Gehrig: Nothing to disclose; Jennifer M. Wu: Nothing to disclose; Kemi Doll: Nothing to disclose.

16 Characterization and preoperative risk stratification of leiomyosarcoma at a high-volume tertiary care center

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OBJECTIVES: Here we sought to describe patient characteristics, preoperative presentation and evaluation, as well as intra- and postoperative outcomes in cases of leiomyosarcoma as compared to women without leiomyosarcoma undergoing hysterectomy at a single institution.

MATERIALS AND METHODS: From January 2005 to April 2014, a retrospective case-control study of patients undergoing hysterectomy for leiomyosarcoma versus temporally matched controls was performed.

RESULTS: A total of 31 cases of leiomyosarcoma were compared with 124 hysterectomy controls at Magee-Womens Hospital. The majority of leiomyosarcomas were in postmenopausal women (60% vs. 32.8%; p=0.05) with a mean age of 55.2 who were less likely to have undergone bilateral tubal ligation (3.2% vs. 30.6%, p=0.002). Preoperative exam showed uterine enlargement (19 vs. 9 weeks, p <0.001) in concordance with a primary presenting complaint of a pelvic mass in 35% of patients with leiomyosarcoma vs. 8.9% of the controls (p=0.001). Women with leiomyosarcoma tended to be less likely to present with abnormal bleeding (32.3% vs 51.6%; p=0.054) or prolapse (0% vs. 18.5%; p=0.008). LDH was not significantly different between the groups (p=0.473). Half of all patients had endometrial sampling performed, with 50.0% of the samples in the LMS group demonstrating malignancy compared to only 14.3% in controls (p<0.001). 48.4% of leiomyosarcoma cases underwent multiple imaging modalities preoperative with CT being utilized significantly more frequently than in controls (67.7% vs. 24.2%; p<0.001). There was no difference in the number of fibroids on preoperative imaging between the two groups (48.4% vs. 45.3%; p=0.837). Interestingly, while 82.9% of controls with preoperative fibroids on imaging were confirmed to also have fibroids on final pathology, this correlated in only 26.7% of leiomyosarcoma cases. Although leiomyosarcoma was rarely identified preoperatively, 77.4% of cases were performed by a gynecologic oncologist (p <0.001) with 83.9% of hysterectomies performed via an open rather than a minimally invasive approach (p<0.001). Intraoperative differences were noted in estimated blood loss (828 mL vs. 150 mL; p<0.001) and uterine weight (1833g vs. 234g; p<0.001), but not in time or complications. Morcellation occurred in 6.5% leiomyosarcomas vs. 19.5% controls (p=0.083). Survival at the end of the study was 91.5% in controls and 48.3% in leiomyosarcoma patients (p<0.001).

CONCLUSION: Risk stratification suggests that leiomyosarcomas becomes more frequent in postmenopausal women presenting with a pelvic mass. We were unable to find other pre-operative indicators that reliably predict leiomyosarcoma. Comparison of preoperative imaging and specimen pathology suggests that uterine pathology in leiomyosarcoma cases may be misdiagnosed as benign fibroids preoperatively. Furthermore, endometrial sampling is benign in half of leiomyosarcoma cases and should not be reassuring in the correct clinical setting. Morcellation appears to be an overall rare event with the majority of leiomyosarcoma cases being performed via an open approach by an oncologic surgeon.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Ann Peters: Nothing to disclose; Amanda M. Sadecky: Nothing to disclose; Daniel Winger: Nothing to disclose; Richard Guido: Nothing to disclose; Ted Teh MIn Lee: Ethicon, Consultant, Consulting Fee; Suketu Mansuria: Nothing to disclose; Nicole M. Donnellan: Nothing to disclose.

17 Inappropriate use of prophylactic antibiotics in gynecologic surgery at an academic tertiary medical center

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OBJECTIVES: The objective of this study was to evaluate the use of antibiotic prophylaxis for gynecologic procedures in which they are not indicated based on ACOG guidelines over a 2-year period in a Midwest academic tertiary care hospital.

MATERIALS AND METHODS: Retrospective study of all women who underwent a gynecologic procedure in which antibiotics were not indicated at a Midwest, academic, tertiary care hospital from January 1, 2012 through December 31, 2013. Patients were identified using Current Procedure Terminology (CPT) codes for those gynecologic procedures in which antibiotics are not indicated by, "Practice Bulletin No. 104: Antibiotic Prophylaxis for Gynecologic Procedures." Exclusion criteria were procedure completed by a physician from outside the OB/GYN department and concomitant procedure for which antibiotics were indicated. Inclusion criteria were any woman who underwent a gynecologic procedure for which antibiotics were not indicated during the study period. If patient's had more than one procedure in which antibiotics were not indicated completed on the same day, only the first procedure was included in the analysis. Primary outcome was proportion of patients receiving antibiotics for procedures in which antibiotics were not indicated. The characteristics considered for analysis were diabetic at time of surgery, medically immunosuppressed at time of surgery, BMI, entrance into abdomen, estimated blood loss (EBL), time under anesthesia (TUA), wound class, individual surgeon, presence of postoperative adverse event, and postoperative admission. Relationship between categorical variables and preoperative antibiotic use were evaluated by Chi-squared or Fisher exact analyses, as appropriate. BMI was not normally distributed and relationship to preoperative antibiotic was evaluated by Kruskal-Wallis one-way ANOVA.

RESULTS: Preoperative antibiotics were used in 23% of the cases where antibiotics were not indicated. When controlling for BMI, diabetes, and immunosuppression, logistic analysis ($R^2 = 0.40$; $p < 0.00001$) of 915 patients with all available variable data found three variables that were independently associated with administration of preoperative antibiotics: abdomen entered during surgery ($p = 0.040$), TUA ($p < 0.00001$), and individual surgeon ($p < 0.00001$). Other variables not included in this model that were positively related to preoperative antibiotic use include: high EBL (>500cc, $p < 0.00001$) and the occurrence of any adverse postoperative event ($p = 0.011$). Surgeon's highest level of training at our institution was negatively related with preoperative antibiotic use ($p < 0.00001$).

CONCLUSION: Antibiotics were used inappropriately in 23% of gynecologic surgeries completed at our institution over a 2-year time period. Factors that independently increased the likelihood of receiving preoperative antibiotics included entering the abdomen during surgery, time under anesthesia, and individual surgeon.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Kevin M. Kremer: Nothing to disclose; Kassie J. Hyde: Nothing to disclose; John S. Joyce: Nothing to disclose; Erma Z. Drobnis: Nothing to disclose; Raymond T. Foster: Nothing to disclose; Lisa Brennaman: Nothing to disclose.

18 Incontinence rates after midurtheral sling revision for vaginal exposure or pain

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OBJECTIVES: We describe the rate of postoperative urinary incontinence (UI) after midurethral sling (MUS) revision for the indication of vaginal mesh exposure and vaginal pain, as well as postoperative complaints of urgency and pain.

MATERIALS AND METHODS: This is an IRB approved retrospective cohort of patients who had undergone a vaginal synthetic mesh MUS sling revision at our institution from May 2004 to May 2014 for the indication of mesh exposure or pain. The preoperative indication for revision was collected as well as baseline characteristics including preoperative complaints of UI, pain and urgency. The type of sling revision was then separated into partial excision or complete excision. A partial removal of the sling was defined as removing only the portion of the sling that was exposed or causing pain. A complete removal of the sling was defined as both arms of the sling dissected out to bilateral pubic rami and then excised. Postoperative visits were reviewed for subjective complaints of UI, pain and urgency at short term (</= 16 weeks) and long term (>16 weeks) visits. The primary outcome of the study was recurrent rate of UI and the secondary outcomes were postoperative pain and urgency rates. Statistics were performed using Stata Statistical Software: Release 13. (StataCorp. 2013. College Station, TX).

RESULTS: Ninety-four patients were identified to have undergone vaginal MUS removal for the indication of mesh exposure; 36 (38%) were partial and 58 (62%) were complete removal of the sling material. One hundred fifty-one patients were identified to have vaginal sling removal for the indication of pain; 25 (17%) had partial and 126 (83%) had complete removal of their sling. All patients had a short term follow up visit with a median follow up time of 5.9 weeks and 69% patients had a long term follow up visit with mean follow up time of 29 weeks. No difference was seen in preoperative complaints of UI, urgency or pain in either groups between the revision types performed. In the patients with the indication of mesh exposure with no preoperative complaint of UI, there is a significant increase in postoperative UI with complete excision versus partial excision of the sling at short term and long term follow up. In the patients with the indication of pain, a trend toward increase in newly reported postoperative UI with complete excision of the sling was seen at long term follow up, but this was not significant (Table 1). In the pain patients, 72% of partial excision and 76% of complete excision patients had resolution of their pain post operatively. No difference was seen in postoperative complaints of urgency or pain in either groups between the revision types performed.

CONCLUSION: There is a difference in incontinence rates after partial and complete vaginal excision of MUS for the indication of mesh exposure and possibly for the indication of pain, with complete excision bearing the highest risk of postoperative incontinence in this cohort.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Lisa H. Jambusaria: Nothing to disclose; Jessica Heft: Nothing to disclose; Denise Montagnino: Nothing to disclose; William S. Reynolds: Nothing to disclose; Roger R. Dmochowski: Nothing to disclose; Daniel H. Biller: Nothing to disclose.

19 Predictors of early postoperative voiding dysfunction and other complications following a midurethral sling

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OBJECTIVES: Identify preoperative predictors for failed voiding trial (VT) following isolated midurethral sling (MUS).

MATERIALS AND METHODS: Following IRB approval, we performed a comparative study on a retrospective cohort including all isolated MUS procedures performed between 1/1/10 to 6/30/15 at 5 academic centers. We collected demographics, medical and surgical histories, voiding symptoms, urodynamic evaluation (UDE), type of MUS and surgical time from the medical record. We excluded intraoperative complications requiring prolonged catheterization. *Cases* failed a postoperative VT and were discharged with an indwelling catheter or taught intermittent self-catheterization (ISC); *controls* passed a VT. We also recorded any adverse events such as UTI or voiding dysfunction up to 6 weeks after surgery. Bivariate analyses were completed using Student's t-test or Mann-Whitney and Pearson chi-square as appropriate. Multivariate stepwise logistic regression was used to determine predictors of failing a VT.

RESULTS: Four hundred two patients had an isolated MUS (317 retropubic, 82 transobturator, 3 single-incision); 22.4% failed the initial VT. At follow-up visits, 90.5% passed a second VT, and 41.7% of the remainder passed on third attempt. Bivariate analyses: Prior prolapse or incontinence surgery was similar between cases and controls (24% vs 20%, p=0.347) as were age, race, BMI, and operative time. Sense of incomplete emptying prior to surgery was noted in 33% vs 26%, p= 0.204, and recurrent UTIs were reported by 14% vs 10%, p=0.297. Overactive bladder symptoms and urge incontinence were similar in both groups, but detrusor overactivity (DO) was more common in cases (32% vs 23%, p=0.088). Mean(SD) bladder capacity was similar in both groups [406(148)mL vs 385(121)mL, p=0.203] as was max flow with uroflowmetry (UF) and pressure flow studies (PFS). Postvoid residual (PVR) with UF was 28.5(49.3)mL vs 19.2(29.1)mL, p=0.126; and on PFS was 61.6(133.8)mL vs 35.8(68.8)mL, p=0.112. Cases were significantly more likely to have a voiding type *other than detrusor contraction*: 41% vs 29%, p=0.044, OR 1.72 (95% CI: 1.01-2.93). There was no difference in VT failures between retropubic and transobturator routes (22% vs 24%, p=0.656). Within 6 weeks of surgery, the frequency of UTI in cases was greater than controls [22.1% vs 7.6%,

p<0.001; OR 3.45 (1.78 to 6.70)]. After passing a repeat VT, cases were more likely to present with acute urinary retention [11.8% vs 3.3%, p=0.004; OR 3.91 (1.57-9.73)]. Multivariate analyses: In women with complex UDE (84% of patients), presence of DO (p=0.037, OR 1.85, 1.04-3.28) and increased PVR on PFS (per 10mL increase, OR 1.03, 1.003-1.058) predicted increased likelihood of VT failure. We did not identify any demographic or historical information among patients who did not undergo UDE that reliably forecasted VT failure.

CONCLUSION: The majority of women will pass a VT on first attempt after isolated MUS. Presence of DO or increasing PVR on PFS predicted increased probability of failing initial VT while demographic and other findings were not predictive. Patients failing the initial VT are at increased risk of postoperative UTI or developing acute retention after passing a subsequent VT.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Christopher Ripperda: Nothing to disclose; Joseph Kowalski: Nothing to disclose; Zaid Chaudhry: Nothing to disclose; Amandeep S. Mahal: Nothing to disclose; Jennifer Lanzer: Nothing to disclose; Linda Hynan: Nothing to disclose; Peter C. Jeppson: Nothing to disclose; David D. Rahn: Nothing to disclose.

20 Laparoscopic supracervical hysterectomy (LSH) with sacrocervicopexy: The use of posterior colpotomy for uterine removal

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OBJECTIVES: Laparoscopic sacrocervicopexy after LSH is a common surgical procedure for correction of uterovaginal prolapse. For many surgeons using laparoscopic or robotic techniques, the uterine fundus was removed using a power morcellator, enabling the procedure to be done with small port sites. In 2014, the FDA issued guidelines suggesting that the use of these morcellators may contribute to the spread and upstaging of unsuspected uterine cancer in women undergoing hysterectomy and myomectomy. This recommendation poses new challenges to surgeons who want to continue to offer their patients a minimally-invasive approach. Surgeons are currently using several techniques to remove the uterine fundus, including minilaparotomy and contained morcellation within a bag. An alternative technique we have been employing is removal of the uterine fundus after LSH through a posterior colpotomy. This technique allows us to avoid a larger abdominal skin incision, and thereby keep all our port sites to 5 mm or less. Our aim is to describe our surgical technique as well as report on our intra- and post-operative experiences with these patients.

MATERIALS AND METHODS: This is a retrospective analysis of patients who underwent LSH with sacrocervicopexy and posterior colpotomy to remove the uterine fundus vaginally between January 2013 and August 2015. Our technique involves cervical coring after the LSH, which allows us to place a 12 mm laparoscopic cannula vaginally. It is through this cannula that the Y-mesh and suture needles are introduced and removed from the abdominal cavity. The posterior colpotomy is performed distal to the edge of the posterior mesh after the mesh has been attached to the cervix, but before sacral attachment.

RESULTS: Twenty patients were identified who underwent the procedure with a lightweight polypropylene Y-mesh. Demographic information is as follows expressed as median (range): age 59 yrs (39-73), parity 3(1-5), BMI 23.4 (17.3-33.1), stage of prolapse 2 (2-4). Intraoperative and immediate post-operative data are as follows expressed as mean (range): surgical time 235 mins (181-480), hospital stay 1 day (1-2), EBL 50 mL (50-200), uterine weights 71.6g (18-266). There were no intraoperative complications (hemorrhage, cystotomy, enterotomy, transfusion) and no immediate post-operative complications (transfusion, fever requiring antibiotics, small bowel obstruction, re-operation). Concomitant procedures included 2 anterior, 2 posterior repairs and 9 perineorrhaphies. 12 patients had mid-urethral slings performed. All patients returned for their 6-week post-op visit. Pelvic exam revealed excellent pelvic floor support and no colpotomy separation, bleeding, hematoma, fistula, mesh exposure or abnormal wound healing. Pain was well controlled. Patients were not sexually active at their 6-week visit, but those who followed up at later visits did not complain of dyspareunia.

CONCLUSION: We conclude that performing a posterior colpotomy to remove uterine specimen vaginally during LSH and sacrocervicopexy is feasible and avoids enlarging abdominal incisions. This should decrease post-operative pain, hospital stay and morbidity for patients, while providing cosmetic appeal.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Nabila Noor: Nothing to disclose; Emily Von Bargen: Nothing to disclose; Hussein Warda: Nothing to disclose; Peter L. Rosenblatt: Nothing to disclose.

21 Poor nationwide utilization of minimally invasive surgery in early-stage uterine cancer: An HCUP-national inpatient sample database study

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OBJECTIVES: Minimally invasive surgery (MIS) is a Society of Gynecologic Oncology and American College of Surgeons Commission on Cancer quality measure for early-stage endometrial cancer. Our objective was to perform a contemporary analysis of the nationwide uptake of MIS for endometrial cancer and associated inpatient complications and costs.

MATERIALS AND METHODS: The National Inpatient Sample Database was used to analyze patients with non-metastatic endometrial adenocarcinoma who received a hysterectomy in 2012. Vaginal, laparoscopic, and robot-assisted hysterectomy were considered MIS. Open surgery was defined as subtotal or total abdominal hysterectomy. Hierarchical multiple logistic regression was used to compare complications among patients treated with open surgery versus MIS and to identify patient and hospital factors associated with choice of surgical approach. Costs of care were compared between open surgery and MIS utilizing linear regression.

RESULTS: In sum, 5,239 patients were identified; 51.3% underwent open surgery and 48.7% had MIS. Open surgery was more likely to be performed in rural hospitals (OR 8.64), in the Midwest and South (OR 1.24 and 1.40, respectively), and government hospitals (OR 1.70). Patients were significantly less likely to receive open surgery in high and medium endometrial cancer volume hospitals (OR 0.31 and 0.29, respectively). Patient factors associated with open surgery included Black race (OR 1.34) and self-pay status (OR 1.66). Additionally, open surgery was associated with increased overall complications (OR 3.47), surgical complications (OR 2.83),

major blood loss (OR 4.20), and hospital stay >2 days (OR 66.70). Other factors associated with complications included household income and payer status. Overall costs were similar between MIS and open surgery ($14,153 and $14,047, respectively). Surgical complications resulted in a median increase in cost of $3,067 per surgery.

CONCLUSION: Despite Level I data supporting the use of MIS hysterectomy for the treatment of early-stage endometrial cancer, in 2012, the rate of open abdominal hysterectomy in the U.S. remains alarmingly high. These data indicate identical costs of care for MIS and open surgery, but a 3.5 times greater risk of complications with open surgery. We anticipate that the rate of MIS and corresponding quality of care will improve with recent adoption of Commission on Cancer measures.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Diana B. Mannschreck: Nothing to disclose; Sean Dowdy: Nothing to disclose; Edward Tanner: Nothing to disclose; Rebecca Stone: Nothing to disclose; Amanda Fader: Nothing to disclose.

22 Prevalence of occult pre-malignant or malignant pathology at the time of uterine morcellation for benign disease

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OBJECTIVES: To determine the prevalence of occult pre-malignant or malignant uterine pathology at the time of laparoscopic surgery utilizing open uterine morcellation (OUM) for benign gynecologic disease and to identify preoperative risk factors.

MATERIALS AND METHODS: We conducted a multicenter, retrospective cohort study of women who underwent OUM for benign indications from January 2007 through February 2014 at three institutions. We collected demographic, preoperative and postoperative data from electronic medical records. The primary outcome was pre-malignant or malignant pathology at the time of OUM.

RESULTS: During this period, 1214 women underwent OUM and 14 (1.2%) were identified as having occult pre-malignant or malignant pathology. Among these cases, 6 (42.9%) had endometrial hyperplasia and 8 (42.8%) had an occult uterine malignancy. In the pre-malignant group there were 3 (50.0%) simple hyperplasia without atypia, 1 (16.7%) simple atypical hyperplasia, 1 (16.7%) complex hyperplasia without atypia and 1 (16.7%) endometrial intraepithelial neoplasia. Of the malignant cases, 5 (62.5%) had endometrial adenocarcinoma (EAC), 1 (12.5%) had low-grade endometrial stromal sarcoma (ESS), 1 (12.5%) had uterine tumor resembling ovarian sex cord tumor, and 1 (12.5%) had atypical leiomyoma. There was 1 case of endometrioid adenocarcinoma of the ovary (ovary not morcellated) that underwent a full staging procedure and intraperitoneal chemotherapy. All 5 cases of EAC underwent a second operative staging procedure. Four had grade 1 EAC and required no adjuvant therapy. One case of grade 2 EAC required radiation, and the 1 case of grade 3 EAC with serous features had chemotherapy and vaginal cuff radiation. The cases of uterine tumor resembling ovarian sex cord tumor and low-grade ESS required a second operative procedure. The atypical leiomyoma occurred in a myomectomy specimen, and resulted in a total abdominal hysterectomy. All 8 cases are disease free as of last follow-up. There was no difference in preoperative characteristics including BMI, parity, history of hypertension, diabetes, breast cancer or smoking history between those with abnormal and normal pathology ($P \geq 0.06$ for all). The prevalence of uterine malignancy was 1.1% among pre-menopausal women and 1.2% among postmenopausal women. Six of the 7 patients with abnormal uterine bleeding (AUB) with subsequent pre-malignant or malignant pathology had a benign pre-operative endometrial biopsy. None of the 7 women undergoing surgery for prolapse or fibroids without AUB had a preoperative biopsy.

CONCLUSION: In this large cohort of women undergoing OUM for benign indications, the prevalence of endometrial adenocarcinoma was 0.41%, and 0.08% for low-grade ESS. There were no cases of leiomyosarcoma. We did not identify any potential risk factors for abnormal uterine pathology, though the small number of women with abnormal uterine pathology limits our power to detect potentially meaningful associations. One should consider further investigational procedures in women with a history of AUB and a negative endometrial biopsy who are undergoing uterine morcellation.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Emily C. Von Bargen: Nothing to disclose; Cara Grimes: Nothing to disclose; Kavita Mishra: Nothing to disclose; Rui Wang: Nothing to disclose; Miriam Haviland: Nothing to disclose; Joseph Carnevale: Nothing to disclose; Alyssa Estes: Nothing to disclose; Mireille D. Truong: Nothing to disclose; Michele R. Hacker: Nothing to disclose; Eman A. Elkadry: Nothing to disclose.

23 Risk factors for 30-day perioperative complications for total vaginal hysterectomy

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OBJECTIVES: To identify rates and risk factors for 30-day perioperative complications in women undergoing total vaginal hysterectomy (VH) using a large national surgical database.

MATERIALS AND METHODS: Women who underwent VH from 2005-2013 were identified using CPT codes from the American College of Surgeons National Surgical Quality Improvement Program Database. We excluded women with malignancy and those undergoing concomitant procedures not directly related to VH from the analysis. Intraoperative bladder, bowel, and ureteral injuries requiring repair were determined by corresponding CPT codes. We compared those with and without postoperative and intraoperative complications. Demographic, surgical, and pre-operative laboratory variables were compared between groups. Continuous variables were compared using Student's t-test or Mann-Whitney U test. Chi-squared was used to compare categorical variables. Those variables meeting statistical significance on univariate analysis at a level of $p=0.05$ were then used in the backwards binary logistic regression.

RESULTS: We identified 17,335 women who had VH. The majority was white (75.8%) with a mean age of 52 $\pm$ 13.5 years. Nearly half (45.8%) had a concomitant prolapse repair; 27.8% had a concomitant adnexectomy; and only 18.4% underwent cystoscopy. of cases. 9.3% of patients experienced a perioperative complication. The most common complication was UTI (3.9%). Bladder,

bowel and ureteral injuries were infrequent, occurring 0.8%, 0.05%, and 0.04% respectively. 30-day readmission and reoperation rates were 1.9% and 1.5%. The only factor associated with *overall complications* was a statistically, but not clinically significant, lower hematocrit (38.7 v 39.1, p=0.001) in the complication group. When UTI was excluded as a complication, several perioperative variables were associated with complications. Table 1 displays factors associated with overall perioperative complications excluding UTI in our regression model. When *intraoperative complications* were examined, concomitant adnexectomy (p=0.03) and non-elective surgery (0.02) were associated with complications.

CONCLUSION: VH is a safe, minimally invasive procedure with few complications. Not surprisingly, complications at the time of VH are associated with poorer health status or chronic diseases. Concomitant adnexectomy is also associated with higher complication rates as is resident participation in the case. Surgeons should maximize modifiable risk factors prior to VH to reduce morbidity.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Alix Leader-Cramer: Nothing to disclose; Bhumy Dave: Nothing to disclose; Katarzyna Bochenska: Nothing to disclose; Margaret G. Mueller: Nothing to disclose; Christina Lewicky-Gaupp: Nothing to disclose; Kimberly Kenton: Nothing to disclose.

24 Prevalence of cognitive impairment among elderly urogynecologic patients

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OBJECTIVES: To determine the prevalence of cognitive impairment in a urogynecology ambulatory population and to establish the feasibility of using standardized, validated screening questionnaires in a tertiary care setting.

MATERIALS AND METHODS: After IRB approval, all English-speaking patients 65 years or older presenting to our ambulatory urogynecology clinic were invited to participate. Cognitive impairment was assessed using both the validated Mini-Cog test and the AD8 (Eight-item Interview to Differentiate Aging and Dementia) screen for mild dementia. A Mini-Cog score < 3 suggests cognitive impairment, while an AD8 score of ≥ 2 discriminates dementia from normal cognition. Due to the association of depression and cognition in the elderly, the Geriatric Depression Scale (short form of 15 items) was administered with a score > 5 suggesting depression. Demographic and medical history were abstracted from the medical record.

RESULTS: Three hundred seventy-one subjects were asked to participate (39 were excluded and 37 declined); 295 subjects (79.5%) were included in the study. Mean subject age was 74.5 years (SD 6.9), 96.6% white, and on average they had 4.1 chronic medical co-morbidities. Cognitive impairment was identified in all age groups per Mini-Cog: 65-74 years, 5.3%; 75-84 years, 13.7%; and 85+ years, 30%. There was a significant difference in cognitive impairment between ages 65-74 vs. >75 (p=0.001). According to AD8, all three age groups perceived themselves to have early cognitive changes: 65-74 years, 25.9%; 75-84 years, 31.9%; and 85+ years, 40% (p=0.4). The most commonly identified areas of impairment were having daily problems with thinking and memory (62%), problems with judgment (52%), and trouble learning new tools or gadgets (44%). There was no difference in the number of patients who screened positive for depression across age groups: 65-74 years, 5.9%; 75-84 years, 6.3%; and 85+ years, 10% (p=0.9).

CONCLUSION: In our study population cognitive impairment was prevalent among women ages >75. The Mini-Cog is a feasible screening tool for routine use in clinical practice. Our subjects were interested in cognitive screening as a third of them self-reported that they have early cognitive changes. These screening tools are effective in identifying previously unrecognized impaired cognition, but a definitive diagnosis requires additional evaluation. Our findings suggest that screening cognitive impairment could be integrated easily into the urogynecology evaluation in an effort to identify individuals who may benefit from further assessment.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Elisa R. Trowbridge: Nothing to disclose; DaHea Kim: Nothing to disclose; Sarah K. Larkin: Nothing to disclose; Victoria Fitz: Nothing to disclose; Kathryn Barletta: Nothing to disclose; Kathie Hullfish: Nothing to disclose.

25 Outcomes of laparoscopic removal of the essure sterilization device for pelvic pain: A case series

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OBJECTIVES: To report a case series of 29 referral patients who underwent laparoscopic Essure removal for the indication of suspected Essure related pelvic pain and to describe these patients' characteristics, intraoperative findings, and postoperative pain outcomes.

MATERIALS AND METHODS: From July 2011 to September 2015, we performed laparoscopic removal of Essure micro-inserts on 29 patients for the primary indication of pelvic pain. The patients' baseline pain symptoms and characteristics were recorded as well as information regarding the course of their pain history and previous Essure procedure. Following successful removal, intraoperative findings and postoperative surgical and pain outcomes were recorded and described.

RESULTS: Of the 29 patients undergoing laparoscopic Essure removal, 23 out of 26 (88.5%) reported significant relief of pelvic pain symptoms at their postoperative visit with 3 out of 26 (11.5%) patients reporting persistent pelvic pain, and the remaining 3 of the 29 patients not completing their follow-up visit. Difficulty with initial Essure placement was reported in 5 out of 15 (33%) operative reports, with 14 reports unavailable/unknown. At the time of surgery, intraoperative findings included the presence of incorrectly placed Essure devices in 3/29 (10.3%) cases, endometriosis requiring surgical treatment in 5/29 (17.2%),

and required adhesiolysis in 3/29 (10.3%). There was a significant range in the interval time of pelvic pain onset following Essure placement (0 to 85 months), with 13 out of 26 (50%) patients reporting pelvic pain within 1 month of Essure placement, 5 out of 26 (19.2%) reporting pain onset between 1-12 months, and 8 out of 26 (30.8%) reporting onset of pain >12 months from Essure placement. Of the patients with onset of pain <1 month, 1-12months, or >12 months from Essure placement, 84.6% (11/13), 100% (5/5), and 87.5% (7/8) of patients reported resolution of pain symptoms following removal surgery, respectively. Postoperative complications were reported in 2 out of 29 patients with one cervical laceration and two abdominal wall hematomas. There were no readmissions within 30 days of surgery.

CONCLUSION: Laparoscopic removal of the Essure device for associated pelvic pain is a safe and effective treatment. In our case series, the timing of pain onset after Essure placement varied widely, suggesting there is no specific window in which this complication occurs. The majority of patients did not have abnormal findings at the time of surgery, suggesting even correctly placed Essure coils may be a source of pain. When pelvic pain occurs with known Essure placement, it should be thoroughly evaluated as a possible contributing factor. If required, they can be easily removed via a laparoscopic approach. Following the procedure, the patient can then maintain permanent birth control with the simultaneous completion of a laparoscopic sterilization method.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: James Casey: Nothing to disclose; Amanda Yunker: Nothing to disclose.

26 Medium-term outcomes of robotic sacrocolpopexy using only absorbable suture for mesh fixation

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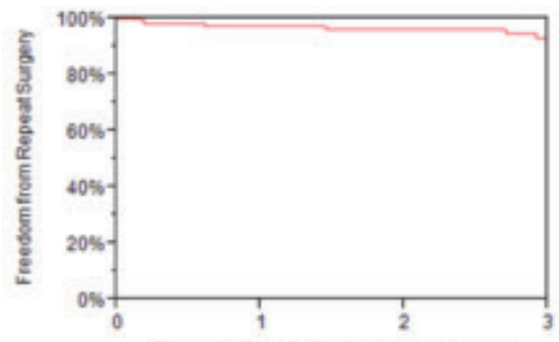
OBJECTIVES: Since its introduction approximately 10 years ago, robotic sacrocolpopexy has been demonstrated to be safe and effective in the management of apical prolapse. However, studies evaluating refinements in surgical technique and suture selection continue. One such concept is the use of permanent versus absorbable sutures for mesh fixation. Currently, the use of absorbable sutures for attaching the vaginal arms of the graft has been shown effective with short-term follow-up in several small case series. Here, we sought to evaluate our medium-term outcomes with robotic sacrocolpopexy utilizing absorbable sutures for both vaginal and sacral mesh attachment.

MATERIALS AND METHODS: One hundred thirty-two robotic sacrocolpopexies were performed for vaginal vault prolapse in the Gynecology Department at our institution from February 2007 to December 2013. Notably, all cases were performed with absorbable suture (polyglactin) used for fixation of the vaginal arms and the sacral portion of the mesh. Individual charts were reviewed for evaluation of pertinent clinical and surgical comorbidities, complications and post-operative outcomes. Sacrocolpopexy failure was defined as patients undergoing either repeat prolapse surgery or pessary use for recurrent prolapse. The durability of robotic sacrocolpopexy was assessed via Kaplan-Meier method.

RESULTS: Patients undergoing robotic sacrocolpopexy had a median age of 62.8 years (IQR 56.9, 68) and a median length of post-operative follow-up of 31 months (IQR 15.3, 55.8). The median body-mass index was 26.5 kg/m^2 (IQR 24.3, 29.7), and the median parity was 3 (IQR 2, 3). During follow-up eight patients underwent additional treatment for prolapse recurrence either via surgery or pessary. Notably, there were two apical recurrences, four distal anterior recurrences, one distal posterior recurrence and for one patient the location of recurrence was unknown as the repair was performed at an outside facility. Among those with recurrence, the median time to recurrence was 24.5 months (4, 37). Overall, the 1 and 3-year freedom from repeat surgery rates were 97% and 93%, respectively (Figure 1).

CONCLUSION: Our results suggest that, with medium-term follow up, use of absorbable suture for both vaginal and sacral attachments during sacrocolpopexy is effective. This may impact future study designs when evaluating suture selection and mesh attachment techniques for robotic sacrocolpopexy.

Fig 1. Freedom from repeat prolapse surgery following robotic sacrocolpopexy



% Survival (no. at risk)				
	0 years	1 year	2 years	3 years
RSC pts	100% (132)	97% (106)	96% (84)	93% (55)

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Brian J. Linder: Nothing to disclose; Mallika Anand: Nothing to disclose; Christopher Klingele: Nothing to disclose; Emanuel Trabuco: Nothing to disclose; John Gebhart: Nothing to disclose; John A. Occhino: Nothing to disclose.

27 Power morcellation patterns of gynecologic surgeons

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OBJECTIVES: Power morcellation was previously a common technique for removing specimens during minimally invasive gynecologic surgery. In April 2014, the FDA discouraged the use of power morcellation in women undergoing myomectomy or hysterectomy for fibroids. Our primary objective was to determine gynecologic surgeons' practice patterns before and after the April 2014 FDA statement on the use of power morcellation.

MATERIALS AND METHODS: A paper questionnaire was administered to attendees at the Society for Gynecologic Surgeons (SGS) 41st Annual Scientific Meeting in March 2015. Enrollment was voluntary and consent implied in survey participation. Inclusion was limited to surgeons who had completed residency. The data was analyzed using Stata 14.

RESULTS: A total of 185 respondents completed the 22-question survey. The mean age was 43.6 years old (median 42, SD 10.6), 57.0% had completed a fellowship and 26.7% were current fellows. The majority of participants were urogynecologists (81.8%) who practiced in an academic (71.3%) and urban (75.4%) setting. At the time of survey completion, 58.7% of the responders had current access to a power morcellator, but only 31.3% of those with access reported use. Most reported institutional policies regarding use of power morcellation (78.3%); 38.4% forbid its use. After the FDA statement, there was a significant reduction in the number of providers who utilized power morcellation to perform minimally invasive sacrocolpopexy, hysterectomy, or myomectomy ($p<0.005$). If a participant reported their surgical practice had changed, they were more likely to report their practice was more challenging (OR 91.6, 95% CI 30.8-272.6). The odds of reporting change in practice and of reporting more challenging practice was increased with current fellowship training, use of power morcellation since position statement, institutional policies, and preferred approach for minimally invasive surgery utilized power morcellation. After controlling for associated variables, surgeons who previously used power morcellation for minimally invasive sacrocolpopexy reported a significant change of practice (OR 11.35, 95% CI 1.38-93.06) and that their practice was more challenging (OR 72.75, 95% CI 3.98-1329.65).

CONCLUSION: For those participants who perform minimally invasive gynecologic surgery using power morcellation, surgical practices became more challenging after the 2014 FDA position statement that discouraged power morcellation.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Jennifer L. Hallock: Nothing to disclose; Chi Chiung Grace Chen: Nothing to disclose; Melinda Abernethy: Nothing to disclose.

Table : Odds of reporting change in practice based on participant characteristics

Characteristic	Odds Ratio	95% confidence interval
Current fellowship training	2.98	1.20-7.38
Use of power morcellation since position statement	4.44	1.83-10.80
Institutional policies for use of morcellator	2.39	1.13-5.02
Policies forbidding use of power morcellator	2.90	1.15-7.32
Preferred approach to sacrocolpopexy utilized power morcellator	10.0	3.87-25.8
Preferred approach to hysterectomy utilized power morcellator	7.82	3.09-19.80
Preferred approach to myomectomy utilized power morcellator	5.78	1.94-17.17

28 Factors associated with hemostat use during laparoscopic hysterectomy

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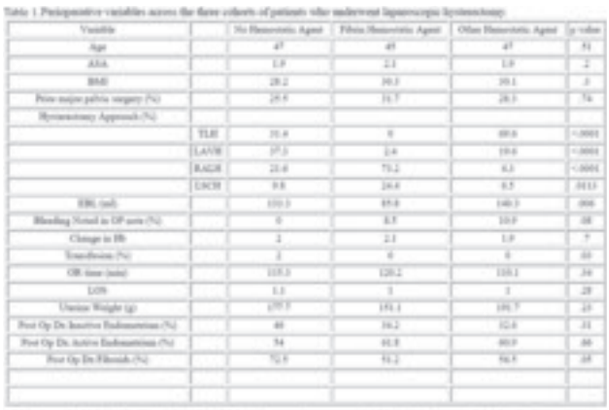
OBJECTIVES: To determine factors associated with use of hemostats at the time of hysterectomy.

MATERIALS AND METHODS: Among women having undergone minimally invasive hysterectomy a retrospective cohort trial comparing patient features and outcomes with and without the use of hemostats was conducted OR charge data and procedure codes were used to obtain an initial sequential sample of cases. A second sample was obtained using a random number generator. Excluding repeats, these data were combined forming the final sample. Patient characteristics and pre- and postoperative metrics were recorded. Associations between categorical variables were analyzed using Chi-square testing while continuous variables were analyzed using ANOVA. Modeling of study variables to predict hemostat use was performed using Chi-square-assisted interaction detection methods.

RESULTS: One hundred seventy-nine cases performed by 30 surgeons were identified as our sample. A total of 40.8% of minimally invasive hysterectomies were performed with the surgical robot (RALH); 28.6% were total laparoscopic (TLH), 16.8% were laparoscopic-assisted (LAVH), and 15.6% were laparoscopic supracervical (LSCH). 45.8% of cases involved the use of a fibrin hemostat; 26.7% involved an alternative hemostat and 28.5% of cases did not use any hemostat. Alternative hemostats were most used during TLH, and RALH and LSCH were most associated with fibrin-based hemostats. Estimated blood loss was higher among cases where hemostats were not used but no other metrics associated with blood loss were identified to be different across hemostat use. The study variable identified most predictive of hemostat use by the CHAID regression tree model was surgeon identity (overall R^2 0.78; K fold R^2 0.75; surgeon identity determined 71% of the model variance).

CONCLUSION: Hemostat use during minimally invasive hysterectomy is determined most by surgeon preference and not factors associated with factors associated with operative bleeding.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Andrea B. Kakos: Nothing to disclose; Valerie Allen: Nothing to disclose; James Whiteside: Nothing to disclose.



29 Apical support at the time of hysterectomy for pelvic organ prolapse: A comparison of approaches

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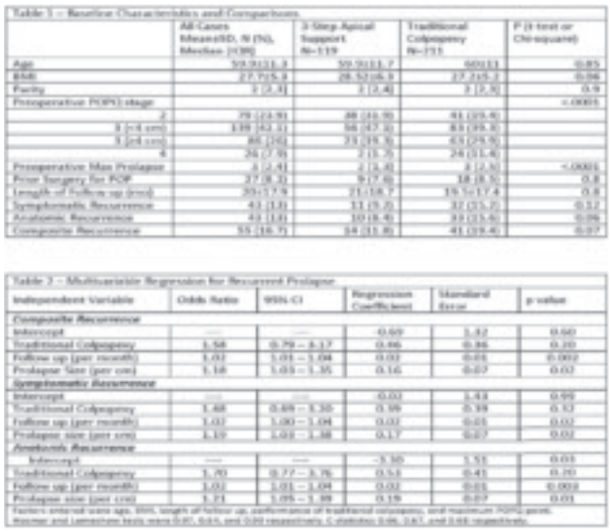
OBJECTIVES: Our objectives were to describe a 3-step apical support technique to address apical support at the time of vaginal hysterectomy and to compare this technique to traditional vaginal colpopexy with respect to prolapse recurrence.

MATERIALS AND METHODS: We performed a retrospective cohort study of all women undergoing hysterectomy for POP with a FPMRS provider at a university hospital from 3/2006 to 1/2014. Only women with follow up ≥3 months were included. The "traditional colpopexy" group included those women who had a SSLS, USLS, or McCall's. At our institution, when a traditional colpopexy is not performed at the time of hysterectomy, apical support is achieved by a "3-step apical support" technique that includes cardinal/uterosacral ligament shortening, enterocele ligation with permanent suture, and circumferential reattachment of the shortened uterosacral/cardinal ligament complex to the vaginal cuff. Bivariate analyses were used to compare demographics, medical history, and prolapse recurrence between the traditional colpopexy and 3-step apical support groups. Symptomatic recurrence was defined as bulge symptoms or intervention for prolapse and anatomic recurrence defined as any point beyond the hymen after the index procedure. Composite recurrence was defined as having either symptomatic or anatomic recurrence. Multivariable logistic regression was used to identify factors associated with prolapse recurrence.

RESULTS: Of the 628 vaginal hysterectomies were performed for POP 330 (52.5%) met follow up criteria. Median follow up was 13.8 months (total range 3-98 months). Traditional colpopexy was performed in 63.9% (N=211). No patients had hysterectomy alone. Concomitant procedures performed in women who underwent the 3-step apical support procedure included: anterior repair (81.5%) and/or a posterior repair (73.9%). Preoperative maximum point of prolapse was approximately 1 cm greater in the traditional colpopexy group compared to those in the 3-step apical support group (median +3 vs. +2, P<.0001). Cervix location was also lower in the traditional colpopexy group (POPQ Point C: median 0 vs. -2, P<.0001). Groups were similar in terms of age, parity, BMI, prior prolapse surgery, and length of follow up (see Table 1). Symptomatic and anatomic recurrence was also similar between groups. Although in bivariate analysis there appeared to be trend towards increased anatomic recurrence in the traditional colpopexy group, after controlling for preoperative prolapse size, this was no longer a significant factor (Table 2). The only factors associated with recurrence in the logistic regression were preoperative prolapse size (OR 1.18 to 1.21 per cm) and length of time from index surgery (OR 1.02 per month).

CONCLUSION: Prolapse recurrence following hysterectomy and use of either traditional colpopexy or a 3-step apical support technique was independently associated with preoperative prolapse severity and length of follow up. Compared to traditional colpopexy, selective use of the 3-step apical support procedure did not result in significantly higher rates of recurrence. Utilizing such an approach in a select group, might avoid the additional surgical risk of traditional colpopexy.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Pamela S. Fairchild: Nothing to disclose; Neil S. Kamdar: Nothing to disclose; Emily Rosen: Nothing to disclose; Carolyn W. Swenson: Nothing to disclose; Daniel M. Morgan: Nothing to disclose.



30 Evaluation of the carcinogenic potential of mesh used in the treatment of female stress urinary incontinence

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OBJECTIVES: Macroporous, monofilament (Type I) polypropylene mesh placement in the form of a synthetic midurethral sling is a widely performed anti-incontinence procedure with established efficacy. However, concern has been raised over the potential for inducing malignancy secondary to chronic tissue inflammation and resultant dysplastic changes. Thus, we sought to evaluate the incidence of pelvic malignancy following implantation of implanted synthetic mesh via midurethral sling in the treatment of female stress urinary incontinence.

MATERIALS AND METHODS: We identified female patients undergoing implantation of mesh materials for the treatment of stress urinary incontinence at our institution from January 1, 2002, to December 31, 2012. This was accomplished by querying patient medical records for Current Procedural Terminology code 57288 ("sling

operation for stress incontinence") and subsequent chart review to identify patients that underwent synthetic mesh sling placement. Patient's medical records were then evaluated for documentation of bladder, urethral, vaginal, cervical, uterine or ovarian cancers via International Classification of Disease (9th edition) coding. Individual chart review of cases with a cancer diagnosis was then performed for confirmation of the cancer diagnosis and evaluation of the temporal relationship between mesh placement and cancer diagnosis. Last known follow-up was defined as the last office visit at our institution.

RESULTS: During the study period, 2474 patients underwent synthetic midurethral sling placement with mesh implantation. The median age of the cohort was 57 years (IQR 47, 69) and the median follow-up was 60 months (IQR 22, 95). Overall, 51 patients were identified with a cancer diagnosis (8 bladder cancers, 7 vaginal malignancies, 8 ovarian carcinomas, 26 endometrial cancers, 2 cervical malignancies), however, only two cancers (0.08%, 2/2474) developed following sling placement. This included a melanoma on the anterior vaginal wall, three years after sling placement and an ovarian tumor (Stage I granulosa cell tumor), one year after sling placement. Notably, there were no cases of sarcomas, squamous cell carcinomas, bladder or urethral cancers detected following synthetic midurethral sling placement.

CONCLUSION: With a median follow-up of 5 years after mesh midurethral sling placement, development of pelvic malignancy was rare (0.08%) and unlikely to be secondary to foreign body reaction from the implanted material.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Brian J. Linder: Nothing to disclose; Emanuel Trabuco: Nothing to disclose; Daniel Carranza: Nothing to disclose; John Gebhart: Nothing to disclose; Christopher Klingele: Nothing to disclose; John A. Occhino: Nothing to disclose.

31 Visuospatial ability and performance in the operating room among gynecology residents

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OBJECTIVES: To examine the relationship between visuospatial ability and performance in surgery among gynecology residents.

MATERIALS AND METHODS: This was a prospective, nonblinded study involving the gynecology residents in a single teaching hospital. Residents completed three visuospatial ability tests of increasing complexity (snowy pictures, card rotation, and form board) and were evaluated on their performance in gynecologic surgeries throughout one academic year using the Hopkins Assessment of Surgical Competency, a validated global rating scale consisting of the general and case specific surgical skills subscales. Evaluations were included when the resident acted as the primary surgeon or first assistant and were excluded if the resident was the second assistant or had not completed the visuospatial ability tests. Seven attendings specializing in gynecology, urogynecology and gynecologic oncology completed the evaluations; all types of gynecologic surgeries were included.

RESULTS: Between 8/2014 and 5/2015, 27 residents were enrolled and 245 surgical evaluations were included. The mean (standard deviation) snowy pictures score was 69.4% (10.1), the mean card rotation score was 64.1% (15.9) and the mean form board score was 37.4% (16.8). Both evaluation subscales had a mean of 3.7 (within-subject standard deviation 0.6, between-subject standard deviation 0.6). As the form board score increased by 10%, the general skills score increased by 0.19 points (p=.006) and the case skills score by 0.16 points (p=.015). As the card rotation score increased by 10%, the case skills score increased by 0.16 points (p=.044) and the general skills score increased by 0.14 but it was not statistically significant (p=.079). The snowy pictures score did not have a significant correlation with either subscale score; as the score increased by 10% the general skills score decreased by 0.07 (p=.591) and the case skills score decreased by 0.08 (p=.529).

CONCLUSION: Higher scores on the more complex visuospatial ability tests were predictive of better operating room performance.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Rachel Barr: Nothing to disclose; Shyama Mathews: Nothing to disclose; Erin Moshier: Nothing to disclose; Charles Ascher-Walsh: Nothing to disclose.

32 Effect of a new risk calculator on patient satisfaction with the decision for concomitant midurethral sling during prolapse surgery: A randomized controlled trial

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[1]Urogynecology, Brigham and Women's Hospital, Boston, MA, [2]Harvard Medical School, Boston, MA, [3]Female Pelvic Medicine and Reconstructive Surgery, Medstar Washington Hospital Center/Georgetown University School of Medicine, Washington, DC

OBJECTIVES: To determine whether use of a new personalized risk calculator increases patient satisfaction with the decision whether to have a prophylactic midurethral sling (MUS) during pelvic organ prolapse (POP) surgery.

MATERIALS AND METHODS: We performed a randomized controlled trial involving women without symptoms of stress urinary incontinence (SUI) with ≥ Stage 2 POP who planned to undergo POP surgery with 1 of 4 fellowship-trained urogynecologists at a single academic center. Women were excluded if they had prior POP or incontinence surgery, were pregnant, or were unable to complete study forms. Participants were randomly assigned to standard preoperative counseling or preoperative counseling sessions where the risk calculator for de novo SUI [Jelovsek et al] was used. The primary outcome was patient satisfaction with the decision for prophylactic MUS placement during POP surgery at 3 months postoperative assessed using the Satisfaction with Decision Scale for Pelvic Floor Disorders (SDS-PFD). Other outcomes included Decision Regret Scale for Pelvic Floor Disorders (DRS-PFD) and Patient Global Impression of Improvement (PGI-I) scores at 3 months postoperative. Sixteen participants were needed in each group to detect a 0.5-point difference in SDS-PFD scores (α=0.05, β=0.2).

RESULTS: Sixty-three women were approached for participation. Forty-two agreed to participate, 41 underwent randomization, and 33 had POP surgery and completed 3 month follow-up. Of these 33, 17 were randomized to the risk calculator and 16 to standard counseling. The mean age was 61.2±9.1, mean BMI 26.3±4.7, and median parity 2 (range 0-7). The majority of participants were white (72.7%), sexually active (57.6%), and had at least a college education (69.7%). There were no demographic differences between groups. The mean preoperative counseling visit length was 51.7±10.9 minutes. All participants had preoperative POP reduction stress tests. More women in the risk calculator group compared to the control group had a positive test (10/17 vs. 4/16, p=0.049). However, there was no difference in the number in each group who had intrinsic sphincter deficiency based on Valsalva leak-point criteria (1/17 vs. 2/16, p=0.6), nor in the number who had a prophylactic MUS during POP surgery (9/17 vs. 5/16, p=0.21). More women in the risk

calculator group had sacrospinous ligament suspensions (5/17 vs. 0/16, p=0.04), but there were no differences in other types of POP repairs between groups. At 3 months postoperative, there were 3 cases of subjective de novo SUI, 1 in the risk calculator group and 2 in the control group (p=0.6). There was no difference in 3 month SDS-PFD scores between groups (4.67±0.46 [intervention] vs. 4.78±0.34 [control], p=0.61). Similarly, there was no difference in 3 month DRS-PFD scores between groups (1.27±0.39 [intervention] vs. 1.31±0.52 [control], p=1.0). All participants reported they were at least a little better on the PGI-I.

CONCLUSION: Use of the de novo SUI risk calculator did not increase patient satisfaction with the decision for prophylactic MUS placement. Larger studies are needed to further investigate the clinical utility of this tool.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Jeannine M. Miranne: Nothing to disclose; Robert E. Gutman: Pfizer, Investigator, Investigator-Initiated Grant; Pelvalon, Consultant, Consulting fee; Andrew I. Sokol: Nothing to disclose; Amy J. Park: Nothing to disclose; Cheryl Iglesia: Pfizer, Investigator, Investigator-Initiated Grant; Pelvalon, Consultant, Consulting fee.

33 The negative predictive value of preoperative urodynamics for post-operative stress urinary incontinence in patients undergoing prolapse repair

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OBJECTIVES: The multi-center Colpopexy and urinary Reduction Efforts (CARE) trial and other studies suggest that a concomitant continence procedure should be routinely performed in patients undergoing repair of advanced prolapse. The purpose of this study was to investigate whether preoperative urodynamic evaluation (UDE) accurately predicts those patients who can reliably avoid a continence procedure at the time of prolapse repair.

MATERIALS AND METHODS: This was a retrospective case series. Medical records were reviewed for patients who underwent prolapse repair from January 2011 to September 2014 at our institution. Demographics, indication for prolapse repair, UDE findings, and postoperative data were collected. Method of prolapse reduction during UDE, surgical procedure, and postoperative continence were evaluated for each patient. In our practice, prolapse reduction is performed in a systematic manner to avoid overcorrection of the urethrovesical angle, urethral obstruction, or inadequate prolapse reduction. Different devices were used for prolapse reduction (scopette, pessary, posterior paddle of speculum) but with each reduction, care was taken to restore the urethra to its normal anatomic position. Patient characteristics were described with mean and standard deviation or frequency and percent. Comparisons between post-op SUI and patient characteristics were made with Fishers Exact test. The negative predictive value (NPV) of UDE with its 95% CI was calculated.

RESULTS: Preoperative UDE and prolapse repair were performed in 351 patients from January 2011 to September 2014. Of these, 216 had advanced prolapse (stage 3 or 4). A continence procedure was not performed in 80 patients with advanced prolapse. The mean age of these 80 patients at the time of surgery was 65(±12). Of these 80 patients, 5 (6.3%) had a prior continence surgery, and 14 (17.5%) had prior prolapse repairs. Apical prolapse was present in 70 patients (87.5%), and only 1 patient had isolated posterior prolapse. There were 63 apical procedures, 8 colpocleises, 3 isolated anterior colporrhaphies, and 1 isolated posterior colporrhaphy. Multiple procedures during the same surgery were performed in 31 patients (38.8%). Relative to patients with UDE showing SUI, patients with negative UDE were 55% less likely to have post-op SUI (p=0.512). The negative predictive value of UDE was 95.7% in those patients with advanced prolapse who did not undergo a continence procedure. Anterior colporrhaphy and colpocleisis were evaluated, and we found no association between these and postoperative SUI in our population.

CONCLUSION: This study suggests a high negative predictive value of preoperative UDE for postoperative stress incontinence. Future research is warranted to confirm the reliability of preoperative UDE with this prolapse reduction technique on predicting postoperative stress urinary incontinence.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Gina T. Sullivan: Nothing to disclose; Omar F. Duenas: Nothing to disclose; Katherine Leung: Nothing to disclose; Michael K. Flynn: Nothing to disclose.

34 Magnetomyography of the levator muscle complex: A novel assessment tool

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OBJECTIVES: The levator ani muscles are integral to pelvic floor support, but our ability to evaluate the neuromuscular integrity of this muscle complex is limited. The goal of our project was to establish the feasibility of measuring magnetomyographic (MMG) signals of the levator muscle complex to provide simultaneous functional and anatomic assessment of the pelvic floor.

MATERIALS AND METHODS: MMG data during rest and voluntary levator contraction (Kegel) were collected from a single female subject using the Superconduction Quantum Interference Device Array for Reproductive Assessment (SARA) system, which non-invasively detects biomagnetic signals related to the electrical activity generated in muscle tissue. The SARA system's 151 MMG sensors capture the magnetic field correlate of electromyographic (EMG) signals. In order to validate that the detected MMG signals corresponded to levator ani complex activation, we performed simultaneous vaginal manometry. Further, body surface EMGs were utilized to evaluate for accessory muscle recruitment and artifact (abdominal, gluteal, and hip adductors). Repeated measures were obtained to establish reliability. Data was recorded with a sample rate of 312.5 Hz and sensors in the lower part of the SARA sensor space were selected for further analysis. Cardiac signals and artifacts were removed using advanced signal processing techniques. Kegel and rest periods were identified and average power spectrum density (PSD) was calculated for each of these segments in the bandwidth of 20 to 100 Hz (selective for skeletal muscle).

RESULTS: We evaluated a 34 year-old nulligravid with documented ability to voluntarily contract her levator ani muscles. After data processing, we obtained MMG signals with total amplitudes of that were five-fold higher during Kegel (2.0 pT) than rest (0.4 pT). PSD demonstrates the normalized power contained in a given bandwidth. Figure 1 (top) shows spatial distribution across all sensors during Kegel (top-right) and rest (top-left). Figure 1 (bottom) shows the distribution of PSD in our selected frequency band (20-100 Hz). The PSD was higher during Kegel compared to rest (0.9 vs 0.4 x10e-11 fT^2/Hz). Vaginal manometer pressure measures and surface EMG confirmed MMG signals to be levator ani in origin.

CONCLUSION: We have demonstrated the ability to detect a strong MMG signal pattern during levator ani voluntary contraction. We feel MMG is a novel and valuable tool to assess the levator ani muscles and hope to expand MMG to further understand the role these muscles play in pelvic floor disorders.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Sallie S. Oliphant: Nothing to disclose; Diana Escalona-Vargas: Nothing to disclose; Becca Austin: Nothing to disclose; Amanda McAlister: Nothing to disclose; Hari Eswaran: Nothing to disclose.

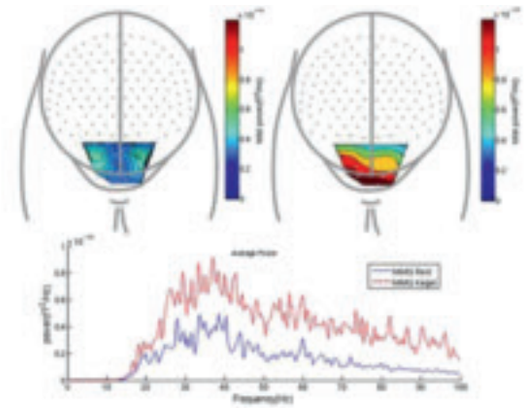

Figure 1. Power Spectrum Density-PSD (fT^2/Hz). Total PSD at rest (top left). Total PSD for Kegel (top right). PSD averaged across all sensors for rest (blue) and Kegel (red).

35 Clinical diagnosis of adenomyosis: Use of predictive uterine characteristics to improve accuracy and reliability

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OBJECTIVES: To describe patient demographics, determine accuracy of clinical diagnosis, and evaluate reliability of uterine characteristics in the diagnosis of adenomyosis.

MATERIALS AND METHODS: From June 2013 to April 2015, a total of 117 patients undergoing laparoscopic hysterectomy for benign indications were enrolled; 57 cases with pathology proven adenomyosis and 60 cases without adenomyosis. Demographic information, presenting symptom(s), exam findings, pre-operative diagnosis, and final pathology were abstracted. Intraoperative uterine characteristics (size prediction, shape, color, consistency, presence of fibroids) were reported, and a prediction was made by the attending surgeon regarding a final pathologic diagnosis of adenomyosis. Video recordings were retrospectively viewed twice by three blinded expert surgeons. Uterine characteristics were again reported with a prediction of pathologic diagnosis. These data were used to calculate inter- and intra-rater reliability of diagnosis.

RESULTS: In univariate analysis, there was no difference in patient demographics including race, body mass index, tobacco exposure, or pelvic surgical history. Age in the adenomyosis cohort tended to be older (median 42 vs. 40, p=0.055). Women with adenomyosis were no more likely to present with complaints of abnormal bleeding (p=0.896) but were more likely to complain of midline pain as opposed to lateral or diffuse pain (p=0.048) with no difference in the timing of the pain (p=0.404). Uterine tenderness on exam was not an accurate predictor of adenomyosis (p=0.566). In a multivariable analysis, gravity was the only independent predictor of adenomyosis (p=0.008) after controlling for age, timing and location of the pain and uterine weight. Preoperative diagnosis of adenomyosis by clinicians was poor, with an accuracy rate of 51.7%. Magnetic resonance imaging (MRI) was 100% sensitive and specific for diagnosis of adenomyosis but only a small number (n=8) were performed. Transvaginal ultrasonography demonstrated a very poor sensitivity of 14.6% with a specificity of 97.3%. None of the intraoperative uterine characteristics were significant for predicting adenomyosis on final pathology, nor was any combination of the features (p=0.546). Clinical diagnosis of adenomyosis intraoperatively was minimally improved to 57.7%. Retrospective video review failed to demonstrate any uterine characteristics that generated consistent inter- or intra-rater reliability (Krippendorff alpha$<$0.7), however the less subjective parameters such as estimation of uterine size and presence of fibroids did have better agreement (Krippendorff alpha$\geq$0.8).

CONCLUSION: Gravity was the only patient characteristic significant for diagnosis of adenomyosis. Clinical and video diagnosis of adenomyosis has low accuracy with no uterine characteristics consistently and reliably predicting adenomyosis on final pathology.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Amanda M. Sadecky: Nothing to disclose; Richard Guido: Nothing to disclose; Ted Lee: Nothing to disclose; Suketu Mansuria: Nothing to disclose; Noah Rindos: Nothing to disclose; Nicole M. Donnellan: Nothing to disclose.

36 Length of catheter use after hysterectomy as a risk factor for UTI

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OBJECTIVES: Use of an indwelling catheter is a risk factor for urinary tract infection (UTI). Our study aims to examine the effect of length of postoperative catheter use on risk of UTI, and identify other risk factors for postoperative UTI.

MATERIALS AND METHODS: Demographic and perioperative data, including duration of indwelling catheter use and postoperative occurrence of UTI, were analyzed for hysterectomies performed from January 2, 2013 to July 2, 2014 using the Michigan Surgical Quality Collaborative database. UTI was defined by the presence of symptoms and a positive culture ($>10^5$) or by a urinalysis and low colony count culture ($\geq10^3$ and $<10^5$) within 30 days of surgery. Catheter exposure was categorized as: low - no catheter placed or catheter removed the day of surgery; intermediate – catheter removed postoperative day (POD) 1; high – removal on POD2 or greater; highest - patient discharged home with catheter. Cases were excluded for incomplete catheter or UTI data. Bivariate analysis was conducted to assess each variable's association with UTI. A hierarchical multivariable logistic regression model was developed to identify factors independently associated with UTI. An interaction term was included in the final model to account for the effect modification observed between UTI and

both vaginal hysterectomy and performance of a sling or other pelvic reconstruction.

RESULTS: Data on catheter exposure and UTI were available for 86% of hysterectomies (10,354/12,022). Overall UTI prevalence was 2.3% (n=239) and increased with duration of catheter exposure (low: 1.3% [n=37] vs. intermediate: 2.1% [n=130] vs. high: 4.1% [n=33] vs. highest: 6.5% [n=22], p<0.0001). In multivariable regression, high (removal POD ≥ 2, OR 2.54 [1.51 − 4.27]) and highest (home with catheter, OR 3.39 [1.86 − 6.17]) catheter exposure, increasing surgical time (OR 1.15 [1.03 − 1.29]), and dependent functional status (OR 4.62 [1.90 − 11.2]) were independently associated with postoperative UTI (Table 1). Intermediate exposure was marginally associated with postoperative UTI (OR 1.47 [1.00 − 2.18]). Women who had a vaginal hysterectomy with sling and/or reconstruction were more likely to have a UTI than those who had a vaginal hysterectomy alone (OR 2.58 [1.01 − 6.07]), and more likely to have a UTI than women having a non-vaginal hysterectomy with a sling and/or reconstruction (OR 2.13 [1.12 − 4.04]).

CONCLUSION: Modifiable risk factors associated with UTI after hysterectomy include length of catheter exposure and operative time. There is an interaction between vaginal hysterectomy and concomitant sling and/or pelvic reconstruction increasing the odds of UTI. These findings support the development of protocols to reduce indwelling catheter exposure in patients undergoing hysterectomy.

Table 1: Multivariable model – Factors independently associated with UTI

	OR (95% CI)	P value
Age > 50	1.13 (0.84 – 1.52)	0.41
UTI group (referent low exposure group)		
Intermediate: Removed POD1	1.47 (1.00 – 2.18)	0.05
High: Removed POD ≥2	2.54 (1.51 – 4.27)	<0.001
Highest: Home with catheter	3.39 (1.86 – 6.17)	<0.0001
Surgical time (hours)	1.15 (1.03 – 1.29)	0.02
Vaginal hysterectomy with PR† and/or sling (referent vaginal hysterectomy without PR or sling)	2.58* (1.01 – 6.07)	0.03
Vaginal hysterectomy with PR and/or sling (referent non-vaginal hysterectomy with PR and/or sling)	2.13* (1.12 – 4.04)	0.02
Dependent status	4.62 (1.90 – 11.2)	<0.001

*Adjusted OR with interaction effect
† Pelvic Reconstruction

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Natalie E. Karp: Nothing to disclose; Emily K. Kobernick: Nothing to disclose; Neil S. Kamdar: Nothing to disclose; Amanda M. Fore: Nothing to disclose; Daniel M. Morgan: Nothing to disclose.

37 A histologic study of the vagina in female cadaveric dissection

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OBJECTIVES: A detailed description of vaginal histology is necessary to understand the pathophysiology behind pelvic floor dysfunction. The purpose of this study was to examine the layers, vasculature, and innervation of the female anterior vaginal wall.

MATERIALS AND METHODS: En bloc removal of four female cadaver pelvises was performed, with 18-25 serial sections obtained from each. The sections were stained with hematoxylin and eosin (H&E), Masson trichrome, S100 protein, and CD31 immunoperoxidase stains. Means were calculated for total vaginal length, posterior fourchette width, anterior vaginal wall width, posterior vaginal wall width, as well as the thickness of the vaginal epithelium, lamina propria, fibromuscular layer, and adventitia. The vaginal length was divided into 2 zones from distal to proximal to represent the different embryologic origins of the lower 2/3 of the vagina (urogenital sinus) and upper 1/3 (paramesonephric ducts). Innervation and vasculature were quantified per 0.22 mm high power field (hpf). Referencing prior histological studies, nerves were qualified as "small" when <3 fiber bundles were observed and "large" when ≥3 bundles were present. Small nerves represented terminal fibers. Arteries were identified when a muscular layer surrounded the lumen and categorized as a "large" vessel. Capillaries, venules, and veins were classified as "small" vessels. Data was described using means and standard deviations (SD) for normally distributed data. Student t-tests were applied for variable comparison.

RESULTS: The mean total vaginal length was 7.45 cm (SD 0.93). Other measurements included: posterior fourchette width 1.65 cm (SD 0.89), anterior vaginal wall width 3.70 cm (SD 0.47), and posterior vaginal wall width 3.42 cm (SD 0.67). The mean thickness of the vaginal layers were as follows: vaginal epithelium 0.09 mm (SD 0.14), lamina propria (LP) 0.90 mm (SD 0.66), fibromuscular layer 2.36 mm (SD 1.37), and adventitia 0.84 mm (SD 0.48). A distinct fibromuscular layer was seen throughout all slides. Both innervation and vasculature were concentrated in the LP. The mean number of small nerves was 55 (SD 29) per hpf, whereas the mean large nerve count was 1 (SD 2). The mean number of small vessels was 21 (SD 5) compared to 1 (SD 1) large vessel per hpf. In general, a higher number of small nerves and vessels were grossly seen compared to the larger counterparts. Student t-test was used to compare differences along the length of the vaginal wall. No significant differences in layer thickness, nerve distribution, or vasculature were observed.

CONCLUSION: Histologically, a greater abundance of small nerves and vessels compared to large structures were identified in the anterior vaginal wall. The innervation and vasculature is quantitatively the same between the two embryologic origins of the vagina. This uniformity may be relevant to the presence or location of pathology such as prolapse, fistulas, and mesh extrusions. Should these complications be secondary to nerve or vascular concentration, our findings suggest that the anterior vaginal wall is equally susceptible throughout its length.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Donna Mazloomdoost: Nothing to disclose; Lauren B. Westermann: Nothing to disclose; George Mutema: Nothing to disclose; Catrina C. Crisp: Nothing to disclose; Steven D. Kleeman: Nothing to disclose; Rachel N. Pauls: Nothing to disclose.

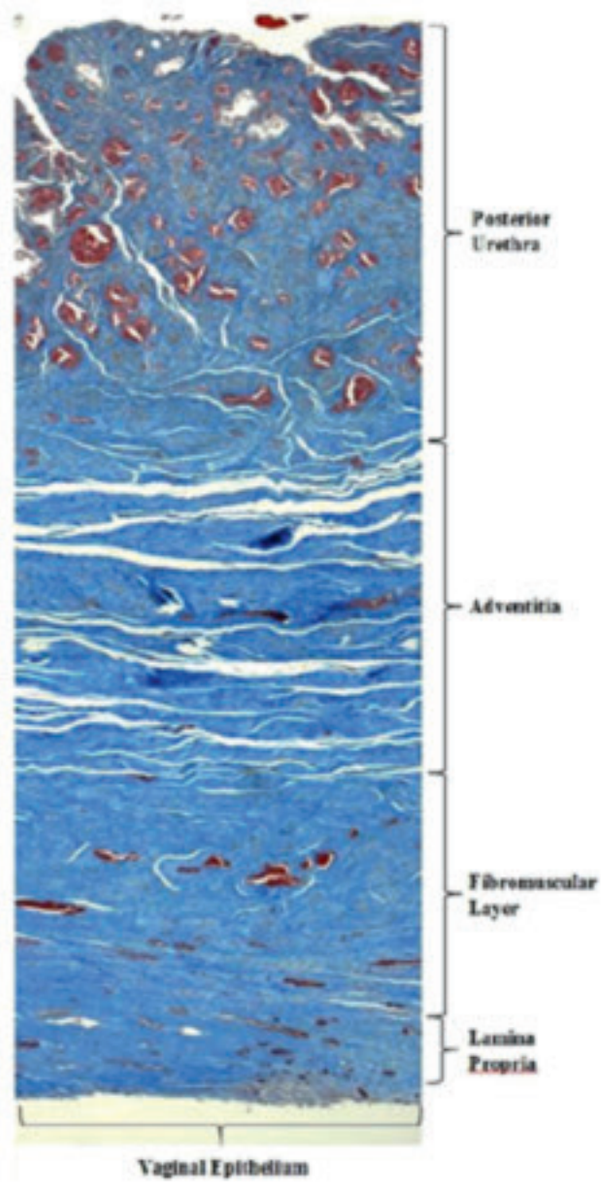

Figure: Masson trichrome stain of the vaginal layers

38 Social networking and internet use among patients with pelvic floor complaints: A multicenter survey study

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OBJECTIVES: The purpose of this study was to evaluate social networking and Internet use among women with pelvic floor complaints, as well as describe the likelihood, preferences, and predictors of website use to seek information for their conditions.

MATERIALS AND METHODS: We conducted a cross-sectional study of women presenting to clinical practices associated with 10 Female Pelvic Medicine & Reconstructive Surgery (FPMRS) fellowship programs across the United States. New female patients presenting with pelvic floor complaints, including pelvic organ prolapse and urinary or fecal incontinence, were eligible to consent. Participants completed an anonymous 17 item questionnaire designed by the authors to assess demographic information, general Internet use, preferences regarding social networking sites (SNS), referral patterns, and resources utilized to learn about their pelvic floor complaints. Internet use was quantified as high ($\geq$ 4 times/ week), moderate (2-3 times/week), or minimal ($\leq$ 1 time/week). Means were used for normally distributed data. Fisher's Exact and Chi-Squared tests were used to evaluate associations between variables and Internet use.

RESULTS: A total of 243 surveys were analyzed. The majority of participants, 87.8%, were white. With regards to age, 8.6% of respondents were 18-35, 14.0% were 36-44, 25.5% were 45-54, 24.3% were 55-64, 18.9 % were 65-74, and 8.6% were >75 years of age. Patients were frequently referred to the practice by an obstetrician/gynecologist (OBGYN) (41.6%) or primary care provider (26.1%). Geographically, 39.7% lived in the South, 25.4% resided in the Northeast, 22.4 % were in the West, and 12.5% lived in the Midwest. Almost one-third (31.2%) presented primarily for prolapse complaints, 22.1% for urge urinary incontinence, 20.8% for stress urinary incontinence, 13.0% for urgency/frequency symptoms, and 4.3% for fecal incontinence. The majority, 79.5%, described high Internet use, while 8.1% moderately and 12.4% minimally used the Internet. Women most often used the Internet for personal reasons (79.1%), and 44.7% reported Google to be their primary search engine. Only 5.3% used the Internet to learn about their pelvic floor condition, more commonly consulting an OBGYN for this information (41.9%). Nearly half, 44.2%, expressed the desire to use SNS to learn about their condition. Women <64 years old were significantly more likely to have high Internet use (83.4% vs 68.8%, $p = 0.018$) and to utilize online resources for medical information (77.3% vs 22.7%, $p = 0.038$) compared to women >65 years of age. However, both age groups were equally likely to desire using SNS to learn about their pelvic floor complaint ($p = 0.100$). Presenting complaint was not associated with Internet use ($p = 0.905$) or desire to use SNS to learn about pelvic floor disorders ($p = 0.201$).

CONCLUSION: Women presenting to FPMRS practices have high Internet use and desire to learn about their conditions via SNS. Despite this, OBGYN physicians remain a common resource for information. Nonetheless, FPMRS practices and national organizations would likely benefit from increasing their Internet resources for patient education in pelvic floor disorders.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Donna Mazloomdoost: Nothing to disclose; Robert Chan: Nothing to disclose; Nicolette E. Deveneau: Nothing to disclose; Gregg Kanter: Nothing to disclose; Allison M. Wyman: Nothing to disclose; Emily Von Bargen: Nothing to disclose; Zaid Chaudhry: Nothing to disclose; Jeannine M. Miranne: Nothing to disclose; Christine M. Chu: Nothing to disclose; Rachel N. Pauls: Nothing to disclose; Lily A. Arya: Nothing to disclose; Danielle D. Antosh: Nothing to disclose.

39 Detailed histologic anatomy of the urethra in female cadaveric dissection

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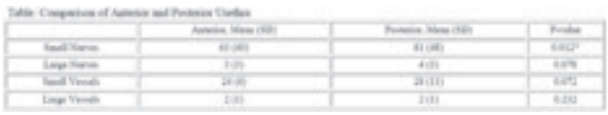
OBJECTIVES: The structure of the urethra is paramount to understanding female continence. Improving our knowledge of this anatomy may lead to enhanced treatments. We examined the innervation, vasculature, thickness, and support structures of the urethra.

MATERIALS AND METHODS: En bloc removal of four postmenopausal female cadaver pelvises was performed. Eighteen to 25 serial sections were obtained from each and stained with hematoxylin and eosin (H&E), Masson trichrome, S100 protein, and CD31 immunoperoxidase stains. The urethral length was divided into three zones to allow separate examination of the distal, midurethral, and proximal segments. Supportive structures, neuroanatomy, and vasculature were studied within the anterior and posterior sections of the urethra on each slide. Innervation and vasculature were quantified per 0.22 mm high power field (hpf). Referencing prior histological studies, nerves containing <3 fiber bundles were categorized as 'small,' representing terminal fibers, while 'large' nerves contained ≥3 bundles. Vasculature with a surrounding muscular layer was described as 'large,' representing arteries. 'Small' vessels signified capillaries, venules, or veins. Data was described using means and standard deviations (SD) for normally distributed data and MANOVA and ANOVA for variable comparison.

RESULTS: The mean urethral length was 3.38 cm (SD 0.60), anterior urethral wall thickness was 4.04 mm (SD 1.03), and posterior urethral thickness was 5.21 mm (SD 6.53). An epithelium, lamina propria (LP), and muscular layer surrounded the urethral lumen. A distinct plane composed of adipose and loose fibro-connective tissue separated the urethra from the anterior vagina in 41% of slides. Nerves and vasculature were mostly concentrated in the LP (Table). Paired t-test demonstrated the posterior urethra to be significantly more innervated with small nerves compared to the anterior (Table). MANOVA revealed further differences along the length of the urethra; the distal posterior urethra had significantly more large vessels compared to the proximal posterior urethra ($p = 0.03$). While this proximal posterior segment showed greater wall thickness ($p = 0.168$) and large nerve count ($p = 0.053$), these did not reach significance. No other significant differences in urethral thickness, innervation, vasculature, or anatomic features were noted anteriorly versus posteriorly or between the zones.

CONCLUSION: Histologically, a distinct plane may separate the urethra and anterior vagina, relevant to dissections in this region. Nonetheless, we were unable to confirm a suburethral ligament as shown in other studies. The posterior urethra appears to have greater innervation compared to the anterior and may be most innervated proximally. Nerve and vascular histology observed in our study may relate to the etiology or occurrence of pathologic conditions such as incontinence, fistula formation, and mesh erosions.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Donna Mazloomdoost: Nothing to disclose; Lauren B. Westermann: Nothing to disclose; George Mutema: Nothing to disclose; Catrina C. Crisp: Nothing to disclose; Steven D. Kleeman: Nothing to disclose; Rachel N. Pauls: Nothing to disclose.



40 Effect of radiofrequency endometrial ablation on dysmenorrhea

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OBJECTIVES: The primary aim of this study was to examine rates of dysmenorrhea after radiofrequency endometrial ablation in patients with and without known dysmenorrhea symptoms prior to the procedure.

MATERIALS AND METHODS: A retrospective cohort study of women who underwent endometrial ablation from 2007 to 2013 at our institution was performed. Patients who had preoperative and postoperative pain symptom assessments recorded utilizing a 0-10 VAS scale and description of timing were included. Exclusion criteria included: age < 19 or operative biopsy findings consistent with complex atypical hyperplasia. The primary outcome, difference in preoperative and postoperative rates of dysmenorrhea, was evaluated with McNemar's test. Mantel-Haenszel test of association was used to evaluate factors associated with dysmenorrhea resolution.

RESULTS: Three hundred seven patients were identified as having undergone radiofrequency endometrial ablation. After exclusions, 296 charts were examined and 144 patients met enrollment criteria. Mean age was 45.4 years +/- 6.2, 57 (40%) were African American, 16 (11%) had a BMI >40, and 41 (29%) were of normal weight. Preoperative dysmenorrhea was reported by 100/144 (69%); 48/100 (48%) of the patients with preoperative dysmenorrhea had resolution of symptoms at their postoperative evaluation. No dysmenorrhea was reported by 44/144 (31%) patients preoperatively; of these, only 3 (7%) reported new onset dysmenorrhea postoperatively. Significantly fewer patients had dysmenorrhea after radiofrequency ablation (55/144; 38%) compared to before (100/144; 69%; $p < 0.001$). Mantel-Haenszel test of association showed resolution of dysmenorrhea after ablation was related to reduction in bleeding volume ($p = 0.048$) but not to reduction in bleeding frequency ($p = 0.12$).

CONCLUSION: Approximately half of the women who underwent radiofrequency endometrial ablation for the indication of heavy menstrual bleeding with known preoperative dysmenorrhea reported resolution after the procedure. Patients with heavy menstrual bleeding accompanied by dysmenorrhea were more likely to have resolution of their pain symptoms if their menstrual flow volume was decreased post procedure. This information can be utilized to inform the expectations of patients undergoing endometrial ablation for menorrhagia who also have dysmenorrhea.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Sabrina Wyatt: Bayer Healthcare, TVUS Training Faculty, Salary; Taylor Banahan: Nothing to disclose; Ying Tang: Nothing to disclose; Kavita Nadendla: Nothing to disclose; Jeff M. Szychowski: Nothing to disclose; Todd Jenkins: Nothing to disclose.

41 Laparoscopic skills labs: Impacting self-assessment through confidence

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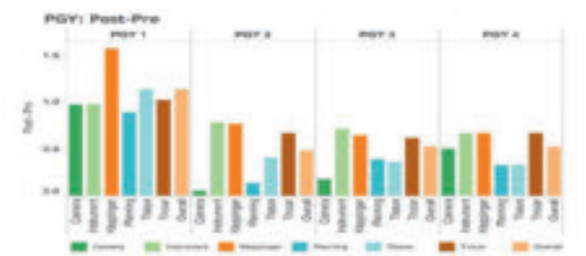
OBJECTIVES: To describe how a laparoscopic skills lab with attending oversight impacts the confidence of residents in six different laparoscopic areas: tissue handling, instrument handling, camera handling, laparoscopic planning, trocar placement, and a specific laparoscopic technique for bilateral tubal fulguration (BTF).

MATERIALS AND METHODS: We conducted a retrospective analysis of self-reported confidence scores (quantified via 5 point Likert scale) from surveyed OBGYN residents at a single training site before and after a 120 minute laparoscopic porcine lab. We measured change in confidence as the difference between post- versus pre-lab reported survey confidence scores in the previously mentioned six areas of tissue handling, instrument handling, camera handling, laparoscopic planning, trocar placement, and Kleppinger technique for BTF. Statistical analysis used Wilcoxon rank-sum and signed-rank tests with an $\alpha = 0.05$ confidence level after Bonferroni adjustment for multiple comparisons.

RESULTS: A total of 50 OBGYN residents (PGY1 n=15, PGY2 n=9, PGY3 n=15, PGY4 n=9) contributed to the confidence data collected during a first time exposure to the skills lab. All PGY years reported an increase in overall confidence with PGY1 residents demonstrating the largest increase in confidence (p value < 0.001). The median increase in overall confidence score for PGY1 was 1.1, PGY2 0.5, PGY3 0.5, and PGY4 0.5. When we analyzed changes in confidence regarding skill in a specific area of laparoscopy all PGY levels demonstrated median increases in confidence (ranging from 0.3 to 1.0) for tissue handling, instrument handling, trocar placement, and Kleppinger technique. Median increases in laparoscopic planning (PGY 1 and 3) and camera handling (PGY 1 and 4) were also observed for a subset of participants. The greatest median increase in confidence was found in relation to the Kleppinger technique for all PGY levels (1.0).

CONCLUSION: Skills labs greatly increase learners' confidence in two areas: 1) when at the novice level and 2) when learning a well-established, outlined technique. Thus, self-assessment during laparoscopic skills labs has the greatest impact upon novice learners and learners focused upon a well-defined surgical approach/technique.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Judy H. Chen: Nothing to disclose; Doerthe Bruggemann: Nothing to disclose; Niquelle Brown: Nothing to disclose.



Displayed is the difference between post- and pre-lab confidence scores for all PGY levels in six areas of laparoscopic skills.

42 Medicare claims by region and physician practice type in OB/GYN

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OBJECTIVES: To compare national and regional billing and coding behaviors between obstetrician/gynecologists (OB/GYN), gynecologists (GYN), and Female Pelvic Medicine and Reconstructive Surgery (FPMRS).

MATERIALS AND METHODS: Using the 2012 Medicare Part B database, we sought at least 30 physicians per region of the U.S. To obtain this sample, physicians initially selected were those who ranked between 20th to 80th percentiles for the number of patients seen annually. From this group, 3 to 6 physicians per state were randomly selected in order to achieve at least 30 physicians per region. Additional physicians were sampled per region based on designations as OB/GYN, GYN, and FPMRS. National regions were defined as: Northeast-CT, ME, MA, NH, RI, VT, NJ, NY, PA; Midwest-IL, IN, MI, OH, WI, IA, KS, MN, MO, NE, ND, SD; South-DE, FL, GA, MD, NC, VA, DC, WV, AL, MS, TN, AR, LA, OK, TX; West-AZ, CO, ID, MT, NV, NM, UT, WY, AK, CA, HI, OR, WA. Physician demographics, including physician type, were obtained from online publicly available resources. The billing and coding information was extracted from the Medicare database. Analysis was done using Microsoft Excel and STATA version 14.

RESULTS: Our physician sample included 186 OB/GYN, 9 GYN, and 45 FPMRS (Table 1). Nationally, we found significant differences in the numbers of patients seen by physician type, GYN seeing the most (GYN 327/year; FPMRS 279/year, and OB/GYN 229/year; p=0.023). Nationally, GYN, and FPMRS coded for more services than OB/GYNs (p=0.0000). Mean services provided by physician type were: GYN 13.6 services receiving on average $192/patient; FPMRS 9.1 services receiving $287/patient; and OB/GYN 16 services receiving $130/patient. Nationally, the most frequent billing codes were E/M codes for established patients for all physician types (Table 2). FPMRS were significantly more likely to be linked to procedure codes (p=0.0000). Examining these metrics on a regional level documented few differences although physicians in southern states charged for more procedures, both in and out of the hospital, relative to other regions. Physicians working out of teaching institutions billed for more procedures than physicians working in other hospital settings (6.9 vs. 4; p=0.0000).

CONCLUSION: There are significant differences in number and types of Medicare billing information between physician types in our 2012 sample. These differences do appear in some cases to vary by region of the country and by teaching vs. non-teaching hospital. The proportion of procedure codes to office visits was predictive of total physician payment and was more favorable for FPMRS.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Sana Hussain: Nothing to disclose; Fnu Thida: Nothing to disclose; Ankita Gupta: Nothing to disclose; James Whiteside: Gynecare, consultant, consulting fee; AUGS, teaching, honorarium.

Table 1: Study Population Demographics

Variable	OB/GYN	Gyn	Urogyn	p
Total number sampled	330	9	47	NA
Mean age of physician sample (years)	55.2	54.0	48.9	p=0.0002
Number of years physician in practice (years)	27.4	30.1	23.9	p=0.0009
Number of patients seen/year 2012	229	327	279	p=0.0235
Mean number of services coded	16	13.6	9.1	p<0.0000
Number of services billed per patient	2.8	5.1	4.2	p<0.0001
Mean Medicare payment per patient ($)	139	192	287	p<0.0000
Mean number of CPT codes per physician	3.7	7.1	10.2	p<0.0000
Mean number of E/M code per physician	3.1	3.0	5.0	p<0.0000
Mean number of HPCSC code per physician	2.3	3	1.7	p=0.0027
Providers Affiliated with teaching physician (%)	25	0	33	p=0.0000

Table 2: Top five codes billed

MD Type	CODE	Definition of Code	Frequency (%)	Type of Code
Ob/Gyn	99213	Established Patient Office Visit - 15 min	177 (95)	E/M
	99214	Established Patient Office Visit - 25 min	121(65)	E/M
	99212	Established Patient Office Visit - 10 min	85(46)	E/M
	76830	Transvaginal Ultrasound of Pelvis	77(41)	OPT
	99203	New Patient Office Visit - 30min	63(34)	E/M
GYN	99214	Established Patient Office Visit - 25 min	9(100)	E/M
	99213	Established Patient Office Visit - 15 min	8(89)	E/M
	81002	Manual Urinalysis	6(67)	OPT
	99212	Established Patient Office Visit - 10 min	5(56)	E/M
	76830	Transvaginal Ultrasound of Pelvis	4(44)	OPT
FPMRS	99213	Established Patient Office Visit - 15 min	44(98)	E/M
	99214	Established Patient Office Visit - 25 min	41(91)	E/M
	51741	Electronic Assessment of Bladder Emptying (urodynamic testing)	39(87)	OPT
	99204	New Patient Office Visit - 45 min	35(78)	E/M
	51784	Non-needle Recording of Electrical Activity of Bladder Muscle/Bowel Openings (urodynamic testing)	28(64)	OPT

43 Variables affecting maximum urethral closure pressure (MUCP) and abdominal leak point pressure (ALPP) measurements

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OBJECTIVES: Maximum urethral closure pressure (MUCP) and abdominal leak point pressure (ALPP) both measure urethral function but have only a weak correlation. The objective of this study was to evaluate whether other variables, such as age and Kegel strength, differentially impact MUCP and ALPP measurements.

MATERIALS AND METHODS: This was a retrospective, cross-sectional study analyzing all women in the Vanderbilt University Medical Center Synthetic Derivative, a de-identified electronic medical record. Adult women who had undergone complex urodynamics with MUCP and ALPP measurements were identified by CPT codes 51797 and 51772. All women with urodynamic stress incontinence were included. Demographic information was obtained, as well as Kegel strength and POP-Q scores. Kegel scores were measured using the Oxford scale (0 to 5) and stratified into the following categories: absent to weak (0-1/5), medium (2-3/5), and strong (4-5/5).

RESULTS: The initial search yielded 837 women, of whom 318 patients met inclusion criteria. Mean age was 59.1 ± 13.2 years with 282 (94%) white, 14 (5%) African American and 4 (2%) other. The median parity was 2, and mean BMI was 29.6 ± 6.6. POP-Q measurements were stage I (23%), stage II (39%), stage III (15%), and stage IV (6%) with a similar distribution for point Ba. Only 15% of the women had undergone a prior anti-incontinence procedure. Women with higher Kegel strength had a higher MUCP, with a mean 2.8 cm water increase in MUCP from absent-weak to medium Kegel strength and a mean 6.9 cm water increase in MUCP from absent-weak to strong Kegel strength, p =0.0003. This relationship persisted after adjusting for age and BMI, p = 0.0375. Kegel strength was not related to ALPP (Table 1). MUCP and age were inversely related, but ALPP and age were not related. No relationship was seen for BMI or parity with either MUCP or ALPP.

CONCLUSION: MUCP increases with increasing Kegel strength among women with stress incontinence and is inversely related to age, whereas ALPP does not vary by Kegel strength or age.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Bryan J. Hill: Nothing to disclose; Sarah A. Fletcher: Nothing to disclose; Jeffrey Blume: Nothing to disclose; Renee M. Ward: Nothing to disclose.

Table 1: Measurements of urethral function categorized by Kegel strength among women with stress incontinence

	N	Kegel = 0,1 N= 127 Mean (sd)	Kegel = 2,3 N = 91 Mean (sd)	Kegel = 4, 5 N = 86 Mean (sd)
MUCP capacity (cmH20)	323	41 (20)	48 (19)	51 (21)
ALPP 150mL (cmH20)	199	71 (32)	65 (31)	73 (34)
ALPP capacity (cmH20)	247	66 (39)	67 (32)	69 (37)
Volume at which leaking occurred (mL)	318	157 (111)	156 (129)	149 (123)

44 Complex conductivity of normal and neoplastic uterus

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OBJECTIVES: While not perfect, there is preoperative screening for endometrial and cervical cancer, however, occult malignancy may still complicate seemingly benign hysterectomies. Furthermore, while available screening for endometrial cancer may reduce risk of occult malignancy, it is not cost effective in the asymptomatic patient. One diagnostic method that has not been explored for the uterine body, but has shown promise in cervical, breast, prostate, and skin cancer is bioimpedance. Electrical Impedance Spectroscopy (EIS) is a non-invasive bioimpedance technique that uses electrical conductivity and permittivity to assess the pattern of current flow through biological tissue. This pattern is determined by the shapes, arrangements, and internal structure of the cells. We hypothesize that EIS can distinguish the electrical properties of a freshly *ex-vivo* uterus with cancer from those without cancer.

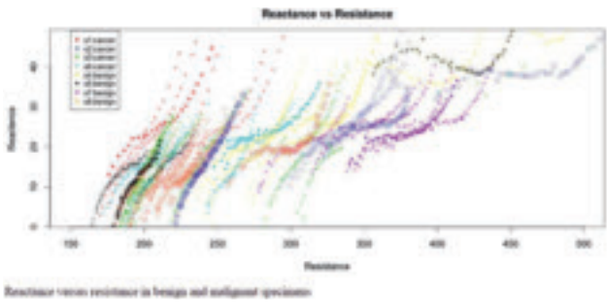
MATERIALS AND METHODS: A two-electrode tissue probe was fashioned and calibrated for a bioimpedance analyzer (Xitron). IRB waiver was granted for tissue research. Impedance spectra of 8 whole *ex-vivo* uteri were measured in the operating room immediately following hysterectomy. The probe measured impedance from the right, left, and middle uterine wall on both anterior and posterior surfaces. Four specimens contained endometrial cancer and 4 were benign.

RESULTS: The resistivity of malignant uteri was generally lower than the benign specimens. Within the malignant group, conductivity increased with increasing degree of myometrial invasion. A pattern

emerged showing lower electrical reactance versus resistance in the malignant samples on a 2-D analysis (Figure 1). This pattern held except for two uterine tissues that appeared in the malignant range (specimens 5 and 8). In addition, one specimen with an endometrium bordering on, but not diagnostic of well-differentiated endometrioid carcinoma had measurements in both malignant and benign ranges (specimen 2).

CONCLUSION: Where a particular tissue is on the electrical impedance spectrum depends on changes in cell arrangements and size of nuclei. In our initial observations with this technique, the difference in uterine tumor architecture appears to be detectible. The increasing conductivity for tissue invasion and the bimodal distribution of borderline malignant findings is encouraging. However, two benign specimens were seen in the malignant range. One contained leiomyomas and one did not. An ability to show bioimpedance suspicious for malignancy prior to minimally invasive surgical techniques, such as morcellation, may help guide preoperative or intraoperative decision-making. This technique may be another valuable tool in diagnosing endometrial cancer as well as helping with more accurate prediction of the extent of the disease, specifically the volume and the depth of myometrial invasion. This could allow for better selection of patients who may benefit from nodal evaluation. Further studies to evaluate this technique and improve upon specificity and sensitivity are needed.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Robert S. Kelley: Nothing to disclose; Ann Tran: Nothing to disclose; David Isaacson: Nothing to disclose; Jonathan Newell: Nothing to disclose; Gary Saulnier: Nothing to disclose; Andres Vargas: Nothing to disclose; Konstantin Zakashansky: Nothing to disclose; Charles Ascher-Walsh: Nothing to disclose.



45 Essure removal for presumed device side-effects: A case series and systematic literature review

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OBJECTIVES: To identify potential side-effects due to Essure device placement not previously described in the literature.

MATERIALS AND METHODS: Since FDA approval for Essure placement, Mayo Clinic data were retrospectively reviewed from January of 2002 to September of 2014. Women who had removal of Essure devices and whose clinical data were complete were eligible for analysis. Cases were identified via ICD-9 and CPT codes for removal of bilateral Essure devices.

RESULTS: Fourteen patients had surgical removal of Essure devices for varying symptomatology. The most frequently reported indications were post-placement chronic pelvic pain (4/14, 28.6%) and irregular bleeding (3/14, 21.4%). Two women (2/14, 14.3%) were unable to rely on the Essure for contraception due to persistent tubal patency, and interestingly 7.1% (1/14) had an intrauterine pregnancy despite bilateral tubal occlusion as exhibited by a hysterosalpingogram. Acute pain after placement requiring laparoscopic salpingectomy occurred in 7.1% (1/14). One patient desired future fertility and opted for in vitro fertilization after removal (1/14, 7.1%). Lastly, one patient, 7.1% (1/14), had sudden-onset profound, bilateral lower extremity edema and severe fatigue, and one patient, 7.1% (1/14), had multiple vague complaints after placement (hair loss, dizziness, memory loss, imbalance, and bleeding). Of these women, 78.6% (11/14) opted for laparoscopic salpingectomy and 100% had resolution of their symptoms. The remaining three opted for hysteroscopic removal (2/14, 14.3%) and hysterectomy (1/14, 7.1%) with subsequent resolution of symptoms.

CONCLUSION: Given these findings, it is apparent a myriad of symptoms previously not explored may be attributable to Essure devices. Although not all explainable, these symptoms seem to universally respond to surgical removal of the device.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Chetna Arora: Nothing to disclose; Sherif Shazly: Nothing to disclose; Shannon Laughlin: Nothing to disclose; Matthew Hopkins: Nothing to disclose; Daniel Breitkopf: Nothing to disclose; Abimbola Famuyide: Nothing to disclose.

46 Low fidelity contained manual tissue extraction simulation improves resident confidence

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OBJECTIVES: There has been recent controversy surrounding the use of power morcellators, which triggered an FDA warning that was released in November 2014. Since then, multiple hospitals have banned the device and several insurance companies have refused to compensate physicians for procedures using this device. In order to continue to provide minimally invasive options for women requiring gynecologic procedures, physicians have had to revert to alternate tissue extraction techniques for large specimens. Contained manual tissue extraction of large specimens can be difficult and time consuming. In our experience, we have found that there was a learning curve associated with this skill, which is why we sought to develop a simulation to allow physicians to practice contained manual tissue extraction outside of the operating room setting.

MATERIALS AND METHODS: We created a low fidelity simulator and filmed an instructional video depicting contained tissue extraction techniques. Our fourth-year residents first answered a questionnaire assessing their baseline exposure and confidence level with contained tissue extraction. They then each extracted a 355g beef tongue specimen from our simulator while being timed. The residents then viewed the instructional video, then they each once again extracted another 355g beef tongue specimen. Following the simulation, they answered another survey question regarding their confidence level. A paired t-test was used to compare confidence levels and tissue extraction times before and after the intervention.

RESULTS: Six fourth-year residents participated in the intervention. Four had ever seen power morcellation, one had ever performed it, and none had ever seen it in a contained fashion. All six had seen and performed manual morcellation vaginally, but never in a

contained fashion. Two had seen and performed manual morcellation abdominally, only one performed it in a contained fashion. The mean confidence level with contained manual tissue extraction of a large specimen increased from 1.83 before the intervention to 4.17 (SD = 0.41, p = 0.001) after the intervention on a 5-point Likert scale. There was no statistically significant difference in tissue extraction timing.

CONCLUSION: Our residents are rarely exposed to morcellation techniques, particularly in a contained fashion. Among fourth-year residents, this low fidelity simulation statistically significantly improved their confidence level in regard to contained manual tissue extraction of a large specimen.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Christina A. Saad: Nothing to disclose; Claire Templeman: Nothing to disclose; Jenny M. Jaque: Nothing to disclose; Michael Minneti: Nothing to disclose.

47 The role of virtual reality simulation in the evaluation of laparoscopic skills in gynecology

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OBJECTIVES: To determine if the parameters of performance for validated laparoscopic virtual simulation tasks correlate with self-reported characteristics and case volumes of practicing obstetricians and gynecologists.

MATERIALS AND METHODS: All obstetricians and gynecologists with laparoscopic privileges at a single institution were required to complete a pre-test survey and a series of virtual reality simulation tasks on the Surgical Science LapSim® laparoscopic simulator. The assessment was completed by 86 physicians with a median of 15 years in practice and included both generalists (71%) and fellowship-trained specialists. All participants completed a self-report survey about residency training, exposure to simulation and/or video games, general perception of skills, and their average monthly case volumes. They then performed 3 basic skill tasks on the LapSim® simulator. Correlations between the survey responses and the time, error, and economy of movement for each task were statistically assessed using a regression model. We focused on the variables most highly associated with the outcomes of interest ($p < 0.05$).

RESULTS: The physicians with higher self-perception of laparoscopic skills (mean = 6.7, scale of 1-10) completed the ring to peg transfer ($p < 0.0001$) and lifting and grasping task ($p = 0.04$) more quickly, with fewer drops per transfer ($p = 0.002$). Those who have been in practice longer (range 0-50 years) were slower to complete the ring to peg transfer ($p = 0.006$) and the lifting and grasping task ($p = 0.008$). They also had more drops per transfer ($p = 0.02$), more tissue damage during lifting and grasping ($p < 0.001$), and higher rip failure and damage scores during the cutting task ($p < 0.001$, $p = 0.03$). Physicians who had fellowship training were faster in completing ring to peg transfer ($p = 0.01$) and had lower damage scores during cutting ($p = 0.01$). Physicians who reported an average of 6 to 10 laparoscopic cases per month and 11 or more cases per month were, respectively, 26.7 seconds and 37.7 seconds faster in completing the cutting task than those who reported less than 5 cases per month ($p = 0.03$, $p = 0.004$).

CONCLUSION: Simulation is gaining traction as a method of technical skill training and assessment in a variety of medical specialties. This is the first study to assess simulator performance among practicing obstetricians and gynecologists and explores correlations to their surgical training and practice. There are significant improvements in scores in those who completed residency training more recently and in those who have had fellowship training. These two factors presumably lead to higher self-perception of laparoscopic skills, which also significantly correlates with better scores. We have identified at least one simulation outcome measure that differentiates between low and high volume surgeons, suggesting that an expected level of performance can be established based on simulator performance. By determining performance as it correlates to active physician practice, there is an opportunity to assess skill and individualize training to maintain skill levels as case volumes fluctuate.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Shyama Mathews: Nothing to disclose; Frederick Friedman: Nothing to disclose; Alan Weinberg: Nothing to disclose; Michael Brodman: Nothing to disclose; Charles Ascher-Walsh: Nothing to disclose.

48 Perioperative complications following colpocleisis with concomitant vaginal hysterectomy

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OBJECTIVES: To identify and compare surgical characteristics and 30-day perioperative complications in patients who underwent colpocleisis with and without concomitant vaginal hysterectomy (VH) using the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database.

MATERIALS AND METHODS: Women who underwent vaginal closure procedures from 2006 to 2013 were identified in the ACS-NSQIP database utilizing Current Procedural Terminology (CPT) codes for Le Fort colpocleisis (57120) and vaginectomy (57110). Patients undergoing a concomitant VH were identified by CPT codes ranging from 58260 to 58294. Variables including patient demographics, operative time, hospital length of stay (LOS), transfusion, and reoperation were evaluated. Specific medical complications, surgical site infection, and urinary tract infection (UTI) rates were calculated. Variables were analyzed using chi-squared tests and student's t-tests for categorical and continuous variables, respectively.

RESULTS: We identified 740 women in the ACS-NSQIP database who underwent colpocleisis between 2006 and 2013. The majority (86.4%) underwent colpocleisis alone without VH and 101 patients (13.6%) underwent colpocleisis with VH. Patients undergoing colpocleisis alone were on average older than patients undergoing colpocleisis with VH (mean 79 vs. 77 yrs, $p < 0.05$) but did not differ in race ($p = 0.12$) or BMI ($p = 0.51$). There were no significant differences in medical comorbidities including diabetes ($p = 0.48$), tobacco use ($p = 0.83$), COPD ($p = 0.47$), congestive heart failure ($p = 0.45$) or hypertension ($p = 0.61$) between the two groups. Operative time was shorter for patients undergoing colpocleisis alone as compared to those with VH (103 vs. 138 minutes, $p < 0.001$). Mean hospital length of stay ($p = 0.90$), transfusion rates (11/639, 1.7% vs. 1/101, 1%, $p = 0.58$) and need for reoperation (13/639, 2.0% vs. 1/101, 1.0%, $p = 0.48$) were not different between the two groups. Serious medical complications were more common in women undergoing concomitant VH (5/639, 0.8% vs. 4/101, 4.0%, $p < 0.01$) (Table). There was no difference in superficial surgical site infection rates between the two groups (4/639, 0.6% vs. 1/101, 1.0%, $p = 0.68$). UTI was the most common post-operative complication (colpocleisis 32/639, 5.0% vs. colpocleisis with VH 2/101, 2.0%, $p = 0.18$).

CONCLUSION: Colpocleisis is a safe procedure with rare serious adverse events. VH at the time of colpocleisis is associated with more serious medical complications and longer operative times than colpocleisis alone.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Katarzyna Bochenska: Nothing to disclose; Alix Leader-Cramer: Nothing to disclose; Margaret G. Mueller: Nothing to disclose; Bhumy Dave: Nothing to disclose; Christina Lewicky-Gaupp: Nothing to disclose; Alexandria Alverdy: Nothing to disclose; Kimberly Kenton: Nothing to disclose.

49 Urinary tract infection rates after passive and active trial of void

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OBJECTIVES: We describe the rate of postoperative urinary tract infections (UTI) and rate of passed trial of voids (TOV) with active versus passive techniques in patients undergoing pelvic floor reconstructive surgery.

MATERIALS AND METHODS: This is an IRB approved retrospective cohort of patients who have undergone urogynecologic surgery at our institution from January 2011 until July 2015 by four different attendings. The baseline characteristics, type of anesthesia and the procedures performed were recorded. The type of postoperative TOV performed was extracted from order sets to separate groups between active and passive TOV. Passive TOV was defined as spontaneous filling of the bladder, with void after bladder was full and a bladder ultrasound for post void residual (PVR). An active trial of void was defined as retrograde filling of the bladder with a known volume with voiding immediately after and a catheterization for PVR. The patient was said to have a postoperative UTI if found to be treated for UTI within 3 weeks post op. A failed TOV was concluded if the patient was discharged home with a catheter after TOV. Results of the repeat TOV performed at the office were collected as well as continued use of catheterization at 6 weeks postop. Statistics were performed using Stata Statistical Software: Release 13. (StataCorp 2013; College Station, TX).

RESULTS: A total of 1153 patients were identified having underdone urogynecologic surgery with 790 (68.5%) with active TOVs and 363 (31.5%) with passive TOV. Baseline characteristics where similar between active and passive groups, but more patients with passive TOV were found to have had general anesthesia (76% vs. 64%, p<.001) and more patients with active TOV were found to undergo sling procedures (59% vs. 72%, p<.001). Rate of postoperative UTI was 16.3% with patients in the active TOV group with a significantly greater rate of UTI (19.1% vs. 10.2%, p< .001). 73.6% of patients passed their TOV with a higher rate of failed TOV in patients with an active TOV (33.3% vs. 11.3%, p<.001). When data was adjusted to exclude patients without a sling procedure, an increase in rate of post op UTI (18.5% vs. 9%, p<.001) and failed TOV (27.7% vs. 9.6%, p<.001) was still seen in the active TOV group. When data was adjusted for use of general anesthesia as well as sling procedure performed, the significance still remained with an increase rate of UTI (16.8% vs. 8.9%, p= .013) and failed TOV (25.5% vs. 9.8%, p <.001) in the active TOV group. Both analyses had similar rates of passing of the second TOV at the office in active and passive groups of approximately 81%.

CONCLUSION: In this retrospective cohort, patients undergoing an active TOV were more likely to have postoperative UTI and a failed TOV than patients undergoing a passive TOV. This increase rate of postop UTI and failed TOV remained when data was adjusted for use of general anesthesia and anti-incontinence procedure performed.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Lisa H. Jambusaria: Nothing to disclose; Abigail P. Davenport: Nothing to disclose; Bryan J. Hill: Nothing to disclose; Rony Adam: Nothing to disclose.

50 Combined natural orifice single site laparoscopy: C-NOSS

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OBJECTIVE: The objective of this surgical technique presentation is to demonstrate a novel, safe, and favorable approach to gynecologic surgery.

DESCRIPTION: This approach incorporates the advantages of single site laparoscopy and natural orifice surgery, resulting in better cosmetic outcome while adequately evaluating the peritoneal cavity. Single incision laparoscopy is associated with fewer scars but can be technically challenging. It also requires a large fascial incision. Vaginal surgery is the most minimally invasive approach to hysterectomy but does not allow for complete visualization of the peritoneal cavity. The presented technique utilizes two 5-mm umbilical trocars and a vaginal trocar to complete adnexal surgery or total hysterectomy. There are no specialized equipment needed other than a flexible, articulating grasper. The flexible grasper is used through the vaginal trocar to assist the primary surgeon with retraction and counter-traction. The primary surgeon uses a 5-mm camera through one trocar and a 5-mm bipolar device through the other. Specimen removal and colpotomy incision closure are completed vaginally.

CONCLUSION: This procedure allows for full assessment of pelvic and abdominal anatomy, may improve postoperative pain, and has a desirable cosmetic outcome. It has been used successfully to perform oophorectomies and total hysterectomies without need for conversion to standard laparoscopic techniques or laparotomy.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Amanda Hill: Nothing to disclose; Lee M. Hammons: Nothing to disclose; Lindsay Clark: Nothing to disclose; Masoud Azodi: Nothing to disclose.

51 Comparisons of functional support with sacrohysteropexy versus sacrocolpopexy: A cadaveric study

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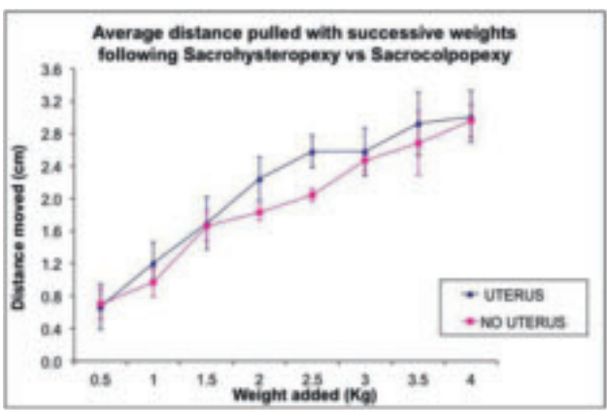
OBJECTIVES: Abdominal sacrocolpopexy with concomitant hysterectomy is generally considered the gold standard surgical treatment for uterovaginal prolapse. Uterine-sparing procedures provide options for patients who oppose hysterectomy or desire future fertility. Although limited, studies comparing outcomes in patients undergoing sacrohysteropexy and sacrocolpopexy with hysterectomy suggest better subjective results in the latter, despite similar objective anatomic outcomes. The purpose of this study was to compare the ability of sacrohysteropexy and sacrocolpopexy to resist downward traction as a measure of functional anatomic support.

MATERIALS AND METHODS: This IRB-exempt study utilized unembalmed female human cadavers. Sacrohysteropexy was performed on 6 cadavers, by affixing polypropylene mesh posteriorly on the uterus/vagina and anchoring it to the anterior longitudinal ligament overlying the S1 sacral vertebrae. A 9/16 to 3/4-inch diameter metal washer was placed above the midline uterine fundus and attached to a 6 inch long, 8/32 diameter bolt that was threaded through a small opening created at the uterine fundus, down the cervical canal, and out the vagina. The vaginal end of the bolt was fastened to a waxed surgical filament oriented parallel to the table and over a fixed pulley at the table's end. Successive weights of 0.5 to 4.0 kg (in 0.5 kg intervals) were added to provide increasing loads on the uterine fundus, and the distances traversed by the fundus were recorded. The same process was repeated after completion of a total hysterectomy (with vaginal cuff closure) and subsequent sacrocolpopexy with posterior mesh placement. Data were analyzed using ANOVA for within group comparisons. The mean distances traversed for each weight for the two procedures were compared using Student's t tests (Sigma Plot version 13.0), with $P \leq 0.05$ considered statistically significant.

RESULTS: The mean age of the cadavers was 75.3 years. Average BMI was 26.6 kg/m2. All specimens were white. Average distances (± standard deviation) in cm pulled with 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, and 4.0 kg of traction against the uterine fundus after sacrohysteropexy were 0.7 (± 0.3), 1.2 (± 0.5), 1.7 (± 0.5), 2.2 (± 0.5), 2.6 (± 0.6), 2.6 (± 0.6), 2.9 (± 0.8), and 3.0 (± 0.7), respectively. After hysterectomy with sacrocolpopexy, these distances (cm) were 0.7 (± 0.3), 1.0 (± 0.4), 1.7 (± 0.4), 1.8 (± 0.4), 2.0 (± 0.4), 2.5 (± 0.4), 2.7 (± 0.9), and 3.0 (± 0.6), respectively. Figure 1 illustrates the distances traversed by the apex for these two procedures. There were no statistical differences in the distances moved between sacrohysteropexy and total hysterectomy/sacrocolpopexy.

CONCLUSION: In this study, using each cadaver as its own control, there was no difference in the ability of the uterine fundus (after sacrohysteropexy) compared to the vaginal cuff (after sacrocolpopexy) to resist downward traction of successive weights up to 4 kg, as measured by the apical distance traveled. This suggests that functional support provided by these two procedures may be similar. Further studies are needed to correlate these findings with patient satisfaction, which may vary despite similar anatomic results.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Pedro A. Maldonado: Nothing to disclose; Lindsey Jackson: Nothing to disclose; Maria Florian-Rodriguez: Nothing to disclose; Clifford Y. Wai: Nothing to disclose.



52 Treatment of ashermans syndrome with an intrauterine amniograft to provide a "scaffold" platform for endometrial cell regeneration

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OBJECTIVES: To determine if placing an AmnioGraft at the time of hysteroscopic treatment for Ashermans syndrome will promote regeneration of the endometrium.

MATERIALS AND METHODS: This study was conducted on women with the diagnosis of severe Ashermans syndrome, a thin endometrial stripe, and a desire for future fertility. The AmnioGraft model was adapted from the ophthalmology literature, as it has been successfully used as a biologic ocular transplantation graft. On presentation to the fertility clinic, patients were counseled on the potential benefits of the biologic membrane, AmnioGraft, as it is designed to prevent scaring, reduce inflammation, and promote wound healing. The women then underwent operative hysteroscopy, lysis of intrauterine synechiae under ultrasound guidance, and curettage. A 3.5 x 3.5 cm AmnioGraft was wrapped around a Cook intrauterine balloon stent and inserted into the uterus. The stent was maintained for two weeks, and the patient received antibiotics and high dose estrogen therapy during this time period.

RESULTS: Seven women received the AmnioGraft between the years 2011 and 2014. Five of the seven women had amenorrhea prior to the surgery (ranging from 1.5-8 months of amenorrhea), and all of the women achieved menses post-operatively. The average change in endometrial thickness of the pre to post-operative endometrial stripe was an increase of about 2.7 mm. Two of the seven women achieved pregnancy. The first patient had a di/di twin gestation after a cycle of in-vitro fertilization. The second patient had a spontaneous chemical pregnancy with a subsequent spontaneous singleton gestation. Three patients attempted IVF cycles and did not achieve a pregnancy; one patient has frozen embryos but has not undergone embryo transfer; and one patient decided to proceed with using a gestational carrier.

CONCLUSION: The AmnioGraft may provide an alternative treatment option for patients with Ashermans syndrome who desire future menses and pregnancy. Future larger randomized studies need to be performed to confirm this result.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Gretchen Collins: Nothing to disclose; Suruchi Thakore: Nothing to disclose; Bansari Patel: Nothing to disclose; James Liu: Pfizer, consulting, consulting fee; Sermonix, consulting, consulting fee; Charter venture, consulting, consulting fee; Actans, consulting, consulting fee; University California San Francisco, grant reviewer, Honorarium; Nuelle, consulting, consulting fee; Nora Therapeutics, Inc., Data Safety Monitoring Board, Data Safety Monitoring Board.

53 Prevalence of defecatory symptoms in patients with posterior vaginal wall defects on dynamic MRI

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OBJECTIVES: Magnetic resonance imaging (MRI) has the ability to characterize small changes in vaginal support. Over the last decade,

the use of dynamic MRI (dMRI) to assess multi-compartment prolapse has added to the understanding of anatomical defects within the pelvic floor. We sought to determine the prevalence of defecatory dysfunction in women with MRI-identified posterior vaginal wall defects (MRIPD).

MATERIALS AND METHODS: We retrospectively reviewed data of women who presented to a tertiary referral center for pelvic medicine and underwent a pelvic dMRI. At the time of dMRI, patients were administered an intra-rectal and intra-vaginal mixed solution containing ultrasound gel, barium, and gadolinium. MRI was performed on 1.5T and 3T scanners: Axial, coronal, and sagittal fast T2 sequences (HASTE, SSFSE). Multiple dynamic mid sagittal slices were acquired at rest and during maximal pelvic floor straining. Prolapse of all vaginal compartments was measured and graded by published guidelines. MRIPD was considered present if grade 1 or higher. Physical exam posterior defect (PEXPD) was considered present if Baden-Walker grade 1 or higher. Defecatory symptoms were obtained from the Pelvic Floor Distress Inventory and patient presenting complaint. Defecatory symptoms, MRIPD, and PEXPD were analyzed using logistic regression to calculate adjusted odds ratios; confidence intervals of 95% and p-values of <0.05 were considered significant.

RESULTS: Between 1/1/2013 and 7/1/2014, 116 patients underwent dMRI. Median age was 61 years (range 29-87); mean BMI was 26.5 kg/m^2 (range 19-41); median vaginal deliveries was 2 (range 0-8). The overall prevalence of MRIPD was 75.8% (88 of 116); 83.3% (40 of 48) in symptomatic patients and 70.7% (48 of 68) in asymptomatic patients. Overall prevalence of defecatory symptoms was 41.4% (48 of 116). In MRIPD patients only, the prevalence of defecatory symptoms was 45.4% (40 of 88): 43.6% in grade 1; 45.2% in grade 2; 50% in grade 3. Defecatory symptoms were not strongly associated with either MRIPD (OR 1.86, CI 0.64-5.84, p 0.265) or PEXPD (OR 0.614, CI 0.26-1.40, p 0.248), while MRIPD and PEXPD were significantly associated with one another (OR 3.5, CI 1.25-11, p 0.021).

CONCLUSION: In conclusion, the prevalence of defecatory symptoms in MRIPD patients was similar across grades. Symptoms were not predictive of MRIPD or PEXPD, with most patients being low grade (1 or 2). The detection of posterior defects on dMRI is high and is commonly associated with symptoms.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: My-Linh T. Nguyen: Nothing to disclose; Seth Cohen: Nothing to disclose; Christine C. Pan: Nothing to disclose; Vincent N. Vu: Nothing to disclose; Jenny Y. Mei: Nothing to disclose; Elizabeth Fisseha: Nothing to disclose; Zaid Chaudhry: Nothing to disclose; Evgeniy I. Kreydin: Nothing to disclose; Janine L. Oliver: Nothing to disclose; Shlomo Raz: Nothing to disclose; Christopher Tarnay: Nothing to disclose.

54 Core privileging: Hospitals' approach to gynecologic surgery

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OBJECTIVES: Privileging defines a physician's scope of practice and is a data-driven and peer-reviewed process often determined by the department chair and medical staff leadership at local hospitals.(1) The Joint Commission does not mandate a specific format for physician credentialing and privileging, but rather each individual hospital's governing body is responsible for credentialing and privileging its staff. (2) While guidelines have been published for other medical procedures such as endoscopy and colonoscopy, no standardized guidelines have been established for gynecologic surgery. (3) The objective of this study is to examine the variability of the criteria used to grant surgical privileges for gynecologic procedures at 5 high-volume academic and community-based US hospitals.

MATERIALS AND METHODS: We conducted a cross-sectional study using data obtained from surveys distributed to 5 geographically diverse hospital systems. The survey items included questions regarding the criteria for designating core privileges, training requirement criteria, and minimum and annual case numbers needed for initial privileging and maintenance of privileges for a list of gynecological procedures.

RESULTS: Among all minor gynecological procedures, only dilation and curettage was listed as a core privilege at all 5 institutions. Of all endoscopic and major procedures, the institutions differed greatly in number of procedures listed requiring advanced training. Laparoscopic hysterectomy was listed as a core privilege at 2 institutions, while 3 required advanced training only. All 5 institutions required advanced training for robotic-assisted surgery but differed greatly in minimum and annual case numbers needed for credentialing. Some institutions granted provisional robotic privileges while requiring supervised cases and evaluation of surgical outcomes over a finite time period, while others granted full privileges immediately. Only one institution required advanced training for hysteroscopic sterilization. The majority of programs required advanced training for placement of suburethral slings, although criteria varied.

CONCLUSION: Considerable variability exists in the criteria used by hospitals for granting and maintaining surgical privileges for gynecologic procedures. Determining the right level of credentialing will require high level efforts to enhance the quality and safety of gynecologic surgery.

REFERENCES:

1) Crane AK, Illanes DS, Adams SR, et al. Surgical Privileging in Gynecology: A Fellows' Pelvic Research Network Study. Female Pelvic Medicine & Reconstructive Surgery. 2014;20:19-20.
2) Brincat CA, Doumouchtsis SK, and Fenner DE. Skill Acquisition, Credentialing, and Maintenance of Skills in Surgical Treatment of Pelvic Organ Prolapse and Urinary Incontinence. Clinical Obstetrics and Gynecology. 2013;56:238-246.
3) Wexner SD, Eisen GM, Simmang C. Principles of privileging and credentialing for endoscopy and colonoscopy. *Dis Colon Rectum* 2002;45:161-114.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Moiuri Siddique: Nothing to disclose; Nemi Shah: Nothing to disclose; Amy J. Park: Nothing to disclose; Beatrice Chen: Nothing to disclose; Stephen Emery: Nothing to disclose; Tommaso Falcone: Nothing to disclose; Rebecca Margulies: Nothing to disclose; Charles Rardin: Nothing to disclose; Cheryl Iglesia: Nothing to disclose.

55 Intravesical electrical stimulation (IVES) treatment for overactive bladder syndrome (OAB): A pilot study

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OBJECTIVES: To assess the efficacy of Intravesical Electrical Stimulation (IVES) with a novel technique in a pilot study on women with urinary urgency and/or urgency urinary incontinence.

MATERIALS AND METHODS: The study was approved by the Loma Linda University Medical Center Institutional Review Board. After informed consent was obtained, IVES was performed in women with OAB-wet (episodes of urinary urgency incontinence $\geq$3 in 3-day voiding diary) or OAB-dry (frequency $\geq$8/day or nocturia $\geq$2/night) who failed prior medical treatment. Patients with neurogenic bladder, stress predominant urinary incontinence, or other recent OAB treatments were excluded. An 8 Fr detruset™ IVES catheter (EMED, El Dorado Hills, CA) was used to deliver electrical stimulation into the bladder. Each therapy session lasts 20 minutes and all subjects received biweekly treatment for 4 weeks. The primary outcome was PGI-I (Patient Global Impression of Improvement, 1-7 with 1 being the best) at 3 months after treatment. The secondary outcomes included visual analog scale (VAS, 0-10 with 10 being the worst) of symptom severity, validated standard questionnaires (OAB-q SF, PFDI, and PFIQ), reduction in urinary frequency and urgency incontinence episodes (average per day) in 3-day voiding diary, and adverse effects. Comparative statistics were performed using paired t-test or nonparametric Wilcoxon test with a p value of $<$0.05 considered statistically significant.

RESULTS: A total of 16 patients were included for analysis. The mean age was 60.8 years (range 29-74). All subjects completed the 4-week treatment and were followed up for 3 months after treatment for evaluation. Fourteen (88%) subjects reported improvement on PGI-I (11 with "a little better," 2 with "much better," and 1 with "very much better"). The OAB-q SF scores in both symptom severity and quality of life showed statistically significant improvement (Table 1). Patients also demonstrated a significant improvement in the pelvic floor distress inventory in the domain of pelvic organ prolapse as well as urinary distress. There was an improvement in quality of life pertaining to bladder symptoms. The 3-day voiding diary results showed decrease of urinary frequency from 10.7$\pm$4.2 at baseline to 8.6$\pm$2.6 (P = 0.01) at 3 months after treatment. No pain was reported during the treatment session. There was one episode of UTI throughout the study and no other adverse events were reported.

CONCLUSION: Intravesical electrical stimulation is a safe and effective novel treatment for overactive bladder syndrome. Larger and comparative studies are needed to investigate its potential for long-term treatment.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Junchan J. Yune: Nothing to disclose; Jim Shen: Nothing to disclose; Jeffrey Hardesty: Nothing to disclose; Joo Kim: Nothing to disclose; Sam Siddighi: Nothing to disclose.

Table1

	Before treatment*	After treatment*	Change*	P Value
Bother scale	7.6±2.5	6±2.9	-1.7±2.3	0.01
OABqSF	49.3±13.7	35.4±16.6	-13.8±14.2	0.001
OABqbother	24.8±4.9	18.8±7.9	-6.0±7.2	0.004
POPDI-6	4.1±3.9	1.6±2.3	-2.4±3.7	0.02
CRAID-8	3.6±4.3	2.3±4.3	-1.3±3.1	0.11
UDI-6	7.8±4.1	4.8±4.5	-3.0±4.3	0.01
PFIQ-Bladder	48.6±22.8	35.1±25.5	-17.8±14.5	<0.001
PFIQ-Bowel	4.4±8.5	10.8±29.9	0.4±16.6	0.3
PFIQ-Vagina	1.9±7.3	3.8±12.1	2.2±5.9	0.5
Frequency**	10.7±4.2	8.6±2.6	-2.1±3.1	0.01
UUI number**	3.0±3.7	2.1±2.7	-0.8±4.3	0.1
Pad change**	2.9±3.3	1.8±1.8	-1.1±2.3	0.08

*Mean +/- SD

**average number per day in 3-day voiding diary

56 Robotically assisted versus vaginal hysterectomy

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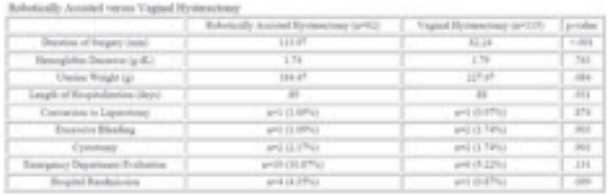
OBJECTIVES: A minimally invasive approach to hysterectomy is associated with fewer complications, earlier return to functional status, and decreased hospital length of stay. Amongst all hysterectomies being performed in the United States, surgeons are increasingly opting to utilize a robotically assisted approach, rather than a vaginal approach. Little data is available demonstrating a benefit of robotically assisted hysterectomy over the more minimally invasive, vaginal approach. The primary objective of this study was to compare perioperative outcomes of patients undergoing robotically assisted hysterectomy (RAH) or vaginal hysterectomy (VH).

MATERIALS AND METHODS: A cohort of all consecutive patients undergoing RAH or VH without concomitant procedures between September 1, 2012, and August 31, 2014 was evaluated retrospectively. Exclusion criteria were concomitant adnexectomy, lymph node dissection, or prolapse repair. The primary outcome was perioperative data and secondary outcomes included patient demographics.

RESULTS: A total of 207 women met study inclusion criteria and underwent a RAH (n=92) or VH (n=115). Preoperative patient demographics showed patients undergoing RAH to be comparable to patients undergoing VH in respect to body mass index (32.05 vs. 28.51 kg/m^2, p=.094), American Society of Anesthesiologists class (1.99 vs. 1.91, p=.378), and race (p=.799). Patients undergoing RAH were younger than those undergoing VH (43.17 vs. 46.31 years, p=.002). Surgical history was comparable between the RAH and VH in mean number of prior laparotomies (.16 vs. .09, p=.154), laparoscopies (.73 vs. .58, p=.283), and cesarean deliveries (.38 and .24, p=.156). The duration of surgery was shorter amongst those undergoing VH (113.97 vs. 82.24 min, p<.001). There were no significant differences in post-operative hemoglobin decrease (1.74 vs. 1.79 g/dL, p=.763), uterine weight (184.47 vs 227.67 g, p=.084), or length of hospitalization (.89 vs. .88 days, p=.931). There were no significant differences in complication rates between RAH and VH with conversion to laparotomy in 1.09% (n=1) and 0.97% (n=1), respectively (p=.874); excessive bleeding in 1.09% (n=1) and 1.74% (n=2), respectively (p=.903); cystotomy in 2.17% (n=2) and 1.74% (n=2), respectively (p=.903). No significant differences in unscheduled post-operative medical evaluation were seen between RAH and VH groups with emergency department evaluation in 10.87% (n=10) and 5.22% (n=6), respectively (p=.131) and hospital readmission in 4.35% (n=4) and 0.87% (n=1), respectively (p=.099).

CONCLUSION: When compared to robotic assisted hysterectomy, vaginal hysterectomy is associated with a significantly shorter operative time without adversely affecting patient outcomes.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Megan Wasson: Nothing to disclose; Kristina A. Butler: Nothing to disclose; Javier F. Magrina: Nothing to disclose.



57 Long-term effect of instituting a laparoscopic curriculum on knowledge of OBGYN residents

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OBJECTIVES: We aimed to assess the effect of a structured laparoscopic curriculum on resident knowledge, as well as on retention of knowledge of the fundamental principles of laparoscopy.

MATERIALS AND METHODS: This is a prospective interventional study, performed at an academic community hospital. Initially, we administered a pre-intervention test to 20 residents in the OBGYN department. The junior residents (n=10) were brought through our structured laparoscopic curriculum over the course of the academic year, while the senior residents continued in the traditional teaching model (n=10), based solely in guiding the residents in the operating room. The structured laparoscopic curriculum consists of classroom-based lectures in addition to operating room exposure. The lectures pertained to the fundamental principles of laparoscopy, and we included patient positioning and related nerve injuries, electrosurgery, laparoscopic equipment, physiological considerations, and laparoscopic complications. After the course of the academic year, all the residents were administered a post-intervention exam. In sequence, 5 months later, the junior residents were administered the same exam. Test scores were compared, averages calculated, and t-test applied.

RESULTS: In the first stage, the average pretest score for junior residents was 35%, and for senior residents was 42.14%. On the other hand, the average posttest score for junior residents was 75.71%, and for senior residents was 48.70%. This means, in absolute numbers, that the junior residents group improved 40.71%, while the senior residents improved 6.42%, which is a statistically significant difference (t-value=4.5; $p<0.01$). In the second phase, 5 months after the course of the academic year, the average score for junior residents was 66.42% (Figure 1). Compared to their initial posttest score (75.71%), there was no statistically significant difference (t-value= 1.5, p=0.14).

CONCLUSION: Introducing a laparoscopic curriculum to a residency program has a significant impact on improving resident knowledge of the fundamental principles of laparoscopy, as well as in retaining the acquired knowledge. Future studies are underway to evaluate the effect of a structured didactic curriculum on resident operating room performance.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Camila Caroline De Amorim Paiva: Nothing to disclose; Nancy Tang: Nothing to disclose; Pedram Bral: Nothing to disclose.

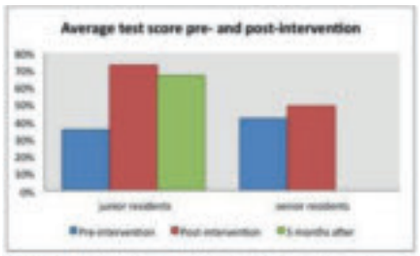

Figure 1. Comparison between average test score pre- and post-intervention among junior and senior residents.

58 Feasibility, safety, and prediction of complications for complex minimally invasive myomectomy

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OBJECTIVES: To assess perioperative outcomes and predict complications for complex minimally invasive myomectomy.

MATERIALS AND METHODS: This is a retrospective cohort study of women undergoing a minimally invasive surgical (MIS) approach to myomectomy by three fellowship-trained surgeons from April 2011 to December 2014. The setting is an academic medical institution that serves as a referral center for the surgical treatment of fibroids. Characteristics of women who experienced complications during MIS myomectomy were compared to those who did not, and predictors of complications were then identified. All surgeons used similar surgical technique.

RESULTS: The cohort included 221 patients, of which 47.5% had laparoscopic myomectomy and 52.5% had a robotic myomectomy. Sixty-percent of women were black and 81% had private health insurance. The mean (SD) body mass index (BMI) was 28 (6.5) and 22% had a prior laparotomy. The mean (SD) specimen weight in grams, dominant myoma diameter in centimeters, and number of myomata removed were 408.1 (384.9), 9.6 (5.1), 4.5 (4.1) respectively. The total complication rate was 10.4%. The rate of estimated blood loss greater than 1000 cc was 8.6% and the rate of transfusion was 4.1%. These accounted for the majority of complications. There were no differences in demographics, BMI, surgical history, myomata type, and surgical approach between women who had a complication and those who did not. Women with complications had larger dominant myoma diameter (mean [SD] in cm 15.2 [6.4] versus 9.5 [4.49], p =.002), and greater number of myomata removed (mean [SD] 6.7 [6.3] versus 4.3 [3.7], p=.031). In a logistic regression model, dominant myoma diameter was the single characteristic that most reliably predicted surgical complications. However, a model combining both diameter of dominant myoma and number of myomata removed was the best at predicting complications while minimizing false positives (Figure 1).

CONCLUSION: In our cohort, MIS for complex myomectomies was safe and feasible when performed by expert surgeons. Our cohort had higher specimen weights, larger dominant myoma diameter, and number of myomata removed on average in comparison to other reports. However, complication rates remained equivalent.

Hemorrhage and transfusion accounted for most complications. A combination of diameter of dominant myoma and number of myomata removed reliably predicted complications while minimizing false positives. Both factors can be easily defined prior to surgery and can be potentially used to guide referral patterns, optimize pre-operative counseling, and guide the implementation of preventative measures for hemorrhage and transfusion.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Maria V. Vargas: Nothing to disclose; Gaby Moawad: Intuitive, Speaker, Honorarium; Applied, Speaker, Honorarium; Bayer, advisor, honorarium; Cem Sievers: Nothing to disclose; Jessica Opoku-Anane: Nothing to disclose; Cherie Marfori: Nothing to disclose; James Robinson: Intuitive, Speaker, Honorarium; Applied, Speaker, Honorarium; Bayer, advisor, honorarium.

Operator receiver characteristic (ROC) curve showing the true positive and false positive rate obtained for the logistic regression classifier which predicts occurrence of complications based on diameter of dominant myoma and number of myomata removed

59 Genitourinary fistula: A prospective study of transabdominal approach for 67 complicated cases at a tertiary care hospital, Khartoum-Sudan

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OBJECTIVES: It aims to study the success rate and surgical outcome of transabdominal approach for complicated genitourinary fistula cases.

MATERIALS AND METHODS: It is prospective total coverage hospital based ongoing study, which is conducted at Omdurman Maternity Hospital and IbnSinna specialized hospital at the Urology department by Fistula care Initiative Team (FcIT) from July 2014 to September 2015. Sixty-seven cases were operated after preoperative preparations guided by local protocol (includes medical fitness, nutritional, psychological support, special investigations- computerized tomography of urinary system (CTU) and cystoscopy.

RESULTS: The mean age is 22.3 years (SD=2.1 years). With exception of four cases the average time for surgical intervention after fistula diagnosis is 23.1 weeks (SD=1.2 weeks). The exceptional cases: two cases with vesical stones for 5 and 9 years, third case is end stage renal failure for 11 years planned for renal transplant and the fourth one sustained fistula before 54 years as a sequel of neglected obstructed labor. Fifty-three cases had history of obstructed labor, 11 cases had the fistula after difficult caesarean section (nine cases had combined Genitourinary fistula and ureteric injuries) and three cases developed fistula after forceps delivery one of them had combined fistula; Genitourinary (GU) and Rectovaginal (RV) fistula. With regards to the surgical intervention; this is the first attempt for 62 cases and second attempt for the rest. The mean operative time is 4:24:00 hours (SD=2.6 hours). The mean hospital stay is 13 days (SD= 1.7). Sixty-one cases passed uneventfully. Six cases have dripping of urine for mean of 6.5 days. Four cases stopped dripping and two failed cases repeated successfully; gives success rate of 97%.

CONCLUSION: Genitourinary fistula is most devastating obstetric morbidity in gynecological practice. Case management needs well trained multidiscipline team. Collaboration in training, logistic support, obstetric care is crucial for surgical success and directing in eradication of obstetric fistula.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Atif Fazari: Nothing to disclose.

60 Fecal incontinence knowledge questionnaire (FIKQ): Validating an instrument to assess knowledge of fecal incontinence in women

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OBJECTIVES: The purpose of this study was to develop a valid instrument that can be used to assess patient knowledge about fecal incontinence.

MATERIALS AND METHODS: We developed a written questionnaire to evaluate women's knowledge about fecal incontinence. The instrument comprises 12 items to assess four distinct domains of fecal incontinence that were developed a priori: epidemiology, etiology, diagnosis, and treatment. The survey was distributed to women presenting to outpatient primary care practices (internal medicine and general gynecology), subspecialty practices with an anticipated higher volume of women with fecal incontinence ([urogynecology; urogyn], gastroenterology [GI], and colorectal surgery [CRS]) as well as to community-dwelling women. The questionnaires were scored by assigning the value of 1 for each correct answer, and 0 for incorrect responses or for responses designated as "Don't know." The mean scores and standard deviations were determined for each of the individual items in the scale, and Cronbach's alpha was used to determine the internal consistency of the total 12-item scale as well as each of the 4 domains. Scores were also compared between women who presented to practices that routinely diagnose and manage a higher volume of women with fecal incontinence (urogyn, GI, and CRS, Group 1) and all other participants (Group 2) based on our hypothesis that women from the higher volume groups would have higher FIKQ scores. The mean scores and standard deviations were compared between women from the two groups.

RESULTS: The survey was distributed to 306 women, with 142 responses received from women seen at outpatient practices and 164 responses from the community. The mean scores for each of the 12 FIKQ items were found to be similar between Group 1 and Group 2. Cronbach's alpha coefficient for the overall scale was 0.77,

demonstrating good internal consistency. Domain-specific Cronbach's alpha values ranged from 0.34-0.65 for each of the 4 domains. The highest domain coefficient was demonstrated for the treatment domain which yielded an alpha of 0.65.

CONCLUSION: The 12-item FIKQ is a reliable instrument that can be used to assess women's knowledge about fecal incontinence. The frequency of low scale scores overall and similarity in mean scores for women in the two groups, precludes our ability to develop a discriminatory threshold for proficiency and lack of knowledge in the population studied.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Jamie Chao: Nothing to disclose; Lisbet Lundberg: Nothing to disclose; Hyelim Park: Nothing to disclose; Belinda Nhundu: Nothing to disclose; Priscilla Torres: Nothing to disclose; Alexandra Desire: Nothing to disclose; Karen Levy: Nothing to disclose; Marsha Guess: Nothing to disclose.

61 Understanding pre-operative staging and surgical practice in advanced endometriosis

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OBJECTIVES: The purpose of our study is to determine the pre-operative work-up and the surgical management of advanced stage endometriosis by Canadian Gynecologists.

MATERIALS AND METHODS: A survey was designed to determine the pre-operative investigations and surgical management of advanced stage endometriosis by Gynaecologists in Canada. It was electronically distributed by the Society of Obstetricians and Gynaecologists of Canada to 733 individuals.

RESULTS: The response rate was 15.7% (115 respondents). Preoperatively, 62.2% of respondents perform a TVUS on all of their patients, while an MRI is reserved for patients with physical exam findings suspicious for advanced endometriosis (26.7%) or in whom the surgeons suspect deep infiltrating endometriosis (DIE), bowel, bladder, or uterosacral disease (54.4%). Most surgeons (81.4%) report encountering advanced disease that they did not suspect preoperatively <10% of the time. The majority of our respondents identify that suspected DIE (68.8%), bladder (70.3%), bowel (78.1%), or ureteric involvement (78.1%) are absolute indications for pre-operative referral to an endometriosis specialist; however, most do not refer on the basis of symptoms (bowel (25%), bladder (18.8%), dyspareunia (6.3%)), physical exam findings (uterosacral nodularity 15.6%), or the presence of endometriomas (3.1%). Although most respondents identified the presence of DIE and organ involvement as absolute indications for referral to an endometriosis specialist, only 40% admit they routinely refer their patients in whom they suspect DIE, endometriomas, bowel, bladder or uterosacral ligament involvement to an endometriosis specialist prior to any attempted surgery, and 54.4% state they would never refer without previously confirming the diagnosis at laparoscopy. Although about half of the respondents would never refer pre-operatively to an endometriosis specialist, only 15% of all respondents felt comfortable treating advanced endometriosis completely at time of laparoscopy, while 32.2% would treat surface disease and excise endometriomas if present, and 30% would do the same and refer to a specialist. Post-operatively, 67.8% of respondents would refer patients to an endometriosis specialist if their disease was not appropriately treated at the time of surgery, while 23.3% do not refer any of their patients. The most important barriers to providing total laparoscopic treatment of endometriosis that were cited by the respondents were: lack of adequate surgical training (42.5%), lack of equipment (40%), lack of OR time (30%) and difficulty in accessing an endometriosis specialist (23.8%).

CONCLUSION: Our study identified significant variability in the management of advanced endometriosis in Canada, as well as existing and perceived barriers to complete laparoscopic treatment of severe endometriosis. Since such a small proportion of Gynaecologists in Canada feel comfortable completely managing advanced stage endometriosis surgically, this highlights the need to formulate a universal investigation and management plan for patients with endometriosis. This may improve the pre-operative identification of patients with advanced stage endometriosis who could benefit from treatment by an endometriosis specialist.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Andra I. Nica: Nothing to disclose; Grace Liu: Nothing to disclose; Amanda Selk: Nothing to disclose; Jamie Kroft: Nothing to disclose.

62 Surgical anatomy of vaginal sacrocolpopexy

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OBJECTIVES: The objective of this study was to describe the distances of the major vascular and nerve structures to the point of anchor of a polypropylene mesh following a vaginal sacrocolpopexy.

MATERIALS AND METHODS: A sacrocolpopexy was performed entirely via the vaginal retroperitoneal route in eight unembalmed cadavers with a surgically absent uterus. Two horizontal incisions, 3 cm in length, were made in the anterior and posterior vaginal walls 1 cm above the hymen. The rectovaginal and vesicovaginal spaces were dissected. The peritoneal cavity was entered at the apex. Under direct visualization, the posterior peritoneum at the apex was tented up and a Kelly clamp was tunneled retroperitoneally towards the sacral promontory. Following successive dilation of the tunnel, the anterior longitudinal ligament was identified and a polypropylene mesh was secured with either two permanent stitches or two tacks (Protack™, Covidien). Following the completion of the procedure, a laparotomy was performed and the distances of the major structures to the point of anchor of the polypropylene mesh were measured. Continuous variables were summarized by means, standard deviations, medians, and ranges.

RESULTS: In total, 8 cadavers (6 white and 2 African-American) were dissected. The average age was 78.1 (SD ± 5.5). In 5 cadavers the mesh was secured with stitches and in the remaining 3, it was secured with tacks (Image 1). The mesh was anchored in the middle of the S1 sacral vertebrae in 6 cadavers and at the superior edge of S2 in 2 cadavers. The mean vaginal length was 8.7 cm (SD ± 0.8), and the average distance from the hymen to the mid-sacral promontory was 11 cm (SD ± 0.5). The closest vessel to the anchoring point was the middle sacral artery with a mean distance of 0.6 cm (0-1.3). The mean distance to the middle sacral vein was 0.7 cm (0-1.4). On average, the closest major vessels were the right internal iliac artery and vein at 2.6 cm (2.2-3.3) and 2.6 cm (2.2-3.2) respectively. However, the left common iliac vein was noted to be as close as 1.9 cm in one cadaver and on average was at a distance of 2.7 cm (1.9-3.6). The mean distance of the right S1 sacral foramen was 2.4 cm (1.8-3.1) (Table 1). One cystotomy was noted following entry into the peritoneal cavity.

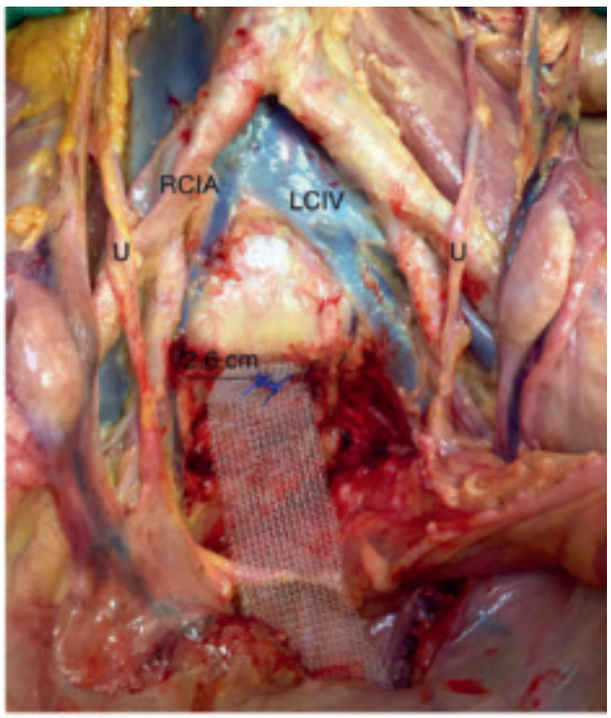
CONCLUSION: This anatomic study suggests that the location of the vascular and nerve structures is highly variable. Anchoring the mesh in the midline could minimize risk of injuring the major structures, however, the middle sacral artery and vein could be encountered. It

appears that it is possible to perform a total vaginal sacrocolpopexy but it is a novel procedure that requires further development and evaluation.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Karl Jallad: Nothing to disclose; Lauren N. Siff: Nothing to disclose; Mark D. Walters: Ethicon, Consultant, Honorarium; Marie Fidela R. Paraiso: Nothing to disclose.

Closest distance to anchoring point

Structure/ Structure	Mean (cm) ± SD	Median	Range (cm)
Right common iliac artery	2.1 ± 0.3	2.2	2.5-2.8
Right common iliac vein	3.0 ± 0.3	3.1	2.3-3.4
Right internal iliac artery	2.6 ± 0.4	2.5	2.2-3.3
Right internal iliac vein	2.8 ± 0.3	2.9	2.2-3.2
Left common iliac artery	3.3 ± 0.6	3.2	2.6-4.2
Left common iliac vein	2.7 ± 0.7	2.5	1.9-3.6
Left internal iliac artery	3.2 ± 0.6	3.2	2.4-4.0
Left internal iliac vein	2.7 ± 0.5	2.5	2.0-3.5
Closest vessel (aorta/ glutaic vein	0.1 ± 0.0	0.0	0.1-0.1
Right Ureter	1.0 ± 0.4	1.0	2.4-3.5



Anatomical landmarks
Right common iliac artery (RCIA) Left common iliac vein (LCIV) Ureter (U)

63 Minimally invasive hysterectomy for uteri greater than 1 kilogram

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OBJECTIVES: To assess the feasibility and safety of minimally invasive hysterectomy for uteri greater than 1 kilogram.

MATERIALS AND METHODS: This was a retrospective chart review at an academic tertiary care hospital. Information was gathered for patients who underwent minimally invasive hysterectomy by one of three fellowship trained gynecologists from 2009 to 2015 and had confirmed uterine weights of greater than 1 kilogram.

RESULTS: From 2009 to 2015, 95 patients underwent minimally invasive hysterectomy with confirmed uterine weight over 1 kg. Eighty-eight percent were performed with traditional laparoscopy and 12% with robotic-assisted laparoscopy. The mean (SD) uterine weight was 1564 grams (637.5) and ranged from 1000 grams to 4800 grams. The mean (SD) estimated blood loss was 334mL (385.8) and mean (SD) operating time was 203 min (73.7). Five cases were converted to laparotomy (5.2%). Four cases were converted secondary to hemorrhage and one conversion was due to extensive adhesive disease and inability to isolate and lateralize the left ureter safely making it hard to isolate the uterine artery. There were no conversions after 2011. There was one organ injury identified, damage to the serosa of the sigmoid colon during adhesiolysis, which was repaired laparoscopically. Intra-operative transfusion was given in 8.4% of cases and post-operative transfusion in 5.2% of cases. However, after 2013, the rate of intra-operative transfusion decreased to 1.0% and post-operative transfusion to 2.1%. Of the 95 cases there were no cases of malignancy.

CONCLUSION: To our knowledge, this provides the largest case series of hysterectomies over 1 kg completed by a minimally invasive approach. Our complication rate improved with experience and was comparable to other studies of laparoscopic hysterectomy for large uteri. When performed by experienced surgeons, minimally invasive hysterectomy for uteri greater than 1kg can be considered feasible and safe.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Traci Ito: Nothing to disclose; Maria Vargas: Nothing to disclose; Michael Shu: Nothing to disclose; Jessica Opoku-Anane: Nothing to disclose; Gaby Moawad: Intuitive, Speaker, Honorarium; Applied, Speaker, Honorarium; Bayer, Advisor, Honorarium; Cherie Marfori: Nothing to disclose; James Robinson: Intuitive, Speaker, Honorarium; Applied, Speaker, Honorarium; Bayer, Advisor, Honorarium.

64 Variability of commercial cranberry products for the prevention of uropathogenic bacterial adhesion

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OBJECTIVES: Cranberry has been known to reduce the number of urinary tract infections. Research suggests that the proanthocyanidins (PACs) in cranberry fruit actively prevent bacterial adhesion to the bladder wall, thereby preventing infection. We sought to measure the levels of PACs in commercially available cranberry products.

MATERIALS AND METHODS: Seven cranberry products were tested for bacterial anti-adhesion activity using a hemagglutination assay specific for P-fimbriated Escherichia coli. PACs were isolated using the gravimetric technique (C-18 followed by Sephadex LH-20 solid phase chromatography) to determine levels in each product and tested for anti-adhesion activity on an equal weight basis (starting concentration of 5 mg/mL).

RESULTS: Whole products anti-adhesion activity ranged from 0.47 to 60 mg/mL. PAC levels ranged from 0.56 to 175 mg/g. Whole product anti-adhesion activity for four of the products was not able to be detected. See Table 1.

CONCLUSION: There is a large amount of variability in the amount and bioactivity of PACs in commercially available cranberry product. In addition, there were several products that contained virtually no active component of cranberry.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Bilal Chughtai: Nothing to disclose; James C. Forde: Nothing to disclose; Amy Howell: Nothing to disclose.

Product	PAC Level (mg/g)	Anti-adhesion (MIC) Whole Product (mg/mL)	Anti-adhesion (MIC) of PACs (ug/mL)
1	25.4	3.5-7.5	156.0
2	4.0	Negative	5000.0
3	4.0	60	312.0
4	175.0	0.47	78.0
5	1.2	Negative	2496.0
6	1.4	Negative	2496.0
7	0.56	Negative	312.0-624.0

65 Contraceptive choices after endometrial ablation from 2007-2012 at an academic medical center

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OBJECTIVES: All premenopausal women who undergo endometrial ablation should be counseled to use reliable contraception due to significant reported complications in ensuing pregnancies. Nevertheless, there have been several reported post-ablation pregnancies in women up to age 50. This is the first study to characterize contraceptive choices women make after endometrial ablation.

MATERIALS AND METHODS: A retrospective chart review was performed on all women undergoing ablation at an academic tertiary care center from January 2007 to May 2012. Continuous features were summarized with medians and interquartile ranges (IQR), and categorical features were summarized with percentages. Comparisons of contraceptive choices between age groups were evaluated using the chi-square test. P-values .05 and below were considered statistically significant.

RESULTS: Endometrial ablation was performed in 496 premenopausal women (median age 44.5; IQR 41-49). Prior to ablation, women relied on permanent sterilization (75%), long acting reversible contraceptives (LARCS; 2.6%), reversible hormonal contraceptives (5.2%), barrier methods and fertility awareness (5.9%), and withdrawal (.2%); 8.1% of sexually active women did not use any contraception. Of the 124 patients who did not already rely on permanent sterilization, 46 (37%) underwent a concurrent contraceptive procedure at the time of ablation. Of these, nine elected concomitant laparoscopic sterilization, 31 chose hysteroscopic sterilization, and 6 had an intrauterine device placed. Following ablation, women utilized permanent sterilization (82.3%), LARCs (1.4%), reversible hormonal contraceptives (1%), barrier methods and fertility awareness (1.4%), and withdrawal (.2%); however, 9.7% of sexually active women did not use any contraception. There were no reported pregnancies. Pre- and post-ablation contraceptive choices were stratified by age less than 45 years (n=226) and age 45 and above (n=270). Prior to ablation, women less than 45 relied on permanent sterilization more often (79.2% vs. 71.5%; p=.05). This younger cohort more commonly underwent concurrent procedures for contraception at the time of ablation (p=.009). Following endometrial ablation, women 45 and above were significantly more likely to forego contraception use altogether (13.3% vs. 5.3%; p=.003) and to use barrier methods or fertility awareness (2.6% vs. 0%; p=.02).

CONCLUSION: Although many women elect reliable contraception after endometrial ablation, there is a considerable subgroup that chooses less reliable options. This pattern is pronounced in premenopausal women ages 45 and above, though they may still be at risk for pregnancy. Women of all age groups may benefit from tailored pre-ablation contraceptive counseling to decrease the post-ablation pregnancy rate.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Joy Beissel: Nothing to disclose; Daniel Breitkopf: Nothing to disclose; Abimbola Famuyide: Nothing to disclose; Matthew Hopkins: Nothing to disclose; Sherif Shazly: Nothing to disclose; Shannon Laughlin: Nothing to disclose.

66 Laparoscopic and robotic myomectomy: Comparison of cost and perioperative outcomes for complex cases

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OBJECTIVES: To compare cost and outcomes between laparoscopy and robotic-assistance in women undergoing complex myomectomy.

MATERIALS AND METHODS: This is a retrospective cohort study of women undergoing a minimally invasive surgical (MIS) approach to myomectomy by three fellowship-trained surgeons from January 2014 to December 2014. The setting is an academic medical institution that serves as a referral center for the surgical treatment of fibroids. Characteristics of patients undergoing laparoscopic and robotic myomectomy with largest myoma size >8 cm and/or specimen weight >250 g and/or >5 myomas removed were compared by surgical modality.

RESULTS: The cohort consisted of 70 patients with 54% laparoscopic and 46% robotic myomectomies. Aside from higher rates of Medicaid insurance in the robotic group (28% versus 8%, *P*=.0017), there were no differences in demographics and medical/surgical history. The robotic group had significantly lower rates of concomitant operative hysteroscopy (32% versus 2%, *P*=.014), mean (SD) specimen weights in grams (351.5 (417.6) versus 574.0 (525.5), *P*=.014), and mean (SD) operative time in minutes (150 (62.9) versus 216.7 (84.8), *P*=.0006), but no difference in number of myomas removed (median (range) 4 (1-16) versus 4 (1-20), *P*=.057) or size of dominant myoma (median (range) 8 (2-20 versus 10 (2-20)), *P*=.18). There was no difference in estimated blood loss or rate of complications. The mean (SD) direct in dollars for robotic cases was lower (5861.3 (2273.9) versus 7081.7 (3373.5), *P*=.0402) but indirect costs did not significantly differ 9833.5 (3749.7) versus 12048.6 (6396.3), *P*=.058). In an adjusted logistic regression model, cost was significantly increased by operative time, specimen weight, estimated blood loss, prior laparotomy, complications, and length of stay.

CONCLUSION: In this pilot study of expert surgeons using their preferred modality for complex myomectomy, outcomes and costs were comparable. Costs were most influenced by factors that increased surgical complexity and were contained in the robotics group. This preliminary data demonstrates a potential capacity for cost containment with the use of robotic surgery.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Maria V. Vargas: Nothing to disclose; Gaby Moawad: Applied Medical, Speaker, Honorarium; Intuitive Surgical, Speaker, Honorarium; Bayer, Advisor, Honorarium; Cherie Marfori: Nothing to disclose; Jessica Opoku-Anane: Nothing to disclose; James Robinson: Applied Medical, Speaker, Honorarium; Intuitive Surgical, Speaker, Honorarium; Bayer, Advisor, Honorarium.

67 Voiding dysfunction and lower urinary tract symptoms after native tissue versus graft-augmented vaginal prolapse repair

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OBJECTIVES: Pelvic reconstructive surgery is associated with short term voiding dysfunction in up to 34% of women and de novo overactive bladder in 5-12% of women. Our primary aim was to determine if short-term voiding dysfunction differed in patients undergoing native tissue vaginal prolapse repair versus graft-augmented anterior and/or apical prolapse vaginal repair. Our secondary aim was to evaluate the rate of post-operative overactive bladder symptoms following native-tissue versus graft-augmented repairs.

MATERIALS AND METHODS: We conducted a case-control study of women undergoing surgery for pelvic organ prolapse from 2008-2015. Cases and controls were identified using the vaginal surgery CPT codes 70.5, 70.51, and 70.77. Charts were reviewed consecutively for cases, which were identified by reviewing the operative report and confirming synthetic or biologic graft insertion. Controls were age-matched to cases. Short term voiding dysfunction was defined as a failed voiding trial, clinic visit, or emergency visit within 6 weeks of surgery resulting in replacement of Foley catheter or self-catheterization. Overactive bladder symptoms were recorded as present if reported at a post-operative visit and/or a treatment for overactive bladder was initiated. With a power of 0.8 and alpha of 0.05, where 81 subjects in each group were needed assuming 20% short-term voiding dysfunction in the native tissue group compared with 40% in the grafted group. Chi-square and t-tests were used as appropriate for bivariate comparisons. A regression model was used to control for concomitant procedures, preoperative PVR, parity, and synthetic versus biologic graft material.

RESULTS: Eighty-eight cases and 88 controls were identified. Mean age at surgery was 63 years for graft and 62 for native tissue subjects (p=0.44). Mean parity for the graft group was 2.80 compared with 2.54 for the native tissue group (p=0.05). Smoking status (p=0.60), prior pelvic surgery (p=0.50), prior bladder or prolapse surgery (p=0.90), and prior cesarean delivery (p=0.10) did not differ between groups. Amongst graft subjects, 43% reported preoperative overactive bladder symptoms compared with 44% of native tissue subjects (p=0.5). Preoperative post-void residual was statistically different between the native tissue group, 33ml, and the graft group, 46ml (p=0.03). Amongst the graft group 71% underwent concomitant midurethral sling placement compared with 56% of the native tissue group (p=0.04). No difference in short-term voiding dysfunction was seen between the native tissue and graft-augmented repair groups (20% vs. 31%, p=0.12). No difference was seen in post-operative overactive bladder symptoms (19% vs. 26%, p=0.27) or use of overactive bladder medications (17% vs. 21%, p=0.50). In the regression model, the only significant predictor of short-term voiding dysfunction was preoperative post-void residual (p=0.02).

CONCLUSION: We found no differences in short-term voiding dysfunction and post-operative overactive bladder symptoms amongst patients with native tissue versus graft-augmented repairs. Preoperative post-void residual was significantly associated with short-term voiding dysfunction.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Quinn K. Lippmann: Nothing to disclose; Amanda Stewart: Nothing to disclose; Jasmine Tan-Kim: Nothing to disclose.

68 Welcoming transgender patients to the gynecologist's office

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OBJECTIVE: To improve cultural competency for women's health providers with regard to transgender patients.

DESCRIPTION: Many gynecologists have had minimal formal training or experience in managing patients who are gender-nonconforming or in the process of gender transition. Strategies from a mainstream gynecologic practice for providing respectful, compassionate medical care will be provided. These include a review of the possible gender identity descriptions, pronoun preferences, sexual behaviors, and relevance to gynecologic health. This is not intended to educate gynecologists on hormonal treatment of transgender patients or performance of gender-affirming surgery, but rather to open the gynecologic practice to individuals who may have felt marginalized in the past but benefit from our expertise.

CONCLUSION: Cultural competence for the gynecologist now includes understanding of diverse lifestyles including gender non-conforming and transgender individuals. Gynecologists are uniquely qualified to provide this care.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Linda S. Mihalov: Nothing to disclose.

69 Dynamic MRI for the detection of posterior vaginal wall defects and its association with clinical in-office exam versus intraoperative exam under anesthesia

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OBJECTIVES: Magnetic resonance imaging (MRI) has the ability to characterize small changes in vaginal support. Over the last decade, the use of dynamic MRI (dMRI) to assess multi-compartment prolapse has added to the understanding of anatomical defects within the pelvic floor. Our aim was to determine (1) the association between MRI-identified posterior vaginal wall defects (MRI-PD) and posterior vaginal wall defects (PVWD) by in-office physical exam (PEX-PD) compared with PVWD at the time of exam under anesthesia (EUA-PD).

MATERIALS AND METHODS: A retrospective chart review of all patients who had undergone a dMRI for indications other than prolapse was performed. Patients with a dMRI revealing posterior vaginal wall prolapse were included in the analysis. Charts were reviewed for age, BMI, number of vaginal deliveries, ASA class, dMRI grade, defecatory symptoms, clinical in-office exam, and posterior defects found under anesthesia. MRI-PD and was considered present if grade 1 or higher. A physical exam posterior defect (PEX-PD) was considered present with Baden-Walker grade 1 or higher. A posterior defect at time of EUA was present if graded 1 or higher. Statistical analysis of was performed using logistic regression for adjusted odds ratios; confidence intervals of 95% and p-values of <0.05 were considered significant.

RESULTS: From 1/1/2013-7/1/2014, 116 patients who underwent dMRI were included in this study. See figure for distribution. Median age was 61 years (range 29-87); mean BMI was 26.5 kg/m^2 (range 19-41); median vaginal parity was 2 (range 0-8); median ASA class 2 (range 0-3). MRI-PD and PEX-PD were significantly associated (OR 3.54, CI 1.25-11.0, p= 0.02). Defecatory symptoms were not associated with MRI-PD, PEX-PD, or EUA-PD (OR 1.86, CI 0.64-5.84, p 0.26; OR 0.62, CI0.26-1.4, p 0.25; OR 1.31, CI 1.01-1.10, p 0.54, respectively). MRI-PD was consistent with EUA-PD, although this did not reach statistical significance (OR 1.83, CI 0.63-5.40). PEX-PD was associated with EUA-PD (OR 5.68, CI 2.34-14.8, p<0.001), and even more strongly associated with EUA-PD in the presence of MRI-PD (OR 6.2, CI 2.41-17.2, p<0.001).

CONCLUSION: MRI-detected posterior vaginal wall defects were well associated with posterior prolapse found on in-office clinical exams. The presence of a clinically detected posterior defect on exam was a strong predictor of a posterior defect at the time of EUA. MRIPD as a predictor of posterior compartment defects intra-operatively was inconclusive. Larger studies are needed to determine whether dynamic MRI can be a useful predictor of intraoperative findings in the presence of posterior compartment defects.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: My-Linh T. Nguyen: Nothing to disclose; Seth Cohen: Nothing to disclose; Christine C. Pan: Nothing to disclose; Vincent N. Vu: Nothing to disclose; Jenny Y. Mei: Nothing to disclose; Elizabeth Fisseha: Nothing to disclose; Zaid Chaudhry: Nothing to disclose; Evgeniy I. Kreydin: Nothing to disclose; Janine L. Oliver: Nothing to disclose; Shlomo Raz: Nothing to disclose; Christopher Tarnay: Nothing to disclose.

Figure 1: Flow diagram of number of patients who underwent dynamic MRI.
MRI-PD+: MRI posterior defect present. MRI-PD-: MRI posterior defect absent. PEX-PD+: physical exam posterior defect present. PEX-PD-: physical exam posterior defect absent. EUA-PD+: exam under anesthesia posterior defect present. EUA-PD-: exam under anesthesia posterior defect absent.

70 The effects of robotic instrumentation on the stretch ability of various types of polypropylene mesh utilized in sacral colpopexy

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OBJECTIVES: Our primary objective was to investigate which robotic instrument would cause the greatest effect on mesh stretch. Our secondary objective was to assess the type of polypropylene mesh which has the greatest stretch ability after robotic instrumentation. Robotic assisted laparoscopic sacral colpopexy for treatment of symptomatic pelvic organ prolapse is associated with successful outcomes. However, robotic instrumentation may damage the polypropylene mesh utilized in this procedure (Azadi et al *Surg Tech Intl* 2015). In this study, robotic instruments were applied to four different types of commercial polypropylene mesh and the stretch ability was investigated.

MATERIALS AND METHODS: Samples of Vertessa Lite™ (Caldera, Agoura Hills, CA, 23.8 grams/m2), Restorelle® (Coloplast, Minneapolis, MN, 19 grams/m2), Intepro ™ (AMS, Minnetonka, Minnesota, 50 grams/m2), and Alyte™, Y-Mesh (Bard, Covington, GA, 35.55 grams/m2) were tailored into strips of 40 mm x 5 mm of mesh in order to mimic the axis used in surgery. Each strip was grasped in the center by a robotic instrument for 10 seconds using the Da Vinci(R) robot. The robotic instruments used were the Fenestrated Bipolar Forceps™, Cadiere Forceps™, Large Needle Driver™, Maryland Forceps™, MegaSuture Cut™, and Prograsp Forceps™ (Intuitive, Sunnyvale, CA). Following this, the strip of mesh was placed along the vertical axis and stretched to breakage. The MTI-2K mechanical analysis machine measured the distance each strip of mesh was able to stretch before the point of breakage, and calculated the additional stretch obtained by the mesh before breakage as a percentage of the length of the mesh at rest. For example, if the mesh doubled in size prior to breaking, the mesh stretch would be calculated to be 100%.

RESULTS: The Mega Suture Cut™ disturbed the mesh the least, with a mean stretch of 114% averaged amongst the four mesh types. All other robotic instruments resulted in average stretch ranging from 83% to 86%. The Intepro™ mesh demonstrated the greatest stretch prior to breakage at 110%, with the Restorelle® demonstrating a stretch of 97%. The Alyte™ and Vertessa Lite™ had lower stretch of 65% and 69% respectively.

CONCLUSION: The Mega Suture Cut™ affects the stretch ability of the mesh the least amongst the robotic instruments investigated. We found that the Intepro™ mesh has a greater degree of mesh stretch after handling with robotic instruments as compared to Restorelle®, Alyte™, and Vertessa Lite™ mesh types. Interestingly, the Intepro™ was the densest of the mesh types examined. Although the long-term effects of these changes are still unknown, surgeons performing robotic surgeries should be aware of these effects of instrumentation on mesh mechanical properties.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Anubhav Agrawal: Nothing to disclose; Desyln Hobson: Nothing to disclose; Casey L. Kinman: Nothing to disclose; Nicolette E. Deveneau: Nothing to disclose; Kate V. Meriwether: Nothing to disclose; Sean L. Francis: Nothing to disclose.

71 Defining physical activity and sedentary behavior and its relationship to incontinence in older adults with urinary incontinence

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OBJECTIVES: Urinary incontinence (UI) is known to be associated with physical activity limitations. The relationship between sedentary behavior and UI is not known. Our objectives were to describe the physical activity and sedentary time of older women with UI, and to investigate the relationship between physical activity, sedentary behavior, and UI using direct and indirect activity measurements. We hypothesized that sedentary behavior is associated with UI in older adults.

MATERIALS AND METHODS: This was a pilot study that provided preliminary data for an ongoing randomized controlled trial investigating physical activity and falls risk in older adults with UI.

Subjects completed validated questionnaires, including incontinence [International Consultation on Incontinence Questionnaire—Urinary Incontinence (ICIQ-UI), Incontinence Resource Use Questionnaire (IRUQ)] and physical activity surveys [Physical Activity Scale for the Elderly (PASE) questionnaire]. Weekly pad usage was determined from the IRUQ. Physical activity was also directly recorded by accelerometer for one week. We examined UI severity (measured by ICIQ or number of pads used) in women with high versus low levels of physical activity and sedentary time using t-test and Wilcoxon rank sum. Linear regression was used to examine relationships between activity measurements and incontinence severity. Spearman's correlation was used to test associations between accelerometer and questionnaire data.

RESULTS: Thirty-six subjects were included. Both accelerometer and physical activity questionnaires revealed high prevalence of sedentary behavior and low levels of physical activity in this population. Overall 89% of subjects were highly sedentary. Active time was mostly spent in light intensity activities. Compared to subjects in the 25th quartile, those in 75th quartile for moderate and vigorous physical activity duration, step counts, and daily MET rate (measured by accelerometer) had significantly less pad use ($p=0.03$, 0.004, and 0.04, respectively). There was a non-significant trend towards greater pad use in those with higher sedentary bout time ($p=0.058$). Urinary incontinence scores were not significantly different in women with high versus low physical activity and sedentary bout time ($p>0.05$). Greater daily step counts and increased total time spent in any level of activity was associated with decreasing pad use ($p=0.045$). When comparing accelerometer to physical activity questionnaire, there was no correlation in measures of sedentary or active behavior between the two methods.

CONCLUSION: Increased physical activity was significantly associated with decreased use of pads for UI. Sedentary activity showed a non-significant trend towards greater pad use. Intervention for UI may be beneficial for increasing physical activity in older adults. The physical activity questionnaire correlated poorly with accelerometer data and likely captures a separate construct of physical activity.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Christine M. Chu: Nothing to disclose; Kathryn H. Schmitz: Nothing to disclose; Lily A. Arya: Nothing to disclose; Diane K. Newman: Nothing to disclose; Uduak U. Andy: Nothing to disclose.

72 Outcomes following physical therapy utilizing short-wave diathermy for the treatment of chronic pelvic pain

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OBJECTIVES: Short-wave diathermy (SWD) is a deep heat modality used to treat muscle spasm and inflammation. Its ability to target deep muscle groups makes it an ideal intervention for chronic pelvic pain, particularly pain due to non-relaxing pelvic floor dysfunction (NRPFD). The purpose of this study was to evaluate the benefits of SWD within a comprehensive physical therapy regimen for the treatment of chronic pelvic pain.

MATERIALS AND METHODS: This retrospective cohort study was designed to evaluate the effect of SWD for women with pelvic pain treated between January 1, 2007 and December 31, 2012. NRPFD was defined by characteristic findings of progressively worsening pelvic pain with prolonged sitting or standing, concurrent bowel or bladder symptoms, and tenderness or tension on palpation of pelvic floor musculature on vaginal examination. If the diagnosis of NRFPD was made during the gynecologic consultation, women were referred for pelvic floor physical therapy. Women underwent a 4-16 week program consisting of 30-60 minute sessions. Each therapy session utilized a variety of methods, including trigger point or myofascial release, strain/counterstrain, and biofeedback. SWD was used in women without relative contraindications, including implantable metal or electronic devices such as Interstim, artificial hip joint, or a pacemaker, or a history of cancer diagnosis within 5 years. Responses to a validated quality of life survey, the Pelvic Floor Distress Inventory (PFDI-20), were collected at baseline and following completion of the program. A 15% decrease in total score indicated significant improvement. Demographic data, medical history, obstetric/gynecologic history, pain characteristics, and concurrent symptoms were abstracted from the medical record. Initial analysis was performed to evaluate the efficacy of pelvic floor physical therapy for all comers, utilizing a multivariate logistic regression model to determine which variables were predictive of treatment success. To isolate the effects of SWD on the change in PFDI-20 scores pre- and post-treatment, nominal logistic fit was utilized.

RESULTS: Of the 88 women NRPFD completing the physical therapy program, 65 (73.9%) reported scores with greater than 15% improvement from baseline ($p<0.001$). Of the 26 women who received SWD, 22 (84.6%) reported scores with greater than 15% improvement from baseline; however this was not found to be significantly different from the women not receiving SWD ($p=0.19$). The odds ratio for significant improvement for women receiving SWD compared to women not receiving SWD was 2.43; however, this was not significant ($p=0.12$). Demographics, including age, BMI, race, and menopausal status, were similar in both groups.

CONCLUSION: Physical therapy is an effective treatment for women with NRPFD, but the addition of short-wave diathermy does not offer a significant advantage for improvement. However, the PFDI-20 provides a comprehensive assessment of pelvic floor symptoms without a specific focus on pelvic pain. Future prospective studies evaluating the use of SWD with pain-specific questionnaires are warranted.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Jenifer N. Byrnes: Nothing to disclose; Alexis Hokenstad: Nothing to disclose; Nicole Cookson: Nothing to disclose; Alison Sadowy: Nothing to disclose; John A. Occhino: Nothing to disclose.

73 Accuracy of bladder scanner measurements in patients with pelvic organ prolapse

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OBJECTIVES: The purpose of this study is to determine the accuracy of portable bladder scanner in patients with pelvic organ prolapse (POP) as compared to measurement with urinary catheterization. To the best of our knowledge, there have been no other studies looking at the validity of bladder scanners measuring PVR in patients with POP. Our primary objective was to determine the accuracy of portable bladder scanner measurements in women with POP. Secondarily, we will look for an association between degree of POP and bladder scanner accuracy and between volume of urine in the bladder and bladder scanner accuracy.

MATERIALS AND METHODS: In this prospective single site case control-study patients were recruited from a university based urogynecology

clinic. A sample size of 45 was calculated assuming a standard deviation between two modalities of 71cc based on prior studies and 30cc difference being clinically significant with each patient will serving as their own internal control. Patients with POP, stage II or greater, who were undergoing urodynamic studies (UDS) were invited to participate. During urodynamics three portable ultrasound measurements of bladder volume with 3-dimensional bladder scanner were obtained: 1) After the first void but before the first PVR is assessed with a catheter. 2) At maximum capacity immediately before voiding. 3) At the completion of procedure just prior to the last catheter assessment of PVR. Paired t-test and Pearson correlation coefficient were used to the assess association of bladder scan volume and catheterized volume. Linear regression was used to assess association between accuracy and bladder volume.

RESULTS: A total of 66 patients were enrolled in the study. Five were excluded because they were unable to complete the study or did not have stage II prolapse. The average age of the patient was 59yo with a BMI of 30. The majority of patients had stage II prolapse (n=49) while 9 had stage III and 3 had stage IV. Fifty-six of the 61 had a leading edge of prolapse at 0cm or greater. Average PVR at initial catheterized volume was 63cc (5-353cc) and at final catheterized PVR was 86cc (0-510cc). Average difference between bladder scan PVR and catheterized PVR was 24cc (SD 28cc) at initial PVR, 42cc (SD 94cc) at final PVR, and 33cc (SD 69cc) for both. There was no statistically significant difference between initial PVR with catheter or bladder scanner (p=0.43) or between the two modalities at the final volume (p=0.38). When the data was combined there was still no difference between the two (p=0.81). Linear regression analysis did not show any relation between bladder volume and measurement difference (p=0.33). We were unable to make any determination of the effect of prolapse stage on accuracy as most of our patients had stage II prolapse.

CONCLUSION: Three-dimensional portable ultrasound bladder scanner is an accurate method to determine PVR in patients with POP and should be considered as an alternative to catheterized assessment of PVR.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Nicolette E. Deveneau: Nothing to disclose; John G. Theisen: Nothing to disclose; Anubhav Agrawal: Nothing to disclose; Casey L. Kinman: Nothing to disclose; Sean L. Francis: Nothing to disclose.

74 An exercise intervention program in older community-dwelling women with urinary incontinence: A mixed methods feasibility study

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OBJECTIVES: Older women with urinary incontinence (UI) are at high risk for falls. Prior studies show that exercise interventions can reduce the risk for falls. 1) To assess suitability of a home based integrated strength, balance, and urgency suppression exercise program using a DVD among older community-dwelling women with UI. 2) To explore the feasibility of instituting a randomized control trial (RCT) of this exercise intervention program vs. usual care of UI in this population.

MATERIALS AND METHODS: We conducted a mixed methods study design via 1) focus groups and 2) a pilot RCT of ambulatory community-dwelling women, age $\geq$ 65 years, with moderate-severe UI based on the Incontinence Severity Index, recruited from senior centers. Focus groups were conducted by a physician and continence nurse specialist using a script based on literature review and interviews with specialists. Primary outcome was to identify themes that inhibit or facilitate exercise, identify exercise program preferences and explore the impact of UI on physical activity. Based on the focus group findings, we implemented a 6-week pilot RCT of a home-based DVD exercise program vs. usual care in this population to assess changes in UI symptoms and physical activity through symptom questionnaires, physical function tests, and accelerometer data. Primary outcome was to measure feasibility of this intervention by participants' willingness to enroll, recruitment rate, acceptability of study design, and compliance.

RESULTS: Focus Groups: Median (range) age of participants (n=14) was 69 (65-84) years. Physically active participants (n=6) preferred group classes, instructors and exercise variety. Socializing and fitness instruction were motivators to exercise. Barriers of exercise included family caretaking, work obligations, insurance coverage, and weather. UI was not perceived as a barrier to exercise. Sedentary participants (n=8) preferred one-on-one programs and the ability to exercise at home for privacy. Improved health, monetary rewards, and fitness goals were motivators to exercise. Barriers to exercise included UI, fear of falling, pain, and existing medical issues. RCT: Mean (SD) age of participants (n=37) was 74.0 (8.4) years. Of 66 eligible women approached for participation from clinical settings and senior centers, 38 (57.6%) consented for participation during the six-month enrollment period (recruitment rate 6.3). Thirty-seven participants underwent randomization into the exercise arm (n=19) or usual care arm (n=18). At completion of the trial, 14 participants (73.6%) completed questionnaires and 16 (84.2%) contributed accelerometer data in the exercise arm, while 16 (88.8%) completed questionnaires and 17 (94.4%) contributed accelerometer data in the usual care arm. Two (10.5%) participants within the exercise arm and zero participants in the usual care arm were lost to follow up.

CONCLUSION: A home-based DVD exercise program is a suitable mode of structured physical exercise in physically active and sedentary community-dwelling older women with UI. A larger RCT to examine the effect of an exercise intervention vs. usual care on physical function and urinary symptoms is feasible in this population.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Avita Pahwa: Nothing to disclose; Kathryn H. Schmitz: Nothing to disclose; Uduak U. Andy: Nothing to disclose; Diane K. Newman: Nothing to disclose; Lily A. Arya: Nothing to disclose.

75 When do we see our postoperative patients?

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OBJECTIVES: To characterize provider practices among gynecologic surgeons regarding postoperative surveillance.

MATERIALS AND METHODS: We administered an anonymous survey to gynecologic surgeon attendees at the Society of Gynecologic Surgeons 2015 annual meeting. The survey contained questions to identify the frequency, type, and variation of postoperative appointments in their practice. Surgeons were also asked to select the most valuable postoperative appointment, and reasons for their particular postoperative surveillance. Chi Squared test of association was used to compare categorical variables and Mann-Whitney U and independent samples t test were used to compare continuous variables.

RESULTS: Two hundred one of the 400 (50%) gynecologic surgeons in attendance at the meeting completed the survey. The majority of responders were attending physicians (71.1%) practicing at

university hospitals (55.7%) with a median of 5 ± 9.3 years in practice. Most had received subspecialty training including Female Pelvic Medicine and Reconstructive Surgery (FPMRS) (60.7%), Minimally Invasive Gynecologic Surgery (MIGS) (10.9%), Gynecologic Oncology (Gyn Onc) (2.5%) and Reproductive Endocrinology and Infertility (REI) (1.5%) with the remainder of respondents representing Specialists in Obstetrics and Gynecology (24.4%). Most surgeons (74.6%) incorporated a midlevel provider, either advanced practice nurse (APN) or Physician Assistant (PA) into their practice, but only 39% of those surgeons utilized midlevel providers for postoperative follow-up. The median number of postoperative appointments in the first year following surgery was 2 ± 1.1 with a range of 1-6. FPMRS surgeons reported more postoperative appointments compared to the other subspecialties (3 vs 2 $p<0.001$). Only a quarter of surgeons (52/201) see their postoperative patients on an annual basis. Half of surgeons (101/201) see their inpatient and outpatient cases at the same frequency, and FPMRS surgeons compared to other gynecologic surgeons were also more likely to see inpatient and outpatient cases at the same frequency (55.7% vs 41.8% $p=0.05$). Surgeons' perceptions of the 3 most valuable postoperative appointments were 6-wk (41%) followed by 2-wk (28%) and 4-wk (11%) visits, and this was regardless of specialty. The most common reason for a surgeon's postoperative follow-up practice was safety (72%), followed by patient satisfaction (30%), convention (17%), need to comply with research protocol (13%), and ease of scheduling (12%). There was no difference in surgical specialty with regards to reasons for follow-up.

CONCLUSION: Postoperative follow-up varies widely among gynecologic surgeons and subspecialties. Most surgeons seem to value early postoperative follow-up with greater variation in long-term follow up. Patient safety and satisfaction drive surgeons' decisions regarding postoperative follow-up; future research is needed to determine optimal timing for follow-up to achieve these safety and satisfaction goals.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Margaret G. Mueller: Nothing to disclose; Alexandria Alverdy: Nothing to disclose; Christina Lewicky-Gaupp: Nothing to disclose; Alix Leader-Cramer: Nothing to disclose; Bhumy Dave: Nothing to disclose; Kimberly Kenton: Nothing to disclose.

76 Surgeon factors influence performance of prophylactic salpingectomy during benign hysterectomy

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OBJECTIVES: The American College of Obstetrics and Gynecology has described prophylactic salpingectomy (PS) as an opportunity to prevent ovarian cancer. Our primary objective was to determine surgeon factors influencing performance of PS during benign hysterectomy. Patient factors were also investigated.

MATERIALS AND METHODS: This is a secondary analysis of a multicenter, retrospective cohort study of women who had uterine morcellation for benign disease from Jan. 2007-Feb. 2014. Only benign hysterectomies from 2010-2014 were included as there were no PS cases prior to 2010. Cases included laparoscopic total and supracervical hysterectomy, as well as laparoscopic-assisted vaginal hysterectomy. Cases were excluded if a patient had a prior bilateral salpingectomy or salpingo-oophorectomy, had bilateral oophorectomy at time of surgery, or had a salpingectomy for another indication (pelvic pain, adhesions, or hydrosalpinx). Surgeon factors, such as gender, years in practice, and sub-specialty, were collected. Multiple logistic regression was used to determine factors associated with PS.

RESULTS: Seventy-eight percent of the 597 eligible surgeries did not include a PS. Rates of PS, however, increased each year, with 2% of 2010 cases, 16% of 2011, 19% of 2012, 56% of 2013, and 62% of 2014. Median patient age was 48 (18-80), median BMI 27.3 (16.2-63.7), 90% had private insurance, and 29% were postmenopausal. Of 55 surgeons, 32 (58%) were female and all were board-certified in Ob-Gyn. Surgeons were in practice for <5 years (5%), 5-9 years (27%), 10-19 years (31%), 20-29 years (24%), and ≥30 years (13%). Surgeons practiced general Ob-Gyn (71%), Gyn-only (11%), FPMRS (13%), REI (4%), and Gyn Onc (2%). Surgeons in practice 20-29 years performed significantly more PS cases than other groups (69%, $p<0.001$). Fifty-two (39%) of PS surgeries were performed by a surgeon with sub-specialty board certification. General Ob-Gyn cases had a PS rate of 26%, with 22% in Gyn-only cases, 19% in FPMRS cases, 50% in Gyn Onc cases, and 67% in REI cases. Surgeons had increasing rates of PS with years in practice, occurring in 10% of cases of surgeons with 0-5 years, 12% of those with 5-9 years, 16% of those with 10-19 years, 39% of those with 20-29 years, and only 5% for those with ≥30 years. On multiple logistic regression, REI physicians were more likely than general Ob-Gyns to perform a PS (adjusted OR 48.37, CI 2.43-962.89, $p=0.01$). Female surgeons were also more likely than male surgeons to perform a PS (adjusted OR 3.00, CI 1.56-5.78, $p=0.001$). Additionally, postmenopausal patients were less likely to undergo PS (adjusted OR 0.41, CI 0.18-0.94, $p=0.04$), and those with an indication of pelvic pain were more likely to have a PS (adjusted OR 2.61, CI 1.49-4.58, $p=0.001$). There was no significant difference in the likelihood of PS by practice years, patient age, or patient BMI.

CONCLUSION: Rates of PS have steadily increased to 62% of hysterectomies in 2014. Sub-specialization in REI and female surgeon gender were associated with more frequent performance of PS. More education about benefits and guidelines may increase the rate of PS at time of benign gynecologic surgery.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Kavita Mishra: Nothing to disclose; Cara Grimes: Nothing to disclose; Emily Von Bargen: Nothing to disclose; Joseph Carnevale: Nothing to disclose; Phinnara Has: Nothing to disclose; Rui Wang: Nothing to disclose; Eman A. Elkadry: Nothing to disclose.

77 Bladder management following vaginal surgery for pelvic organ prolapse

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OBJECTIVES: To determine whether suprapubic catheter (SPC) versus no-SPC was associated with earlier time to return of normal bladder function.

MATERIALS AND METHODS: This was a retrospective chart review of patients 18 years of age and older who underwent vaginal surgery for

prolapse between January 1, 2013 and December 31, 2014. Patients undergoing uterovaginal or post-hysterectomy vaginal vault prolapse surgery with or without concomitant sling were included. Patients were excluded if they did not provide research authorization, were under the age of 18, or did not undergo apical prolapse repair (vaginal hysterectomy or vaginal vault repair, both of which included a high uterosacral ligament suspension) as part of the prolapse procedure. Baseline, intraoperative, and postoperative variables were abstracted from the electronic medical records. Statistical analysis consisted of the t-test for continuous parametric variables, Mann-Whitney U test for nonparametric continuous variables, and Chi-square for categorical variables. For the SPC group, return to normal voiding function was defined as date of discontinuation of the suprapubic catheter. For the no-SPC group, return to normal voiding function was defined as date of passage of void trial or date of termination of intermittent self-catheterization.

RESULTS: A total of 159 patients were studied (no-SPC n=116, SPC n=43). At baseline, the no-SPC group was younger than the SPC group (no-SPC group: 62.8y versus SPC 66.5y, p= 0.04). The two groups did not differ at baseline with respect to relevant comorbidities, prolapse grade, history of preoperative voiding dysfunction, or history of recurrent urinary tract infection. Operative time was greater among SPC (128.5 minutes) compared to no-SPC (109.5 minutes, p=0.005). Among SPC, 95.3% underwent anterior repair compared to 64.7% among no-SPC (p<0.001). Postoperative hemoglobin decreased by 2.4 mg/dL in the SPC group compared to 1.8 mg/dL in the no-SPC group (p=0.004). In terms of the primary outcome, 101 patients in the no-SPC group and 40 patients in the SPC group had a confirmed date of return to normal voiding function. Return to normal voiding function was a median of 6 days among no-SPC group (range, 0-72) versus 13 days among SPC (range, 8-42) (p<0.001). Twenty-two percent of patients in the no-SPC group passed a void trial on postoperative day 1, requiring no further bladder management. There were no statistically significant predictors of return to voiding function. The groups did not significantly differ with respect to laboratory-confirmed urinary tract infection rates (no-SPC, 40.0% and SPC, 33.3%, p=0.447).

CONCLUSION: The majority of patients undergoing vaginal prolapse surgery did not return to normal voiding function by postoperative day one and required some form of continued bladder management. The SPC group was associated with longer time to return of normal voiding function compared to the no-SPC group. Future directions include determining predictors of time to return of normal voiding function within each group to develop a decision analysis tool for presurgical planning and counseling when choosing type of perioperative bladder management.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Mallika Anand: Nothing to disclose; Meredith Carbone: Nothing to disclose; Christine Heisler: Nothing to disclose; Tracy Koehler: Nothing to disclose; Alan Davis: Nothing to disclose.

78 Comparison of total vaginal hysterectomy and robot-assisted total laparoscopic hysterectomy: A retrospective study

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OBJECTIVES: The purpose of this study is to assess the difference in complications, medical cost, and time of surgery between total vaginal hysterectomy (TVH) and robot-assisted total laparoscopic hysterectomy (RTLH).

MATERIALS AND METHODS: After IRB approval was obtained, a retrospective review of electronic medical records of patients who underwent TVH and RTLH for benign gynecologic indications between January 2012 and December 2012 was performed. Cases were identified using billing CPT codes. Chi-square, Fisher's Exact, and Mann-Whitley U tests were used. Analysis of covariance (ANCOVA) was performed to adjust for confounding variables.

RESULTS: There were 134 women who underwent TVH or RTLH for benign gynecologic indications. After exclusion of three cases, 39 (22%) women for TVH group and 132 (76%) for RTLH group were included for the study. Women undergoing TVH were significantly older than the RTLH group. Both groups had no statistical difference in terms of co-morbidities such as hypertension, diabetes, cardiovascular disease, pulmonary disease, venous thromboembolism, prior abdominal surgery, or tobacco use. Bleeding (68%) for the RTLH group and prolapse/incontinence (80%) for the TVH group were the most common pre-op diagnosis. After adjusted analysis, estimated blood loss (EBL) ranges were noted to be significantly lower in the TVH group compared to RTLH group (20-350 cc vs 0-450 cc, p=0.006). Total cost was also significantly lower in the TVH group compared to RTLH group ($8065 vs $9247, P=0.007). TVH and RTLH groups had no statistical difference in operative times (105 vs 121 mins, p=0.245) length of stay (1 night, p=0.400) and readmissions for complications (5% vs 9%, p=0.689).

CONCLUSION: When compared to robot-assisted total laparoscopic hysterectomy, total vaginal hysterectomy was shown to be associated with lower operative blood loss and lower total cost. Similar operative times, length of stay and readmission for complications were noted.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Aparna Ramaseshan: Nothing to disclose; Niloofar Ghassemzadeh: Nothing to disclose; Ozhan Mehmet Turan: Nothing to disclose; Kevin Audlin: Nothing to disclose.

79 Comparison of times to ureteral efflux after administration of sodium fluorescein versus phenazopyridine

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OBJECTIVES: There is currently a national shortage of indigo carmine, which is used by gynecologists to better identify ureteral jets at the time of cystoscopy. In efforts to identify the most efficient aide for visualizing ureteral efflux intra-operatively, we investigated the time to excretion of two commonly used agents: 10% sodium fluorescein and phenazopyridine.

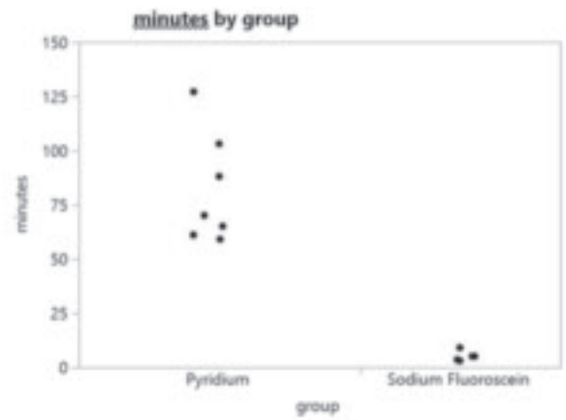
MATERIALS AND METHODS: We retrospectively analyzed prospectively collected data from a cohort of women who underwent pelvic reconstructive surgery in 2015 and were given aides to visually identify ureteral excretion intra-operatively. Patients were administered either 200 mg phenazopyridine orally with a sip of water, 1 hour prior to start of operative time, or they were given 0.5 mL of 10% sodium fluorescein intravenously in the operating room. In all cases, times were measured between the administration of the agent

and the visualization of green urine (sodium fluorescein) or orange urine (phenazopyridine) in an indwelling catheter, placed at the start of the case. All women had normal serum creatinine and estimated glomerular filtration rates at time of surgery. Differences between the groups' excretion times were compared with a Wilcoxon rank-sum test.

RESULTS: Seven women received the phenazopyridine and five women received sodium fluorescein. The phenazopyridine group's median age was 54 years (range, 39-82), median BMI 27 kg/m^2 (20-39), and median ASA class was 2 (1-3). The sodium fluorescein group's median age was 55 years (range, 40-75), median BMI 26 kg/m^2 (21-32), and median ASA class 2 (2-3). Mean excretion times were significantly longer for the phenazopyridine group compared to the sodium fluorescein group (5.1 minutes versus 81.9 minutes, p=0.0057). See attached figure with a Dot Plot summarizing excretion times.

CONCLUSION: While both agents have been used as an alternative to indigo carmine, 10% sodium fluorescein is excreted significantly faster in the operating room when compared to phenazopyridine. Further studies looking at the cost effectiveness between sodium fluorescein and phenazopyridine may impact provider practice patterns.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Seth Cohen: Nothing to disclose; My-Linh T. Nguyen: Nothing to disclose; Zaid Chaudhry: Nothing to disclose; Janine L. Oliver: Nothing to disclose; Evgeniy I. Kreydin: Nothing to disclose; Steven Mills: Nothing to disclose; A L. Ackerman: Nothing to disclose; Ja-Hong Kim: Nothing to disclose; Shlomo Raz: Nothing to disclose; Christopher Tarnay: Nothing to disclose.



Dot plot summarizing excretion times

80 Evaluation of management of patients with overactive bladder (OAB) and fecal incontinence (FI)- paving the care pathway for the future

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OBJECTIVES: Urinary and fecal incontinence are prevalent conditions in our aging female population. Approximately 1 in 6 Americans are affected by OAB and 1 in 12 Americans are affected by FI. Effective treatments of these conditions are complex and require trials of different modalities including behavioral and diet modifications, physical therapy, medications, and potentially surgical procedures. This multifaceted approach often leads to patients' lack of understanding of their care plan, causing dissatisfaction and lack of follow-up. To provide optimal management for patients, practices should be able to manage expectations and offer safe and effective therapies when first line treatments are not effective or not tolerated and to propose strategies to keep patients moving forward to advanced therapies when necessary. Our objective was to evaluate the management of patients with OAB and FI in our own practice to enable us to find new ways, such as using standardized care pathways and staff members acting as "patient navigators," to increase patient compliance and improve outcomes.

MATERIALS AND METHODS: This is a retrospective chart review of patients who presented to our urogynecological practice for evaluation of OAB and/or FI from January 2014 to January 2015. Patients were initially identified using ICD9 codes as follows: 596.51 (OAB), 788.2 788.21(incomplete bladder emptying), 788.31 (urge incontinence), 788.33 (mixed incontinence), 788.41 (urinary frequency), 788.43 (nocturia), 787.60 (FI) and 788.63 (urgency of urination). Treatment plans and follow-ups were evaluated. Of these patients, those who progressed to advanced therapies such Botox, InterStim, Peripheral Nerve Evaluation (PNE) or Peripheral Tibial Nerve Stimulation (PTNS) were identified using procedural codes 52287,64561,64581,64566 respectively.

RESULTS: There were 182 patients who presented for initial evaluation of OAB and FI during this time period. Seventy-three (40%) patients did not return for a second follow-up. One hundred nine (60%) patients had follow-up visits that included urodynamic testing, cystoscopy and/or office visits. Among the patients who did not follow-up, 61 (84%) were counseled about behavioral modification, completing a voiding diary and/or referred to physical therapy. Only 12 (16%) were started on medication for OAB. Among those who followed up, only 5 (4.6%) progressed to advanced therapy (1 Botox, 2 InterStim, 1 PNE, 1 Urgent PC), which represents only 2.7% of the total patients in our cohort (n=182).

CONCLUSION: We conclude that a significant portion of patients with OAB and FI are lost to follow-up after their initial visit, likely because they are unaware of the treatment algorithm and that advanced treatment options exist. Practices will likely improve compliance and outcomes for OAB and FI by explaining to patients at their initial visit a standardized treatment approach using care pathways/algorithms. In addition, assigning a staff member to act as a "patient navigator" may encourage follow-up visits, reduce variation in care, and improve patient satisfaction. We plan to implement these changes in our practice to determine whether our assumptions are correct.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Nabila Noor: Nothing to disclose; Peter L. Rosenblatt: Nothing to disclose.

1 Anatomic and vascular considerations in laparoscopic uterine artery ligation during hysterectomy

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OBJECTIVE: To review different approaches for successful laparoscopic uterine artery ligation during hysterectomy and to describe anatomic and vascular variations of the uterine artery encountered during retroperitoneal dissections.

DESCRIPTION: Traditionally, the laparoscopic surgeon identifies and subsequently secures the uterine artery at the level of the internal cervical os. Complex pelvic pathology including endometriosis, abdominal wall adhesions or uterine fibroids may preclude use of this approach. Alternative techniques focus on retroperitoneal dissection in the pararectal and paravesical space in order to trace the uterine artery back to its origin from the internal iliac artery where it can be ligated to facilitate the remainder of the hysterectomy. While the uterine artery arises in most cases from the anterior division of the internal iliac artery and its terminal branches, variations have been observed. We describe a C-shaped uterine artery configuration originating from the internal iliac artery where two uterine vessels travel towards the lower uterine segment/cervical junction for uterine blood supply. Both branches must be ligated for successful hemostasis.

CONCLUSION: Distorted pelvic pathology often requires alternative approaches to the traditional method of securing the uterine blood supply during hysterectomy. Uterine artery ligation at its origin from the internal iliac artery can achieve this goal via utilization of the pararectal or medial umbilical ligament approach. Detailed knowledge of the pelvic retroperitoneum is crucial to identify anatomic and vascular uterine artery variations that may be encountered during complex pelvic surgery.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Ann Peters: Nothing to disclose; Mallory Stuparich: Nothing to disclose; Suketu Mansuria: Nothing to disclose; Ted Teh MIn Lee: Ethicon, Consultant, Consulting Fee.

2 Modified beef tongue model for fourth-degree laceration repair simulation

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OBJECTIVE: To describe novel modifications to an existing beef tongue model for fourth-degree laceration repair simulation.

DESCRIPTION: An existing model uses beef tongue as the vagina and perineum with plastic or vinyl tubing added to simulate anal mucosa and anal sphincter. Our modified model substitutes beef tripe (small intestine) for the anal mucosa and chicken leg muscles for the anal sphincter analogues to create a realistic model. After removal of the distal and inferior portions of the tongue, the body of the tongue is then halved in the coronal plane, if desired. Next, a segment of tripe is tunneled through the body of the beef tongue, perpendicular to the sagittal plane, and sewn to the tongue in an ostomy-like fashion to simulate an anal canal. The tongue is then incised from the superior surface down to just above the tripe "anal canal." Chicken leg muscles are then tunneled from the incision out to the cut edges of the beef tongue to create anal sphincter analogues bilaterally. Procedures are repeated on the opposite side for double-sided models and on the second half of the tongue, if halved. The model is durable and can be refrigerated or frozen and thawed before use. The fourth-degree laceration can be cut with scissors just before use to preserve tissue quality. Materials can easily be obtained at a local supermarket. The cost of half-tongue, double-sided models is about $5-7 per side. Residents responded with positive verbal feedback when the modified models were used during a recent resident episiotomy repair workshop and stated that working with actual animal tissue components provided a more realistic surgical simulation.

CONCLUSION: The modified beef tongue model utilizing tripe and chicken leg muscles as anal mucosa and anal sphincter analogues, respectively, provides excellent perceived haptic fidelity. Moreover it is an innovative, inexpensive, and well-received teaching tool to augment resident education.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Jana D. Illston: Nothing to disclose; Alicia C. Ballard: Nothing to disclose; David Ellington: Nothing to disclose; Isuzu Meyer: Nothing to disclose; Holly E. Richter: Kimberly Clark, Consultant, Consulting Fee; Pelvalon, Investigator, Consultant, Research Grant, Consulting Fee; UpToDate, Author, Royalties; Ferring, Consultant, Consulting Fee.

3 Contained vaginal tissue extraction for the minimally invasive surgeon

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OBJECTIVE: The objective of the video is to show how to use the ExCITE technique for vaginal tissue extraction. The ExCITE (Extracorporeal C-Incision Tissue Extraction) technique is a method for simplifying hand morcellation. The technique is typically used via the abdominal approach through a 3 cm incision.

DESCRIPTION: We review the key steps of the ExCITE technique and show how it can be employed vaginally. We discuss unique considerations of the vaginal approach and describe several tips to optimize extraction.

CONCLUSION: The ExCITE technique can be successfully used from the vaginal approach and offers a viable alternative to abdominal extraction at the time of hysterectomy.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Khara Simpson: Nothing to disclose; Sandra Madueke Laveaux: Nothing to disclose; Rosanne Kho: Nothing to disclose; Arnold P. Advincula: Intuitive Surgical, Speaker, Honorarium.

4 Use of methylene blue for detection of sentinel lymph nodes in cervical cancer

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OBJECTIVE: The objective of this video is to demonstrate the utilization of methylene blue dye for delineation of sentinel lymph nodes.

DESCRIPTION: Methylene blue was injected at 3 and 9 o'clock positions of cervix in the operating room. Total of 4 milliliters of the dye was injected into the cervical stroma. Sentinel lymph node dissection was begun approximately 20 minutes after the injection. Sentinel lymph nodes in the pelvis were identified at the most commonly described topographic location: Between external and internal iliac vessels.
CONCLUSION: Methylene blue facilitated the identification of the sentinel lymph nodes which helped minimize the risk of potential lower extremity lymphedema in this young patient with cervical cancer.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Gulden Menderes: Nothing to disclose; Christopher deHaydu: Nothing to disclose; Carlton L. Schwab: Nothing to disclose; Jonathan Black: Nothing to disclose; Masoud Azodi: Nothing to disclose.

5 Salpingo-oophorectomy by transvaginal natural orifice transluminal endoscopic surgery

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OBJECTIVE: The objective of this video is to demonstrate a Salpingo-oophorectomy performed entirely by transvaginal natural orifice transluminal endoscopic surgery (vNOTES) following a vaginal hysterectomy.
DESCRIPTION: We believe that the majority of adnexa can be safely removed vaginally using the traditional suture ligation technique or a vessel-sealing device. If the ovaries are not readily accessible, a pre-tied surgical loop can be placed around the adnexa to improve traction and hemostasis. Alternatively, one could isolate the round ligament to improve descensus and proceed with suture ligation. In rare situations, the surgeon might need to convert to laparoscopy or laparotomy due to difficult visualization. In this video, we demonstrate an additional technique that can be used as an alternative to converting to an abdominal approach. Prior to performing this procedure on a live patient, the surgical team practiced the approach on six unembalmed cadavers. In this footage, we start by demonstrating the port placement. We then proceed with describing the technique on how to perform a salpingo-ooporectomy via vNOTES.
CONCLUSION: Salpingo-oophorectomy was safely and effectively completed via vNOTES. The use of this technique could avoid the need to convert to an abdominal route. vNOTES to remove the adnexa is a novel approach that requires further validation.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Karl Jallad: Nothing to disclose; Lauren N. Siff: Nothing to disclose; Tonya Thomas: Nothing to disclose; Marie Fidela R. Paraiso: Nothing to disclose.

6 Natural orifice sacral colpopexy

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OBJECTIVE: Despite the proximity of the vaginal apex to the sacral promontory, sacral colpopexy is performed transabdominally. This is largely due to the fear of dissecting blindly within the retroperitoneal space, a space perceived to be fraught with catastrophic consequences should a misstep be made. A safe transvaginal, retroperitoneal sacral colpopexy is demonstrated.
DESCRIPTION: This video emphasizes the safety in performing a transvaginal, retroperitoneal sacral colpopexy. The dissection within the retroperitoneal space from the neck of the enterocele all the way to the sacral promontory is continuously monitored using indirect visualization made possible with retractors placed through the open enterocele. This retroperitoneal space is then dilated sufficiently to allow the insertion of retractors that enable the anterior longitudinal ligament overlying S-1 to be directly visualized. Mesh complications have been virtually nonexistent due to the use of lightweight mesh inserted through low transverse vaginal incisions that do not come into direct contact with the mesh. The other important factor for minimizing mesh complications is restricting the vaginal dissection to deep planes conforming to the true vesicovaginal and rectovaginal spaces.
CONCLUSION: Over 130 transvaginal sacral colpopexies have been performed. The technique has evolved through six distinct iterations. The current procedure demonstrated has been used in over 30 cases. The operation is safe. There have been few complications, none of which required return to surgery, and there have been no reoperations. Among other additional benefits to this direct approach to sacral colpopexy are full exposure of all compartmental defects and reduced cost.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Charles R. Hanes: Nothing to disclose.

7 Surgical anatomy and steps of the uterosacral ligament colpopexy

L. N. Siff, K. Jallad, L. Hickman, M. D. Walters
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OBJECTIVE: The objective of this video is to clearly illustrate the surgical anatomy of the uterosacral ligament colpopexy. We will present images from both cadaveric dissection and live surgery in order to provide you with several angles and perspectives of each step of the procedure.
DESCRIPTION: The following video uses still images and surgical footage taken during cadaveric dissection and live surgery. We have filmed from both the abdominal and vaginal perspectives including footage obtained vaginoscopically to highlight the key steps to successfully completing a uterosacral ligament colpopexy. We start by presenting the surgical anatomy of the uterosacral ligament. We then demonstrate a technique to identify the uterosacral ligament intraoperatively, and where the ureter and rectum lie in relation to the ligament in order to avoid injuring these structures. We demonstrate how to place the suspension sutures, how to anchor them to the vaginal cuff and the final elevation of the vagina to the uterosacral ligaments.
CONCLUSION: We hope this video has provided the viewers with a unique perspective to help them more confidently perform an uterosacral ligament colpopexy.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Lauren N. Siff: Nothing to disclose; Karl Jallad: Nothing to disclose; Lisa Hickman: Nothing to disclose; Mark D. Walters: Nothing to disclose.

8 Use of suprapubic carter-thomason needle to assist in cystoscopic excision of intravesical foreign object

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OBJECTIVE: We present a video of a minimally-invasive technique using the Carter-Thomason Needle Suture Passer for suprapubic assistance in the cystoscopic removal of the intravesical eroded suture.

DESCRIPTION: Suture injury to the bladder occurs in 0.6% of cases of retropubic bladder neck suspension procedures (1). These injuries can occur from inadvertent placement of the sutures through the bladder at the time of surgery or postoperative erosion or migration of the sutures into the bladder, and can lead to chronic inflammatory reaction in the wall of the bladder and stone formation. Common symptoms are of urinary frequency, urgency, urinary tract infection, voiding difficulty and pelvic pain. Intraoperative cystoscopy detects some, but not all, suture bladder injuries. It is therefore important to exclude intravesical foreign body in patients with lower urinary tract symptoms and a history of bladder neck suspension. We describe a case of a 63 year old woman with symptoms of recurrent urinary tract infections, urinary frequency, urgency, hesitancy, dysuria, microscopic hematuria and pelvic pain. She underwent a 'bladder suspension' 23 years prior for stress urinary incontinence, which she reported as being uncomplicated. Pelvic ultrasound demonstrated a 2cm bladder calculus. Office cystoscopy revealed a 3cm stone-encrusted suture erosion of the bladder.

CONCLUSION: The use of a Carter-Thomason Needle Suture Passer for suprapubic assistance in the cystoscopic removal of intravesical suture is a minimally invasive surgical technique that can be applied to removal of other foreign objects, such as mesh. Compared to suprapubic trocars, prolonged catheterization and follow-up cystogram are not necessary.

REFERENCE:

1. Dwyer PL, Carey MP, Rosamilia A. Suture injury to the urinary tract in urethral suspension procedures for stress incontinence. Int Urogynecol J Pelvic Floor Dysfunct. 1999;10:15–21.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Janet Li: Nothing to disclose; Katherine L. Armstrong: Nothing to disclose; Kristin Gerson: Nothing to disclose.

9 Alternative options for visualizing ureteral patency during intraoperative cystoscopy

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OBJECTIVE: Our video will focus on five of the available marker dye options (sterile water, 10% dextrose solution, IV methylene blue, preoperative oral phenazopyridine, sodium fluorescein) for visualization of ureteral orifices during cystoscopy in standard gynecologic procedures. Discussion will include administration, contraindications, benefits along with video footage of each.

DESCRIPTION: Indigo carmine has been commonly used during cystoscopy to demonstrate ureteral patency. It is commonly used as a marker dye during different gynecologic and obstetric procedures. In June 2014 the FDA announced the shortage of indigo carmine raw materials and manufacturing delays. With this agent in short supply, alternative marker dyes have been suggested for use in clinical practice. Safe alternatives to indigo carmine must include comparable visualization, and be economically favorable. The available evidence is of modest to low quality, and it is especially challenging to identify uncommon adverse effects since evidence supporting the use of specific marker dyes is based on small cohorts or case reports. The markers suggested by different studies were recorded in video footage in order to provide a summary of options available. The four different options include: sterile water or 10% dextrose solution, IV methylene blue, preoperative oral phenazopyridine, and sodium fluorescein.

CONCLUSION: In summary, with short supply of indigo carmine, affordable and effective options for the visualization of ureteral patency during intraoperative cystoscopy are needed. Options suggested are sterile water or 10% dextrose solution, IV methylene blue, preoperative oral phenazopyridine, sodium fluorescein. All have their benefits and drawbacks however all are simple, affordable options to consider. We have created a video summarizing each of these options and including a visual of how each works.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Paola A. Rosa: Nothing to disclose; Scott M. Kambiss: Nothing to disclose; Raul Yordan: Nothing to disclose.

10 Surgical approaches to the management of bladder and ureteral endometriosis

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OBJECTIVE: This video will review endometriosis in the genitourinary system, correlate radiologic imaging to intraoperative surgical findings, and demonstrate two surgical approaches to the management of urinary tract endometriosis.

DESCRIPTION: This video will show two surgical procedures to manage both intrinsic and extrinsic urinary tract endometriosis. Intrinsic lesions often invade through and into the bladder. In contrast, extrinsic lesions are often found surrounding the ureter. With ureter involvement, or bladder involvement that is close to the ureteral orifice, ureteral re-implantation and psoas hitch may be necessary. Here, we will describe a robotic-assisted laparoscopic partial cystectomy without ureteral involvement and a robotic-assisted laparoscopic modified psoas hitch with ureteral re-implantation. We will also show how pre-operative imaging can be correlated with intra-operative findings, and a multi-disciplinary approach can be beneficial.

CONCLUSION: Surgical management is an effective way to treat patients with intrinsic and extrinsic urinary tract endometriosis. Distance from the ureteral orifice or ureteral involvement will determine the necessary surgical procedure. Finally, the use of radiologic imaging and a multi-disciplinary approach can be beneficial.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Andrea S. Benton: Nothing to disclose; Olamide Sobowale: Nothing to disclose; Yu Kuan Lin: Nothing to disclose; Jay Raman: Nothing to disclose; Gerald J. Harkins: Nothing to disclose.

11 Natural orifice sacrohysteropexy

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OBJECTIVE: The purpose of this video is to describe the natural orifice sacrohysteropexy technique through the retroperitoneal approach.

DESCRIPTION: Sacrohysteropexy has been performed by abdominal, laparoscopic, and robotic assisted; however, the retroperitoneal approach through the natural orifice has not been investigated. We present the case of 54-year old female, gravida 4, para 4, with ultrasound and magnetic resonance of a normal uterus. Vaginal cytology and endometrial samples were normal. The technique described herein includes a first sacral phase, through the retroperitoneal approach in which a graft is attached to the anterior longitudinal ligament of the sacrum at the level of first vertebra sacra, followed by the cervical phase that involves the fixation of another pericervical graft. Both sacral and pericervical grafts are attached to each other to restore the uterus' normal intra-pelvic position. The post-operative magnetic resonance image shows the results.

CONCLUSION: In select cases, Natural Orifice Sacrohysteropexy through the retroperitoneal approach is feasible.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Arnulfo Martinez: Nothing to disclose.

12 Robotically assisted resection of pericardial endometriosis

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OBJECTIVE: The objective of this video is to demonstrate techniques for minimally invasive removal of endometriosis involving the pericardium.

DESCRIPTION: Endometriosis involving the pericardium is a rare phenomenon that occurs in 2.1% of patients with diaphragmatic endometriosis. It is recommended that when diaphragmatic endometriosis is encountered, full-thickness resection be completed. Prior reports have described techniques for treatment of endometriosis involving the diaphragm and pericardium via laparotomy. This video describes techniques to treat endometriosis involving the pericardium via a minimally invasive approach in two patients.

CONCLUSION: Robotically assisted resection of endometriosis involving the pericardium is a safe and feasible option.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Megan Wasson: Nothing to disclose; Javier F. Magrina: Nothing to disclose; Paul Magtibay: Nothing to disclose.

13 Complete colpectomy and colpocleisis: A model for simulation

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OBJECTIVE: To demonstrate a complete colpectomy and colpocleisis model for simulation for residents and faculty in OB/GYN.

DESCRIPTION: The largest population growth in the United States is women over sixty and in their lives, up to 10% will have pelvic organ prolapse surgery. There is an increase in patients with pelvic organ prolapse in their 70s and 80s with medical comorbidities who are not sexually active. For patients with symptomatic prolapse with medical comorbidities, who are not sexually active, and have previously failed prolapse surgery or pessary trials, obliterative procedures may be indicated. There are two types, the LeFort, in patients with a uterus, and the complete colpectomy and colpocleisis in the patient with a previous hysterectomy. In the United States, there is limited exposure to colpocleisis in residency. Providers that have graduated less than 10 years ago are less likely to offer colpocleisis than otherwise. In our two hospitals, graduating residents have performed 1-3 colpocleisis as surgeon. Given other models for the LeFort colpocleisis, the purpose of this video is to demonstrate a simple model for complete colpectomy and colpocleisis.

CONCLUSION: This may be a useful and inexpensive model that may demonstrate the complete colpectomy and colpocleisis procedure to the obstetrician and gynecologist and trainees.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Andrey Petrikovets: Nothing to disclose; Justin Himler: Nothing to disclose; J. W. Henderson: Nothing to disclose; Rebecca James: Nothing to disclose; Robert R. Pollard: Nothing to disclose; Jeffrey Mangel: Nothing to disclose; Sangeeta T. Mahajan: Nothing to disclose.

14 Robotic-assisted laparoscopic removal of eroded transobturator midurethral sling after failed cystoscopic excision

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OBJECTIVE: To present an alternative to traditional laparotomy to resect eroded mesh from the bladder wall after failed cystoscopic excision.

DESCRIPTION: This video details the case of a 77-year-old woman with a transobturator midurethral sling who presented to the office with pelvic pain and recurrent urinary tract infections. On office cystoscopy, the mesh was visibly eroded through the right bladder wall with several adherent stones. She subsequently underwent an operative cystoscopy, which was only partially successful at excising the mesh secondary to the degree of detrusor muscle involvement and lateral angle. We then performed a robotic-assisted laparoscopic intravesical mesh excision, during which an incision was made into the dome of the bladder under cystoscopic guidance. The mesh and stones were removed via an elliptical incision into the bladder wall, and the mesh bed thoroughly irrigated with cystoscopic assistance. After closure of the dome, the bladder was backfilled to verify integrity. Total operative time was 154 minutes with an estimated blood loss of less than 10 mL. Our patient underwent an uncomplicated postoperative course and was discharged to home with an indwelling catheter the morning after surgery. She experienced full resolution of her irritative voiding symptoms by her first postoperative visit.

CONCLUSION: Robotic-assisted laparoscopic removal of transobturator mesh after failed cystoscopic excision may be a more enticing method of repair than traditional laparotomy. Cystoscopic assistance may serve to increase precision and aid in visualization, further decreasing operative time and morbidity.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Kelly Schwirian: Nothing to disclose; C. Bryce Bowling: Nothing to disclose.

15 Transvaginal excision of eroded sacrocolpopexy mesh into bladder with extracellular matrix graft augmentation

Matthew Barker[1,2]
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OBJECTIVE: To demonstrate a transvaginal surgical approach to remove mesh eroded into bladder from prior robot assisted sacrocolpopexy. In addition, we demonstrate a technique to apply a xenograft derived extracellular matrix graft (ECM) to promote tissue healing and provide another layer of support to the cystotomy repair.

DESCRIPTION: In this video, we present a case of a 68-year-old with recurrent anterior prolapse, urinary urgency and mixed urinary incontinence following a prior robot assisted sacrocolpopexy for post-hysterectomy prolapse. Preoperative cystoscopy demonstrated mesh erosion into the bladder. The transvaginal approach to excising the synthetic mesh and repairing the prolapse is shown. In addition we demonstrate the preparation and steps in performing an ECM xenograft augmentation over a transvaginal cystotomy and prolapse repair. Five months following surgery the patient was doing well with complete resolution of her prolapse and urinary symptoms.

CONCLUSION: There has been an increase in the use of robotic assisted technology to perform abdominal sacrocolpopexies. This is associated with unique complications that gynecologic surgeons should be familiar with and understand all potential management options for these complications. Transvaginal management of mesh erosions and recurrent non-apical prolapse following robotic sacrocolpopexy is effective and feasible. Utilization of ECM xenografts provides a scaffolding of support to help regenerate and promote the vaginal connective tissue that has been disrupted by synthetic mesh and its removal. This technique can be applied when other sources of support, such as omental flaps or peritoneum, can't be utilized to promote wound healing and tissue support around a bladder injury repair.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Matthew A. Barker: Nothing to disclose.

16 Tips and tricks for open laparoscopy

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[1]OB/GYN, Division of Female Pelvic Medicine and Reconstruction Surgery, MedStar Washington Hospital Center, Washington, DC, [2]OB/GYN and Urology, Georgetown University School of Medicine, Washington, DC

OBJECTIVE: Describes tips and tricks for performing the Hassan method for open laparoscopy utilizing a #11 blade scalpel with a unique technique for fascial closure to re-invert the umbilicus and prevent umbilical hernias.

DESCRIPTION: Safe abdominal entry for laparoscopic surgery is an important aspect of every laparoscopic procedure. While no method is superior in preventing visceral or vascular injury, open entry has the highest rate of successful entry. Utilization of a #11 blade scalpel and incision of the preperitoneal layers from deep to superficial allows identification of the mid-umbilicus. Incorporation of the skin edge of the mid-umbilicus with bilateral fascial tagging sutures allows for re-inversion of the umbilical fascia and skin. This method ensures secure fascial closure, excellent cosmesis, and likely prevention of postoperative umbilical hernia formation.

CONCLUSION: Open laparoscopic entry is the most successful technique for abdominal entry and results in a secure fascial closure. Our technique for re-inversion of the umbilicus ensures excellent cosmesis and preservation of a concave umbilicus.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Katelyn R. Smithling: Nothing to disclose; Cheryl Iglesia: Nothing to disclose.

17 Robotically assisted resection of endometriosis involving the bladder

M. Wasson, J. F. Magrina, P. Magtibay
Gynecologic Surgery, Mayo Clinic Arizona, Phoenix, AZ

OBJECTIVE: The objective of this video is to demonstrate techniques for minimally invasive removal of endometriosis involving the bladder.

DESCRIPTION: Endometriosis involving the genitourinary tract is a rare phenomenon that occurs in 1-5.5% of patients. It is recommended that when endometriosis is encountered in the genitourinary tract, completed surgical excision be completed. This video describes techniques to resect endometriosis involving the bladder via a minimally invasive approach.

CONCLUSION: Resection of endometriosis involving the bladder can be facilitated by utilization of robotic technology. This is a safe and feasible option for patients with urogenital endometriosis.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Megan Wasson: Nothing to disclose; Javier F. Magrina: Nothing to disclose; Paul Magtibay: Nothing to disclose.

18 Utility of MRI in deeply infiltrating endometriosis

Deirdre Lum
OB/GYN, Stanford University, Stanford, CA

OBJECTIVE: To examine the utility of MRI in diagnosing deeply infiltrating endometriosis.

DESCRIPTION: In this video, we will show how MRI can diagnose deeply infiltrating endometriosis and aid the gynecologic surgeon in preoperative counseling and planning in complex cases of endometriosis.

CONCLUSION: In conclusion, MRI can be helpful in cases of complex endometriosis. Limitations include the varied sensitivity, access to an MR system, cost, and need for high resolution images. However, in select cases, MRI can aid the surgeon in preoperative counseling and planning.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Deirdre Lum: Nothing to disclose.

19 Management of posterior vaginal wall mesh complications

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OBJECTIVE: The video demonstrates techniques utilized to remove synthetic mesh in the posterior vaginal wall. We will also

demonstrate appropriate use of porcine mesothelial graft to repair posterior vaginal wall defects subsequent to mesh removal.

DESCRIPTION: After identification of the posterior vaginal wall mesh, a midline incision is made to the upper edge of the mesh. Sharp dissection is performed in order to remove the mesh from the rectum and vaginal epithelium. In the process of mesh removal, large amounts of vaginal epithelium are lost. Once all the mesh is removed, repairs are carried out to address any potential enteroceles or rectoceles. In order to close the large vaginal epithelial defect, porcine mesothelial graft is used to bridge the gap allowing tension-free closure.

CONCLUSION: Porcine bladder mesothelial graft is an important tool in allowing the repair of the vagina in situation where vaginal epithelium is lost or lacking. The use of the porcine mesothelial graft allows for a tension-free closure that epithelializes rapidly, gives good support, and maintains vaginal caliber without forming constriction bands.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Sana Hussain: Nothing to disclose; Mickey Karram: EMEDSCO, Financial interest, royalty; cynosure, consultant, consulting fee; Medtronic, consultant, consulting fee; AMS, consultant, consulting fee; Astellas, Speaker's Bureau, Honorarium; Cynosure, Speaker's Bureau, Honorarium.

20 Robot-assisted laparoscopic removal of rudimentary uterine horn

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OBJECTIVE: Congenital Müllerian duct anomalies are estimated to occur in up to 4% of the general population. A unicornuate uterus with rudimentary horn is a rare variation, making up 1-3% of malformations. When functional endometrium is present patients are often symptomatic with cyclic pelvic pain and endometriosis as well as increased risk of infertility and ectopic pregnancy which often leads to desire for removal of the rudimentary horn. Although the most common method of resection has shifted to laparoscopy, the malformation is rare and has a high rate of variation, leading to no standard technique description.

DESCRIPTION: A 28-year-old gravida 2 para 1011 presents due to known rudimentary uterine horn with functional endometrium, worsening cyclic pelvic pain and concern for endometriosis. The patient also struggled with infertility, requiring IVF for her prior live birth, and 3 unsuccessful cycles since. She desired surgical resection. Robotic-assisted laparoscopic resection of the rudimentary uterine horn was performed after confirming its noncommunicating nature via hysteroscopy and chromopertubation. Resection was performed without complication and the specimen was removed via posterior colpotomy.

CONCLUSION: Congenital Müllerian duct anomalies are rare and have a high degree of variation. When surgical resection is indicated for symptoms related to a rudimentary uterine horn, laparoscopy or robotic-assisted laparoscopy should be considered as first-line modalities. This case demonstrates some of the benefits provided by robotic surgery in these rare but important cases.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Tieneka Baker: Nothing to disclose; Albert Steren: Nothing to disclose; Ernest G. Lockrow: Nothing to disclose.

21 Laparoscopic radical hysterectomy for stage IIA1 cervical cancer

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OBJECTIVE: To demonstrate laparoscopic techniques utilized for radical hysterectomy performed for a large cervical tumor.

DESCRIPTION: In patients with IIA1 cervical cancer, chemoradiation is typically recommended as primary treatment. In select patients where chemotherapy or radiation is contraindicated, or patient declines the treatment, surgery may be used primarily and can be curative for low-risk disease. To minimize morbidity, a minimally invasive approach should be utilized whenever possible. Crucial laparoscopic techniques include avascular space development, ureterolysis, and low colpotomy to achieve negative tumor margins. Lymph node dissection should be performed prior to hysterectomy and procedure aborted in case of positive nodes.

CONCLUSION: In a select group of patients, surgery may be curative for stage IIA1 disease. However, the likelihood of needing adjuvant therapy is high. Thorough counseling, proper patient selection, and a skilled laparoscopic surgeon are required to achieve the best possible outcome.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Adrienne Mandelberger: Nothing to disclose; Vaagn Andikyan: Nothing to disclose; Valentin Kolev: Nothing to disclose.

22 Strategies for prophylactic oophoropexy

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OBJECTIVE: The purpose of this video is to provide background regarding the current evidence for prevention of recurrent ovarian torsion and to describe specific surgical techniques to minimize the risk of recurrent ovarian torsion.

DESCRIPTION: We present the case of a 16-year-old nulliparous female with recurrent ovarian torsion for discussion of prophylactic laparoscopic oopheropexy. There is limited data to suggest any medical or surgical interventions lead to lower rates of recurrent ovarian torsion. Medical therapy with hormonal suppression decreases cyst production, although has not been shown to decrease torsion recurrence. Surgical intervention with oopheropexy typically involves plication to a single ligamentous structure, which can often vary. Here a surgical consideration and technique is described to objectively decrease the degrees of articulation for ovarian torsion with the use of multiple ligamentous attachments and angles with laparoscopic suturing.

CONCLUSION: There is limited data to support either medical or surgical interventions to prevent recurrent torsion, though expert opinion supports its use in younger patients. By increasing the number of suspension angles and ligamentous attachments, there are fewer degrees of articulation for the ovary which may provide added support in the prevention of recurrent ovarian torsion.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: James Casey: Nothing to disclose; Amanda Yunker: Nothing to disclose.

23 A perplexing vaginal mass: Prolapsed uterus or fibroid, or both?

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OBJECTIVE: Pedunculated uterine leiomyomata may prolapse into the vagina. The objective of this video is to describe the evaluation and management of an unusual presentation of a prolapsed uterine leiomyoma in a postmenopausal woman with uterine procidentia.

DESCRIPTION: Prolapse of a pedunculated uterine leiomyoma is typically acute and dramatic. Physical examination is sufficient for diagnosis in almost all cases. A 64 year-old Gravida 1, Para 1, female presented with increasing discomfort from a 12-cm long, solid, irreducible chronic vaginal protrusion. The differential diagnosis included uterine procidentia with a cervical leiomyoma, prolapsed pedunculated uterine leiomyoma, and uterine inversion, Magnetic Resonance imaging indicated that she had a Stage IV uterovaginal prolapse with an extremely elongated cervix and likely a leiomyoma at the most distal end. Upon surgical exploration, this was found to be a pedunculated leiomyoma originating from the cervical canal which prolapsed outside the cervix unusually very slowly and fused with the posterior cervix in the background of a Stage IV uterovaginal prolapse. In this video, the use of magnetic resonance imaging and successful surgical management of this patient are reviewed.

CONCLUSION: This patient presented at 2-week follow-up in an excellent condition and reported a significantly improved quality of life.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Bradley W. Newton: Nothing to disclose; Oz Harmanli: Nothing to disclose.

24 Novel classification of labia anatomy in the evaluation and treatment of vaginal agglutination

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OBJECTIVE: Our goal is to introduce the concept of a three-dimensional anatomic classification using an X, Y, and Z axis in order to better delineate the labia minora. This novel model is advantageous when assessing labial agglutination. We also describe a hydro-dissection technique using this three-dimensional model to treat refractory labia minora agglutination.

DESCRIPTION: Anatomic distortion of the labia minora and majora can occur as a result of estrogen deficiency and conditions that lead to chronic vulvar inflammation such as lichen planus and lichen sclerosis. It is important to understand the anatomic relationship of the labia and the resultant agglutination in order to achieve successful surgical management in patient's refractory to medical treatment. The concept of microsurgical hydro-dissection is a commonly used technique in plastic surgery in order to release surgical scars due to burns and tissue desiccation. The goal of this technique is to release the underlying scar and restore normal anatomy. This is accomplished with local infusion of an isotonic solution combined with a vessel constrictor. This accomplishes separation of the underlying scar from the viable epithelium without the need for electrosurgical current or sharp dissection. We present a 57-year-old patient with a history of chronic Lichen Planus refractory to Methotrexate and high dose steroids. She was successfully treated with the surgical technique of hydrodissection.

CONCLUSION: Using a novel three-dimensional method of classifying the labial anatomy, we demonstrate the use of a simple technique for the successful treatment of refractory vaginal agglutination. This non-invasive technique can be applied to any of the common etiologies of chronic vulvar inflammation that leads to labial agglutination.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Maria L. Nieto: Nothing to disclose; Taylor Brueseke: Nothing to disclose; Cindy Wu: Nothing to disclose; Elizabeth Geller: Nothing to disclose; Denniz Zolnoun: Nothing to disclose.

25 Case report: Approach to laparoscopic hysterectomy in a women with a 30 centimeter posterior fibroid

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OBJECTIVE: To review a unique case and provide tips and tricks to approach large pathology using a laparoscopic approach.

DESCRIPTION: This video demonstrates a unique case of a 27-year-old with a 30 centimeter posterior lower uterine segment fibroid. She had a prior aborted abdominal myomectomy by an expert surgeon. She was not a myomectomy candidate and opted to proceed with definitive therapy. She had a successful laparoscopic supracervical hysterectomy with a specimen weight of 2,870g. The approach to her laparoscopic surgery is reviewed in this video.

CONCLUSION: Laparoscopic hysterectomy is feasible for women with large pathology. Expertise in anatomy and comfort operating in the retroperitoneum are essential for a safe procedure.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Maria V. Vargas: Nothing to disclose; Samantha Margulies: Nothing to disclose; James Robinson: Bayer, Advisor, Honorarium.

26 Suprapubic port: The key access point for TLH of an enlarged uterus

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OBJECTIVE: To demonstrate how the suprapubic port can be utilized as an operative port as well as an assistant port for laparoscopic hysterectomy.

DESCRIPTION: The size of the uterus is often a limiting factor to many surgeons when deciding whether a patient is a candidate for laparoscopic hysterectomy. The size of the uterus becomes less important if the surgeon is able to manipulate the uterus in order to gain access to the necessary structures. This video demonstrates the utility of the suprapubic port as both an operative port as well as an assistant port at varying steps in the operation, thus allowing excellent visualization and access to the necessary structures during the surgery. With this technique, almost any size uterus can be approached laparoscopically.

CONCLUSION: The suprapubic port is the key access point in laparoscopic hysterectomy with an enlarged uterus.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Robert R. Pollard: Nothing to disclose; Andrey Petrikovets: Nothing to disclose.

27 Use of posterior colpotomy to minimize abdominal incisions during laparoscopic hysterectomy

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OBJECTIVE: The purpose of this video is to demonstrate an alternative technique for minimizing abdominal incisions during laparoscopic hysterectomy.

DESCRIPTION: Two 5 mm incisions were performed at the umbilical fold for introduction of the laparoscope and the vessel sealing device. There were no lower quadrant ports. Posterior colpotomy was utilized as the third port site and the articulated graspers were introduced through this port. The cephalad aspect of the hysterectomy, including transection of the round and the utero-ovarian ligaments as well as the ligation of uterine vessels were performed laparoscopically. The rest of the procedure, including formation of colpotomy, transection of utero-sacral ligaments and closure of the vaginal apex were completed vaginally.

CONCLUSION: The patient was discharged home on the day of surgery and had an uncomplicated post-operative course. She virtually had no abdominal scars at 6 weeks post-operative visit.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Gulden Menderes: Nothing to disclose; Christopher deHaydu: Nothing to disclose; Masoud Azodi: Nothing to disclose.

28 Tips and tricks in robotically assisted laparoscopic myomectomy for large uteri

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OBJECTIVE: Large uteri are challenging to approach robotically, often due to their breadth and the number of myomas involved. We demonstrate techniques in order to efficiently excise a large uterus affected by multiple myomas.

DESCRIPTION: The camera port is placed in the left upper quadrant, medial to the traditional Palmer's point, after initial insufflation is achieved through an umbilical port. This allows for the surgeon to operate with a more centered view of the target anatomy, while also providing a more panoramic view. The bulk of the uterus is excised via an elliptical incision to maximize the efficiency of the excision of multiple myomas as well as optimize the aesthetics of the uterine reapproximation. Lastly, the specimens are extracted via contained extracorporeal morcellation through the umbilicus, with an Alexis self-retaining retractor placed inside the endocatch bag to expedite the extraction.

CONCLUSION: By using these tips, one can (1) optimize the surgical viewing field (2) efficiently excise bulky myomatous disease and (3) complete contained morcellation in a safe and effective manner.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Nancy Tang: Nothing to disclose; Pedram Bral: Nothing to disclose.

29 Laparoscopic mesh excision for mesh erosion into the bladder

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OBJECTIVE: To demonstrate out technique of management of mesh erosion into the bladder following abdominal sacral colpopexy with type 1 macroporous polypropylene mesh.

DESCRIPTION: We present a 69 year old G9P6 with history of open abdominal sacral colpopexy who developed irritative bladder symptoms and gross hematuria. She was diagnosed with a bladder stone and underwent cystoscopic excision of the stone at which time a prolene suture was noted in the bladder and cut. She underwent cystoscopic mesh and suture excision again and follow-up cystoscopy revealed persistent mesh and suture in the bladder. She was subsequently referred to our center. Exam revealed no mesh exposure in the vagina. There was a lot of tenderness on palpation of the mesh at the vaginal apex and the mesh appeared to be bunched. Decision was therefore made to excise the entire mesh. Due to the patient's extensive surgical history, a right upper quadrant entry using an Optiview technique is performed. Dense adhesions are lysed and standard port configuration is placed. A 10 mm port is placed at the umbilicus. Two right paramedian ports are placed: one 5 mm port and one 8 mm port (for suture introduction). One 5 mm left paramedian port is placed. The mesh is transected at its attachment to the sacrum and dissection is carried out posterior and anterior to the mesh. Intentional cystotomy helps in getting into the vesicovaginal space. Dissection into the vesicovaginal space is performed beyond the level of the mesh erosion. The cystotomy is

closed in two layers. Follow up nonvoiding cystogram done 2 weeks post operatively revealed normal findings. Foley catheter was then removed. Patient was symptom free following surgery.
CONCLUSION: It is feasible to perform laparoscopic mesh excision for persistent mesh erosion into the bladder.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Seshadri Kasturi: Nothing to disclose; Wesley Hilger: Nothing to disclose; Larry Bowen: Nothing to disclose.

30 Laparoscopic burch colposuspension

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OBJECTIVE: To describe our surgical technique, including tips and tricks to performing a laparoscopic Burch colposuspension.
DESCRIPTION: Back filling the bladder, meticulous dissection, concurrent digital vaginal exam during suturing, and tension free knots all maximize the safety, efficacy, and efficiency of this procedure when performed laparoscopically.
CONCLUSION: A laparoscopic Burch colposuspension is an efficacious and minimally invasive alternative for patients with stress urinary incontinence who do not desire any mesh based therapeutic interventions.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Bobby A. Garcia: Nothing to disclose; Rayan Elkattah: Nothing to disclose; Shanti Mohling: Nothing to disclose; Ali Yilmaz: Nothing to disclose; Robert Furr: Nothing to disclose.

31 The hydrodissection technique in bilateral ovarian cystectomy for dermoid cysts

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[2]Applied Medical, Rancho Santa Margarita, CA

OBJECTIVE: In this video, we aim to discuss the concepts of ovarian sparing surgery, overview different port placements to enhance cosmesis and demonstrate the use of hydrodissection for dermoid ovarian cystectomy.
DESCRIPTION: In this video, we aim to discuss the concepts of ovarian sparing surgery, overview different port placements to enhance cosmesis and to demonstrate the use of hydrodissection for dermoid ovarian cystectomy. Dermoid cysts account for 20% of all ovarian tumors. The traditional treatment was cystectomy or oophorectomy via laparotomy for concern about risk for malignancy as well as chemical peritonitis in case of cyst rupture. With advancements in minimally invasive surgery, These cyst can now be removed safely using laparoscopy. Studies showed a significant reduction in AMH level, antral follicle count, mean ovarian diameter and peak systolic velocity after ovarian cystectomy using bipolar electrocautery in comparison with open laparotomy using sutures for hemostasis. The use of hydrodissection in dermoid ovarian cystectomy facilitates removal of the cyst intact with minimal thermal damage to the ovary. Targeted monopolar electrocautery can be used to address active bleeding. Most bleeding is minimal and stops spontaneously. A hemostatic agent such as Floseal or Surgicel can be used for hemostasis in the cyst bed.
CONCLUSION: Dermoids are common cysts that affect many reproductive aged women. The use of aggressive hydrodissection, Minimal electrocautery, careful manipulation and copious irrigation can improve outcomes and help to protect the reproductive capability of these women.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Roa Alammari: Nothing to disclose; Elliot Greenberg: Nothing to disclose.

32 Development of transobturator vaginal tape placement teaching model

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OBJECTIVE: 1) To present a feasible, inexpensive, reproducible and applicable surgical teaching model for transvaginal tension free obturator tape (TOT) placement for gynecology residents. 2) To provide instruction for model assembly and performance. 3) To demonstrate the basic key steps of TOT placement to reinforce proper technique.
DESCRIPTION: A custom designed educational pelvic model was created, using a commercially available adult female pelvis model and crafting materials purchased from local retail stores. The assembly of the pelvic model was straightforward and reproducible. The model can be used multiple times without compromising the major anatomical structures. The Initial and per-use cost of the pelvic model was kept minimal. Most major anatomic structures were represented and palpable: symphysis pubis, obturator foramen, urethral meatus, vaginal hymen and superficial perineal muscles.
CONCLUSION: The custom designed, inexpensive educational pelvic model can allow gynecology residents for a realistic simulation of TOT placement. After proper validation process, the model can be used to assess resident surgical skills and also aid the training of gynecologic residents.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Woojin Chong: Nothing to disclose.

33 Mesh extrusion: Laparoscopic removal of sacral hysteropexy mesh

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OBJECTIVE: Review mesh extrusion and demonstrate the technique and anatomical relations required for complete removal of sacral hysteropexy mesh and repair of the rectovaginal space.
DESCRIPTION: Mesh complications are ubiquitous in modern gynecology, and minimally invasive techniques for management of extrusion should be in one's repertoire. The review of general mesh complications and focus on extrusion in a unique patient scenario allows demonstration of the techniques required for complete excision of mesh with uterine preservation.
CONCLUSION: Familiarity with the technique described will allow the modern gynecologist to offer minimally invasive options to patients who elect for complete mesh removal.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Kirthik N. Parthasarathy: Nothing to disclose; Jaime B. Long: Nothing to disclose; Christopher Pugh, DO: Nothing to disclose.

34 Tissue guided regenerative surgery: The pathology of anterior vaginal wall collapse

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Ziekenhuis Zorgsaam, Terneuzen, The Netherlands

OBJECTIVE: Anterior Vaginal Wall Collapse of Prolapse is commonly referred to as "cystocele" and classified according to the severity of the prolapse. All "cystoceles" are not the same. This video, which is part of a series on regenerative vaginal surgery, focus on a classification of the different defects present in anterior vaginal wall collapse. The objective is to introduce the reader into a new avenue: regenerative surgery, which consists of defect specific surgery and the utilization of native tissue in the repair with the manipulation of wound healing along regenerative medicine principles. Native tissue surgeries of the past followed a principle of all anterior wall bulges need to be pushed back, with a total disregard of the underlying cause of the bulge.

DESCRIPTION: Utilizing different video clips the variation in underlying pathology in anterior vaginal wall prolapse is shown. A classification of the pathology along the lines of defects seen in the support fascia of the anterior wall is shown: this is practical and focused on subsequent differing surgical techniques to repair the damaged wall. The principles of regenerative medicine require meticulous surgical skills to protect the native tissue and minimizing scar tissue formation, with a maximum regenerative result. Morbidity is vastly decreased. The influence of age on the type of expected pathology to be found is highlighted.

CONCLUSION: All cystoceles are indeed not the same. Regenerative surgery is the future of native tissue surgery.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Andri Nieuwoudt: Nothing to disclose.

35 Robotic myomectomy in conjunction with open excision of a hydrocele of the canal of nuck

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OBJECTIVE: This video demonstrates the rare finding of a hydrocele of the Canal of Nuck in an adult female. The Canal of Nuck is analogous to the processus vaginalis in males. It is a small evagination of parietal peritoneum that accompanies the round ligament as it descends through the inguinal canal and into the labium majus. It usually becomes obliterated by the first year of life, and failure to do so may result in indirect inguinal hernia or hydrocele of the Canal of Nuck. Hydrocele of the Canal of Nuck is an uncommon cause of inguino-labial swelling. Cases of ovary and/or fallopian tube, endometriosis, and ectopic pregnancy within the canal have also been reported.

DESCRIPTION: Our patient, a 44 year-old G3P0, presented with symptomatic myomas as well as symptomatic right inguinal swelling. An ultrasound and an MRI were obtained prior to taking the patient to the operating room for myomectomy. The imaging suggested a 10cm hydrocele of the Canal of Nuck, and a general surgeon was consulted. The patient went to the operating room with both the reproductive endocrinologist and the general surgeon. The reproductive endocrinologist performed a robot-assisted myomectomy, after which the general surgeon performed an excision of the hydrocele in an open fashion.

CONCLUSION: Hydrocele of the Canal of Nuck is seen very infrequently, especially in adults, and many gynecologists lack familiarity with this condition. Thus, this video serves as a reminder to keep this entity in the differential diagnosis when evaluating inguinal or labial swelling.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Laura E. Eisman: Nothing to disclose; Seth L. Newman: Nothing to disclose; Larry Barmat: Nothing to disclose.

36 An innovative approach to the surgical management of a missed abortion

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[1]Genesys Regional Medical Center, Grand Blanc, MI, [2]Hurley Medical Center, Flint, MI

OBJECTIVE: To demonstrate an innovative approach to the surgical management of a missed abortion.

DESCRIPTION: The patient is a 34 year old female G0P0 presents with primary infertility for 18 months duration. Medical history includes Hypothyroidism, Factor V Leiden mutation. Hysterosalpingogram revealed a small endometrial cavity and bilateral tubal patency. She took Clomiphene Citrate for 3 months, followed by Letrozole for 3 months without success. Subsequently, she underwent intra-uterine insemination after controlled ovarian stimulation with gonadotropins, which resulted in a positive pregnancy test. At 6 weeks gestation, she experienced vaginal bleeding and a TVUS revealed a viable IUP with a retro-placental hematoma. Repeat TVUS at 7 weeks gestation revealed a nonviable pregnancy with persistence of the retro-placental hematoma. We proceeded with diagnostic hysteroscopy with removal of products of conception using the Truclear® device.

CONCLUSION: Intrauterine morcellation using the Truclear® device is a safe and effective tool for the management of missed abortions, with a unique diagnostic advantage. With possibly future applications to allow for the resection of the placenta separate from fetal tissue to increase accuracy of karyotype analysis.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Jennifer DeAnna: Nothing to disclose; Tara Bartlett: Nothing to disclose; Rubin Raju: Nothing to disclose; Omar Abuzeid: Nothing to disclose; Joseph Kingsbury: Nothing to disclose; Mostafa Abuzeid: Nothing to disclose.

37 The utility of indocyanine green in laparoscopic uterine artery transection

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OBJECTIVE: To show the utility of Indocyanine Green in laparoscopic surgery, specifically during transection of the uterine artery.

DESCRIPTION: Indocyanine Green solution, commonly referred to as ICG, is an innovative technique used in many branches of medicine. In gynecology, it has been utilized for isolation of sentinel lymph nodes and resection of endometriosis. It's mechanism of action involves binding to plasma protein, allowing it to remain in the vasculature. With a short half-life and non-toxic properties, ICG is of great utility in surgery with minimal risk to the patient. Uterine artery ligation is one of the most complicated points of any hysterectomy. Bleeding is frequently difficult to control, thus prolonging

the operative time. However, use of ICG illuminates the uterine vasculature in green. When effective ligation occurs, the tissue blanches and becomes grey. The ICG also facilitates control of blood loss, as vessels are more apparent and are efficiently cauterized.
CONCLUSION: Indocyanine Green allows for improved visualization and optimal transection of the uterine arteries. Use of this innovate technology during a laparoscopic hysterectomy has clear benefits during the crucial point of this procedure.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Allan A. Adajar: Teleflex, Surgical Consultant, Honorarium; Stryker Endoscopy, Surgical Consultant, Honorarium; Myriad, Speaker, Honorarium; Phenogen, Speaker, Honorarium; Vermillion, Speaker, honorarium; John V. Knaus: Teleflex, Surgical Consultant, Honorarium; Stryker Endoscopy, Surgical Consultant, Honorarium; Myriad, Speaker, Honorarium; Phenogen, Speaker, Honorarium; Vermillion, Speaker, honorarium; Mariam Hanna: Nothing to disclose.

38 The utility of laparoscopic hydro-dissection in bladder dissection, from a midline approach

Allan Adajar
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OBJECTIVE: The following video demonstrates the utility of hydro-dissection in laparoscopic bladder dissection, when performed from a midline instrument port.
DESCRIPTION: The advancement of minimally invasive gynecologic surgery gives rise to new challenges, and techniques to overcome them. The advent of less invasive, scar-less surgical approaches, result in the surgeon's loss of port placement triangulation and decreased ergonomics. When bladder dissection is performed with laterally placed instrument ports, triangulation allows the surgeon full use of instrumentation. This allows the use of the lateral edge of the instrument to perform blunt bladder dissection. When utilizing a midline approach, such as through an umbilical port, loss of triangulation results in limited instrument utilization. This is most apparent during dissection and creation of a bladder flap. The following video demonstrates the utility of hydro-dissection in bladder dissection, when performed from a midline instrument port. Hydro-dissection is a technique wherein pressurized fluid is delivered into the tissue, entering into the plane of least resistance. When used during bladder dissection, pressurized fluid is used to dissect into an avascular plane, between the bladder and adjacent lower uterine segment. This results in a well demarcated dissection plane.
CONCLUSION: When performed from a midline instrument port, this technique allows the surgeon to overcome some of the challenges encountered from a mid-line instrument port.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Allan A. Adajar: Stryker, Consultant, Consulting Fee; Teleflex, Consultant, Consulting Fee.

39 The use of the resectoscope in the management of endometrial polyps

J. DeAnna[1], T. Bartlett[1], R. Raju[2], O. Abuzeid[2], J. Kingsbury[1], M. Abuzeid[2]
[1]Genesys Regional Medical Center, Grand Blanc, MI, [2]Hurley Medical Center, Flint, MI

OBJECTIVE: We present a case demonstrating a simple and low cost technique of hysteroscopic polypectomy using a resectoscope without cautery.
DESCRIPTION: This is a case of a 43 year old G3P2012 who presented with secondary infertility. She has a history of a failed IVF cycle. The 2D and 3D transvaginal ultrasound scan with saline infusion sonohysterogram showed multiple intrauterine filling defects. We proceeded with diagnostic hysteroscopy, polypectomy, and D&C. Of note, in patients who desire to preserve their reproductive potential, the use of electrical cautery for the removal endometrial polyps should be avoided to prevent intrauterine scar formation. As such, a right angle resectoscope without cautery was used in this case.
CONCLUSION: Hysteroscopic polypectomy using the resectoscope without electric cautery is an effective, simple and low cost technique.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS: Jennifer DeAnna: Nothing to disclose; Tara Bartlett: Nothing to disclose; Rubin Raju: Nothing to disclose; Omar Abuzeid: Nothing to disclose; Joseph Kingsbury: Nothing to disclose; Mostafa Abuzeid: Nothing to disclose.

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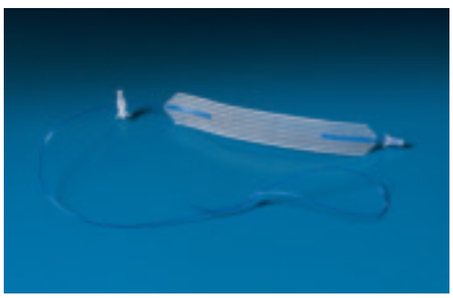

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Indications:
The Altis Single Incision, Aris Transobturator and Supris Retropubic Sling Systems are indicated for the treatment of female stress urinary incontinence (SUI) resulting from urethral hypermobility and/or intrinsic sphincter deficiency (ISD). **Contraindications:** Altis, Aris or Supris slings should not be used in pregnant women, or in women planning future pregnancies or any patient with potential for future growth. Altis, Aris or Supris slings should not be used in those who are taking anticoagulant therapy, who have an abnormal urethra, who have an intra-operative urethral injury, are immunocompromised, who have a sensitivity to polypropylene, have a pre-existing local or systemic infection, who are immunocompromised, or women that have a known or suspected pathology which would compromise implant or implant placement. **Warnings and Precautions:** It is the responsibility of the surgeon to advise the prospective patients or their representatives, prior to surgery, of the possible warnings and precautions associated with the use of this product and the associated surgical risks. Altis, Aris and Supris Sling Systems should only be used by surgeons familiar with the surgical procedures and techniques involving transvaginal placement of non-absorbable meshes and who have adequate education and experience in the treatment of female SUI. Based on physician experience and education, a thorough assessment of each patient should be made to determine the suitability of a synthetic mesh procedure. The patient should be counseled that alternative non-mesh incontinence surgeries may be appropriate, and the reason for choosing a mesh procedure should be explained. Physician should obtain patient consent prior to surgery and ensure that the patient has an understanding of the postoperative risks and potential complications of transvaginal mesh surgery. Patient counseling should include a discussion that the mesh to be implanted is a permanent implant, and that some complications associated with the implanted mesh may require additional surgery; repeat surgery may not resolve these complications. Serious adverse tissue responses or infection may require removal of mesh. **Adverse Effects:** Potential adverse events are those associated with surgery using implantable synthetic mesh materials. As with all foreign bodies, the Altis, Aris, Supris sling is likely to exacerbate any existing infection. Local irritation at the wound site and/or a foreign body response may occur. The following complications are known to occur with synthetic mesh implantation: mesh erosion (e.g., vaginal, bladder), mesh extrusion, mesh exposure, infection, pain (acute or chronic), and bladder, bowel, urethra, vagina, vessel, and/or nerve perforation/injury. There is also the risk of complete failure of the procedure resulting in continued incontinence due to incomplete support or overactive bladder. The occurrence of these events may require partial or complete removal of the sling. Patients should be monitored regularly after the device has been implanted for immediate treatment of any adverse reaction.

See the device instructions for use for detailed information regarding the implant procedure, warnings/precautions, adverse reactions, prior to using this product.

For further information, call Coloplast Corp at 1-800-258-3476 and/or consult the company website at www.coloplast.us.

CAUTION: Federal (USA) law restricts this device to sale by, or on, the order of a physician.

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