Oral Presentation 1

ANATOMIC OUTCOMES OF PARAVAGINAL REPAIR AMONG PATIENTS UNDERGOING SACROCOLPOPEXY

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Objectives: To compare rates of recurrent anterior vaginal wall prolapse following abdominal sacrocolpopexy (ASC) with and without paravaginal repair (PVR) for treating cystocele with the leading edge at or beyond the hymen.

Materials and Methods: We conducted a retrospective cohort study of all patients undergoing ASC at Johns Hopkins Medical Institutions and Greater Baltimore Medical Center between 2001 and 2005. We compared outcomes for two groups: those who underwent paravaginal repair at the time of ASC (group A) and those who did not undergo paravaginal repair (group B). We reviewed records of preoperative visits, operations, and postoperative clinic visits during the first postoperative year and at the last documented clinical encounter. Patients were included if they had preoperative anterior vaginal prolapse at or beyond the hymen (Aa'0). Patients who had concomitant vaginal cystocele repairs were excluded. Defining anterior wall failure as point Ba −1 cm or beyond on any postoperative examination, we compared these two groups with respect to anatomic outcomes and rates of re-operation for recurrence of prolapse with cystocele.

Results: Of 259 patients undergoing ASC, 170 had anterior wall prolapse at or beyond the hymen before surgery (62 in group A and 108 in group B) and are included in this analysis. Patient characteristics with respect to age as well as preoperative severity of anterior and apical prolapse were similar between groups (table). Concomitant Burch colposuspension was performed more frequently among patients undergoing PVR; slings were performed more frequently among patients who did not undergo PVR. For ASC, biologic grafts (xenograft, autologous, or allogenic) were used in 34 procedures (54.8%) in group A and 46 (42.6%) in group B (P = 0.15). Postoperative POPQ data were available for 127 (75%) (45 in group A (72.6%) and 92 in group B (85.2%). Mean follow up intervals were 16.0 and 12.9 months respectively (P = 0.13). Mean postoperative points Ba were −1.78 in group A and −1.70 in group B (p = 0.75). In the first year 10 (16.1%) patients in group A and 29 (26.9%) in group B experienced anterior vaginal wall prolapse beyond −1 cm (P = 0.13). Among these groups, 1 (1.6 %) and 5 (4.6 %) underwent re-operation for anterior prolapse recurrence (P = 0.42).

Conclusion: We observed no statistically significant difference in either postoperative support at one year or re-operation for recurrent cystocele when PVR was included at the time of ASC. A larger cohort would be needed to adequately investigate whether PVR can improve outcomes after ASC.

Key Words: prolapse, sacrocolpopexy, repair, paravaginal

Disclosure - Nothing to disclose.

Oral Presentation 2

ANATOMICAL OUTCOMES OF ABDOMINAL SACROCOLPOPEXY AND VAGINAL MESH PROCEDURE (PROLIFT, GYNECARE) FOR PELVIC ORGAN PROLAPSE. FELLOWS' PELVIC RESEARCH NETWORK

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Objectives: Our primary objective was to compare 3−6 month postoperative apical support outcomes using the Pelvic Organ Prolapse Quantification (POP-Q) and Baden-Walker (B&W) systems in patients who underwent mesh abdominal sacrocolpopexy (ASC) to vaginal mesh procedure (VMP) (total or posterior Prolift). Secondary objectives compared patients' demographics, perioperative data, and postoperative complications.

Materials and Methods: The Fellows' Pelvic Research Network (FPRN) obtained records from Urogynecology Divisions of ten U.S. medical centers to perform this multicenter, retrospective, cohort study comparing anatomical outcomes in patients who underwent ASC, VMP, or uterosacral ligament suspension. This analysis compares ASC to VMP. Subjects who underwent ASC with polypropylene/Mersilene mesh, or total/posterior Prolift between 2004 and 2007 were included. Cases with anterior Prolift only, VMP other than Prolift, or with follow-up less than 3 months were excluded. The surgical success was defined in two ways: a) POP-Q stage 0 or 1 based on point C or D; b) all points above the hymen combining POP-Q and B&W systems. Pearson χ^2, Fisher's Exact, and t tests were used for analysis.

Results: Out of 1461 charts reviewed, 742 subjects were included. 305 underwent ASC; 206 had VMP. 488 subjects (95.5%) had a pre-op POP-Q exam. At 3−6 month follow-up 327 (63.9%) had a POP-Q exam and 19 (3.7%) were evaluated by B&W exam. At 3−6 months postoperatively, there was no difference in apical support success after ASC (99.3%) compared to VMP (98.8%, p = 1.00) on POP-Q evaluation. Defining success as all points above the hymen, there was no difference in success. Overall POP-Q success for ASC and VMP were 66.5% and 76.2%, p = .065, respectively. VMP was superior to ASC for treatment of posterior vaginal wall prolapse (93.6% vs. 82.2%, p = .002). Mean postoperative total vaginal length (TVL) was 9.3cm after ASC and 8.1cm after VMP (p < .001). Mean postoperative point C was −8.4 after ASC and −6.2 after VMP (p < .001). ASC subjects were younger (56.8 vs. 68.1years, p < .001), had higher rates of prior prolapse surgery (32.1% vs. 22.9%, p = .028), and prior incontinence surgery (16.5% vs. 7.4%, p = .003). Mean preoperative point C was −0.42 for ASC and −1.27 for VMP (p = .03). There was no difference in preoperative overall POP-Q or TVL between the two groups. Mean operating room time (186.7min vs. 102.3min, p < .001), estimated blood loss (186.9ml vs. 114.5ml, p < .001), and hemorrhage >500ml (4.0% vs. 0%, p = .002) were greater in ASC than VMP groups, respectively. ASC had more frequent bladder perforations (4.6% vs. 1%, p = .02) but less frequent urinary retention (2% vs. 22.9%, p < .001), groin pain (2% vs. 10.7%, p < .001), and buttock pain (0% vs. 6.8%, p < .001).

Conclusion: Patients undergoing ASC and VMP have similar postoperative apical support at 3−6 month follow-up. TVL and point C are improved with both procedures, with superior results following ASC. VMP is superior to ASC for treatment of posterior vaginal wall prolapse

Key Words: Prolift, abdominal sacrocolpopexy, apical prolapse, anatomical outcomes, vaginal mesh procedure

Disclosure - Nothing to disclose.

Oral Presentation 3

ANTERIOR TRANSVERSE DEFECT REPAIR WITH PORCINE GRAFT: REPAIR OF ANTERIOR VAGINAL WALL PROLAPSE

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Objectives: To investigate the efficacy of the anterior transverse defect repair using porcine graft for augmentation of the anterior vaginal wall.

Materials and Methods: We conducted a retrospective cohort study of women who underwent transvaginal surgical correction of anterior vaginal wall prolapse from January 2005 until January 2008. The first group was comprised of patients who underwent an anterior transverse defect repair and suspension of the apex with a bilateral uterosacral ligament suspension. The study group was comprised of patients who underwent repair of the anterior segment with augmentation with Surgisis graft (Cook Surgical, Bloomington, IN, USA) as well as suspension of the apex with bilateral uterosacral ligament suspension. The degree of prolapse was defined according to the Baden-Walker system. Patients were seen postoperatively at 4 weeks, 3 months, 6 months and 12 months. Anatomic failure was defined as Stage 2 or greater prolapse. Data was abstracted from the medical record and demographic data and clinical information was reviewed. Statistical analysis was performed using the SPSS statistical package.

Results: A total of 276 patients met the inclusion criteria for the study. 145 patients underwent an anterior transverse defect repair of the anterior segment with uterosacral ligament suspension. 131 patients underwent anterior vaginal wall repair with Surgisis graft and uterosacral ligament suspension. There was no statistically significant differences in mean age (62.2 + 11.3 years vs. 63.7 + 13.6 years), parity (2.7 + 1.4 vs. 2.7 +1.4) and prior hysterectomy (63% vs. 52%), respectively. Mean follow up time was 8.0 + 5.5 mo and 7.1 + 3.3 mo respectively. At follow-up, the anatomic failure rate for the anterior transverse defect repair group (9/143; 6%) was similar to that of the Surgisis augmentation group (9/104; 8 %), p = 1.0.

Conclusion: Augmentation with porcine graft had similar anatomic outcomes to the anterior vaginal repair group. The addition of porcine graft is safe and effective for use in the anterior transverse defective repair.

Key Words: anterior repair, uterosacral ligament, xenograft

Disclosure - educational grant: Cook Surgical, independent contractor.

Oral Presentation 4

INCIDENCE AND MANAGEMENT OF GRAFT EROSION, WOUND GRANULOMAS AND DYSPAREUNIA FOLLOWING VAGINAL PROLAPSE REPAIR WITH GRAFT MATERIALS: A SYSTEMATIC REVIEW

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Objectives: To describe the incidence, risk factors, clinical presentation, and treatment details regarding management of graft erosion, wound granulomas, and dyspareunia following vaginal repair of pelvic organ prolapse with synthetic and non-synthetic graft materials.

Materials and Methods: A systematic review of graft use in vaginal prolapse repair was performed by the Systematic Review Group of the Society of Gynecologic Surgeons. A review of all vaginal prolapse repair papers using graft materials published between 1950 and November 27, 2007 was included. We conducted a secondary analysis of all published comparative studies as well as case series with > 30 subjects that included reports on graft erosion, wound granuloma, and dyspareunia published in the same time period.

Results: Fifty three out of 74 papers identified in the systematic review described graft erosions, wound granulomas, and dyspareunia. Graft erosion (defined as graft material exposed in the vagina following surgery) was documented in 46 papers with a mean weighted average rate of 8.3%, (311/3754 women, 95% CI 7.4−9.2%, range 0−30%). Timing of graft erosion ranged from 6 weeks to 12 months. Risk factors for graft erosion varied widely between reports and included patient age, surgeon experience, concomitant hysterectomy or sling, and the use of inverted T colpotomy incisions. Graft erosion symptoms included vaginal discharge, odor, vaginal pain, dyspareunia, or pain experienced by the sexual partner. Management of graft erosions was reported in 29 papers, involving 242 women: 79 (32.6%) were treated with estrogen or antiseptic agents, 55 (22.7%) were treated with office excision, and 108 (44.6%) required surgical excision in the operating room, with some women requiring 2−3 additional surgeries to resolve symptoms. Wound granulomas were reported in 8 papers with a mean weighted average rate of 12.3% (73/594 women, 95% CI 9.6−14.9%, range 3−39%). One paper reported that wound granulomas occur within 8 weeks of surgery, and another paper reported that graft placement with permanent braided sutures was a risk factor for wound granulomas. Few papers reported treatment approaches to wound granulomas; one paper reported spontaneous resolution and another reported resolution with suture removal and application of silver nitrate. Dyspareunia was reported in 24 papers with a mean weighted average rate of 4.7% (68/1442 women, 95% CI 3.6−5.8%, range 0−61%). Risk factors included posterior repair and mesh erosion. Treatments included the use of vaginal estrogen cream or excision of the mesh erosion.

Conclusion: Graft erosion, wound granulomas, and dyspareunia occur in approximately 8%, 12%, and 5%, respectively, of women that undergo vaginal repair of pelvic organ prolapse with graft materials. Diagnosis, risk factors, and treatment of these adverse events vary widely between studies, and one-third of the studies fail to address these complications. The wide variation in the reporting of these adverse events following the use of graft materials makes concrete conclusions regarding the risks in its use difficult.

Key Words: Prolapse, dyspareunia, erosion, graft, granuloma

Disclosure - Nothing to disclose.

Oral Presentation 5

A MULTI-CENTER TRIAL ASSESSING TYPE I, POLYPROPYLENE FOR THE TREATMENT OF ANTERIOR VAGINAL PROLAPSE

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Objectives: The purpose of this study was to evaluate the 12 mo outcomes of mesh placement along the anterior vaginal wall.

Materials and Methods: In an ongoing, prospective, multi-center trial, 8 U.S. sites implanted women with anterior vaginal wall prolapse (≥ Stage II). Each subject underwent placement of type I, polypropylene mesh (Perigee® System with IntePro®, AMS, Minnetonka, MN) employing a transobturator approach. At implant, the cystocele was not reduced nor repaired under the mesh. Additional reconstructive and incontinence procedures were completed as indicated. Women having concomitant hysterectomy or a history of anterior wall graft were excluded. Primary endpoint was the percent of subjects with ≤ anterior Stage I ("success") at follow-up. Secondary endpoints included, but were not limited to, procedure time, estimated blood loss, and device-related complications. Subjects were seen post-operatively at 6 weeks, 3 mo, 6 mo, and 12 mo and will be followed prospectively through 24 mo.

Results: 114 subjects were implanted with a mean follow-up of 17.8 ± 8.1 mo. Subject demographics include age: 60.8 yrs (27 − 87), BMI: 27.6 ± 6.0, parity: 2.8 ± 1.5, prior cystocele repair: 22.5%, post-menopausal: 87.4%, prior hysterectomy: 55.0%. The Perigee only procedure time was 29.2 ± 13.1 min. Concomitant repairs included vault suspension (64.0%), incontinence (70.3%), and rectocele repair (65.8%). Estimated blood loss for Perigee, only, was 68.4 ± 73.6 cc. Hematocrit at baseline, immediately following the procedure, and at postop day 1 was: 39.7 ± 3.5, 33.3 ± 3.9, and 33.0 ± 3.8. There were no erosions into the surrounding viscera. Eleven subjects (9.6%) had a mesh extrusion into the vagina with a mean time to onset of 133 (34 − 426) days. Nine (7.9%) extrusions required surgical intervention and 2 (1.8%) healed with conservative intervention. No entire mesh system was removed for resolution of an extrusion. Only two (1.8%) extruded subjects had low vaginal estrogenicity (cytological vaginal wall maturation index) at baseline; the remaining extruded subjects (7.9 %) had moderate (8/114, 7.0%) or high (1/114, 0.9%) vaginal estrogenicity. Four (3.6%) subjects experienced pain postoperatively (groin/pelvic: 1.8%, vaginal: 0.9%, and with sitting: 0.9%). De novo urge with incontinence and dyspareunia both occurred at a rate of 2.6%–all resolved. All other device-related complications (bladder perforation, granulation, retention and vaginal infection) each occurred at a rate less than 1%. Only 1 (0.9%) subject has had a re-operation for symptomatic failure (Aa: −2.0; Ba: 0.0). A small piece of mesh was resected and imbricated to reduce the recurrent cystocele. Objective success rate (≤ Stage I, anterior prolapse) at 12 mo is 90.5% (86/95; Ba: −2.6 ± 0.6). Significant improvement (<0.001) was seen on the PFDI, PFIQ−7, and PISQ−12 QOL questionnaires across all subscales (where applicable).

Conclusion: Repair of cystocele with the Perigee System results in a high anterior prolapse success rate at 12 mo, postoperatively. Complications have been minimal with significant improvement in all QOL measurements. Success rates are very encouraging and 24 mo follow up is ongoing.

Key Words: prolapse, mesh, cystocele, Perigee, polypropylene, anterior

Disclosure - honorarium: AMS, speaking and teaching, AMS, membership on advisory committees.

Oral Presentation 6

A COMPARISON OF SHORT-TERM OUTCOMES BETWEEN LAPAROSCOPIC SUPRACERVICAL AND TOTAL HYSTERECTOMIES

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Objectives: To compare perioperative outcome measures of laparoscopic supracervical and total hysterectomies.

Materials and Methods: This is a retrospective analysis of consecutive patients who underwent laparoscopic supracervical hysterectomy (LSH)) or total laparoscopic hysterectomy (TLH for benign gynecologic conditions at our institution from November 1999 to March 2007. After baseline characteristics were compared, the rate of operative and postoperative complications, rate of conversion to laparotomy, operative time, perioperative change of hemoglobin concentration, and length of hospitalization were analyzed.

Results: A total of 882 patients were initially identified; however, 141 cases were excluded because of concomitant major pelvic or abdominal surgery. Patients who had any adnexal removal or cystoscopy were included. Of the 741 patients in the study, 393 (53%) underwent LSH and 348 (47%) underwent TLH. The groups were similar with respect to age, race, gravidity, parity, body mass index, menopausal status, and rate of any adnexal removal. The patients in the LSH group had more conditions listed under past medical and surgical history than those patients in TLH group. While the three most common indications for both groups were menorrhagia, symptomatic uterine leiomyoma and pelvic pain, there were more patients in the LSH group undergoing the surgery for uterine leiomyoma (63.7%) than in the TLH group (38.6%) ($p < 0.001$). Similarly, the patients in the LSH group had menorrhagia more often (75.4% vs. 68.3%, $p = 0.033$). In contrast, pelvic pain was mentioned more frequent for TLH (46.7% vs. 39.6%, $p = 0.054$). Average uterine weight was significantly higher in the TLH group (235 ± 208 vs. 157 ± 116 grams, $p < 0.001$). The mean operating time for TLH was 167 ± 63 minutes in comparison to 143 ± 54 minutes for LSH; the difference of 24 minutes was statistically significant ($p < 0.001$). The average hospital stay was also statistically longer for TLH (32 ± 22 vs. 29 ± 17 hours, $p < 0.003$). Postoperative complications such as visceral injury, all of which were urinary (0.8 vs. 0.8%), ileus (0.5 vs. 0.9%), pelvic hematoma (0.5 vs. 0%), venous thromboembolism (0.5 vs. 0.3%), pelvic abscess (0.5 vs. 0.3%) and wound infections (1.3% vs. 0.6%), were not statistically different between LSH and TLH, respectively. Postoperative fever was reported more frequently in the TLH group (2.9 vs. 0.8%, $p = 0.029$). There was no difference in the perioperative change in hemoglobin concentration (1.9 ± 1.0 vs. 1.9 ± 0.9 for LSH and TLH, respectively, $p = 0.927$). The rate of conversion to laparotomy was not significantly elevated for women who underwent TLH (6.6%) when compared to those who had LSH (8.3%) ($p = 0.373$). Adjustment for the significantly different baseline variables did not change our results.

Conclusion: In this largest comparison of supracervical and total laparoscopic hysterectomies, perioperative complication rates were mostly similar between the groups. Although the operating time and the length of stay were longer for the patients who had TLH, the difference did not seem to be clinically significant.

Key Words: hysterectomy, complications, cervix, laparoscopic hysterectomy, laparoscopic supracervical hysterectomy, subtotal hysterectomy

Disclosure - Nothing to disclose.

Oral Presentation 7

HOW COMPETENT ARE OB/GYN RESIDENTS IN PERINEAL LACERATION REPAIR?

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Objectives: to objectively evaluate the technique of 3rd/4th degree perineal tear repair via a procedure checklist using the modified beef tongue model for technique demonstration.

Materials and Methods: Forty Ob/Gyn residents in tristate area from 12 residency programs demonstrated perineal laceration repair. The study was conducted on the "Resident education day, 2008" which was held at the Center for Clinical simulation and Patient safety at Temple University School of Medicine. There were 35% PG-Y−1, 22.5% PG-Y2, 15% PG-Y3, 20% PG-Y4 and 3 were unspecified. To enhance the delineation of internal anal sphincter, the original beef-tongue model was modified with an additional layer of bacon. Two faculty members with expertise in repairing OASI evaluated the residents using a checklist. The checklist was based on the performance of five key steps in laceration repair, namely, repair of internal anal sphincter, grasping the external sphincter with an Allis clamp, selection of proper suture material, inclusion of both muscular & the capsular parts of EAS, and the order of suture placement/ tying for EAS. To pass the proficiency test, trainee should perform each of the five key components of the procedure.

Results: Overall Pass rate was 42.5% (17/40). Many residents missed several of the critical steps of repair. 61% did not repair internal anal sphincter, 87% did not grasp the EAS with an Allis clamp, 82.6% did not take EAS sutures in correct order (posterior first), and 4.3% did not use PDS or Vicryl (used silk). In addition, 8/23 repaired the EAS first and then struggled to repair IAS while 4/23 repaired the EAS with one mass suture. Year of training ($p = 0.9$), training Institution ($p = 0.5$) and prior experience ($p = 0.48$) did not have significant effect on the pass rate. There was significantly higher satisfaction with the training on the modified beef tongue model compared with the current training in the program (7.81 vs. 6.92, $p = 0.001$). The reported difference in satisfaction between the program's current methods of training and beef tongue model was higher in those who passed (1.27 vs.0.64 failed, $p = 0.000$) signifying those who knew how to do the repair properly, appreciated the value of model more than others.

Conclusion: The low pass rate of 43% suggests lack of adequate training in the repair of third and fourth degree perineal tears. Resident exposure to and participation in such training has been hampered by reduced case volume secondary to decreased operative vaginal delivery. The low pass rate among the senior residents could also be a result of the phenomenon "not interested in simple vaginal deliveries anymore." The analysis of reasons of failures signifies that most of those who failed actually got many of the steps in the checklist wrong which again correlates to limited exposure to both the actual number of these tears in real life (mean 4.7) and to training on a model/simulation. Very few residents 6/40 (15%) indicated prior training on either similar or different model. Ex-vivo training with high quality models and assessment of trainee performance using standardized checklists will likely enhance the skill level of ob/gyn residents in this scenario.

Key Words: perineal tear, perineal repair, training in perineal repair, OASI, modified beef tongue model, procedure check list

Disclosure - Nothing to disclose.

Oral Presentation 8

ESTABLISHING CUTOFF SCORES ON ASSESSMENTS OF SURGICAL SKILLS TO DETERMINE SURGICAL COMPETENCE

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Objectives: To establish minimum cutoff scores on two intraoperative assessments of surgical skills to determine surgical competence.

Materials and Methods: Two valid and reliable surgical rating scales, the Global Rating Scale (GRS) developed by Resnick et al. consisting of 6 generic surgical principles and the Vaginal Surgical Skills Index (VSSI) consisting of 13 surgical principles were used to evaluate postgraduate trainees while performing vaginal hysterectomy in Obstetrics and Gynecology from two academic medical centers. A visual analogue scale (VAS) indicating a trainee's overall level of surgical performance was also completed. Trainees performed a vaginal hysterectomy while the procedure was videotaped in a blinded, standardized fashion. An expert surgeon scored the trainee immediately after the procedure and again 4 weeks after the procedure using the videotape. A second blinded surgeon at a third participating institution evaluated all the videotapes utilizing the same scales. Methods of credible standard-setting proposed by Norcini and Guille were followed to establish minimum cutoff scores for competency on each scale while performing vaginal hysterectomy. Cutoff scores were calculated using the Modified Angoff method and confirmed using scores derived using a second standard-setting method, the Hofstee method.

Results: 212 evaluations were analyzed on 76 surgeries performed by 27 trainees. Content experts included 7 gynecologic surgeons representing the East, South, Midwest, and West coast of the U.S. from three different academic medical centers. Five of seven experts were male and 4/7 finished an ABOG/AUA-approved fellowship in Female Pelvic Medicine and Reconstructive Surgery. All experts were familiar with assessment tools, curriculum, and trainees. Table 1 demonstrates cutoff scores on the two assessment instruments using both standard-setting methods. Overall, trainees should be considered minimally competent to perform vaginal hysterectomy if total absolute scores on VSSI = 32 (95%CI 27.7− 35.5), GRS = 15 (95%CI 13.5−17.3), and VAS = 51 (95%CI 39.6−62.4). Surgical volume highly correlated with GRS ($r = 0.58$), VSSI ($r = 0.66$), and VAS ($r = 0.66$) scores (all $p < 0.0001$). On average, trainees met the new competency cutoffs on the GRS and VSSI after performing 21 and 27 vaginal hysterectomies respectively. If the new cutoffs were applied to the same cohort of fourth-year obstetrics and gynecology trainees 5/9 would have been considered non-competent in performing vaginal hysterectomy at some point during the rotation but all residents achieved competency by the end of gynecology rotations.

Conclusion: Multiple standard-setting methods using cutoff scores may be used to establish minimum competency in vaginal surgical skills while performing vaginal hysterectomy.

Key Words: hysterectomy, surgical education, competency, assessment, standard setting

Disclosure - Nothing to disclose.

Oral Presentation 9

AN EVALUATION OF VALIDATED LAPAROSCOPIC SKILLS SIMULATORS AND THE IMPACT ON OPERATING ROOM PERFORMANCE

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Objectives: The primary goal of this study is to answer whether laparoscopic simulators truly affect real time performance in the operating room.

Materials and Methods: We performed a multi-center randomized controlled trial evaluating the performance of Ob/Gyn residents during a laparoscopic sterilization procedure via bilateral mid segment salpingectomy. Eligible participants were defined as all Ob/Gyn residents in post-graduate years 1−4 from ACGME accredited programs. This is presentation of the results from the lower level subgroup. The five previously validated exercises we used are as follows: Pegboard transfer, Pattern cutting, Endoloop, Intracorporeal and Extracorporeal knot tying. After participants performed one laparoscopic salpingectomy, they were block randomized to laparoscopic simulator intervention vs. not. The intervention group received five 30-minute sessions with an expert laparoscopic surgeon to practice each of the five exercises. In the operating room, we used the most validated method of technical skills assessment to date, the University of Toronto's OSATS, which includes a series of detailed, dichotomous, task-specific checklists along with a separate global rating scale. The null hypothesis is that intervention with laparoscopic skills simulators will not improve performance in the operating room. Using previously reported data where 86% of PGY 1 and 2 residents failed on the laparoscopic simulators, a study size of 44 PGY 1/2's were necessary to demonstrate a 50% improvement in performance assuming an alpha = 0.05 and beta = 0.20. Construct validity will be assessed by analyzing resident performance using a one-way analysis of variance, with residence year as the independent variable. Pass-fail data will be analyzed with nonparametric tests, Chi square, and Mann-Whitney U tests. Pearson correlation will be used to correlate scores between global rating scales and checklist.

Results: 57 residents were recruited from 6 different centers across the country. 2 residents were lost to follow up. Baseline characteristics were not significantly different between the two study groups. Average number of laparoscopic cases at baseline was 5.2 +/− 6.34. Table 1 illustrates the resident's operative performance using OSAT scores both within and between the randomization strata. The pre-test performance between the two groups of residents was not significantly different at the initiation of the study. Only within the trained cohort was there a significant improvement from baseline ($p = 0.03$).

Conclusion: The findings suggest that using proficiency based simulated laparoscopic skills offer significant benefit over the traditional gynecologic surgical education among lower level residents. This curriculum validates the importance of moving from "quantity of performance" to "quality of performance". The use of validated, low fidelity tasks should be incorporated into formal obstetric and gynecology resident surgical training.

Key Words: Surgical Education, Laparoscopy, Simulation, Low-Fidelity simulation

Disclosure - Nothing to disclose.

Oral Presentation 10

A COMPARISON OF TRANSOBTURATOR VERSUS RETROPUBIC MID-URETHRAL SLINGS FOR MIXED URINARY INCONTINENCE (MUI)

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Objectives: The primary objective of this study was to compare improvement and/or cure of MUI symptoms after retropubic (TVT) versus transobturator (TOT) slings. The secondary objective was to compare improvement and/or cure of the urge incontinence (UUI) component of MUI.

Materials and Methods: This was a retrospective cohort study of all patients with MUI who underwent a mid-urethral sling from 01/06 to 05/07. Mean follow-up was 6 months. IRB approval was obtained to perform telephone interviews to collect the Patient Global Impression of Improvement (PGI-I) questionnaire for UI and to elicit any changes in the SUI and/or UUI components of MUI. The primary outcome was based on a score generated by assigning ordinal ranking to patient responses to the PGI-I questionnaire, with 1 = very much better and 7 = very much worse. The secondary outcome was improvement or resolution of the UUI component of MUI based on an ordinal ranking of patient responses to the question, "Is your urge incontinence worse, the same, or improved after surgery?" Subjects who had TVT were compared to those with TOT with respect to these outcomes. Patient satisfaction, adverse events, voiding dysfunction and worsening of urge incontinence symptoms were also assessed.

Results: For the primary outcome (MUI), no significant difference was found in the PGI-I scores between the 2 groups. Similarly, no difference was found in UUI improvement/resolution between the 2 groups. UUI improvement was noted in 56.5% of the TOT group and 46.4% of the TVT group, and UUI cure in 26.1% of the TOT group and 39.3% of the TVT group. An 84.3% overall improvement/cure rate of UUI was noted when both groups were combined. Ten (19.6%) women required anticholinergic use after slings. 52.4% of subjects were "completely satisfied" and 14.3% were "not at all satisfied" with the procedure in the TOT group, versus 69.2% and 7.7% in the TVT group (Mann-Whitney test, $p = 0.23$). There was no difference in peri-operative adverse events between the 2 groups.

Conclusion: TVT and TOT result in similar global improvement in MUI symptoms. 84.3% of patients undergoing TVT or TOT for MUI have improvement/cure of the UUI component.

Key Words: mixed urinary incontinence, urge urinary incontinence, mid-urethral slings

Disclosure - Nothing to disclose.

Oral Presentation 11

MID-URETHRAL SLINGS WITH CONCOMITANT TRANSOBTURATOR CYSTOCELE REPAIR: DO THEY WORK?

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Objectives: Evaluate results of retropubic (RPS) and transobturator (TOS) mid-urethral slings performed with concomitant transobturator cystocele repair (TCR).

Materials and Methods: Retrospective series of women who underwent mid-urethral slings with cystocele repair using a transobturator grafted technique (PerigeeTM, American Medical Systems) from 12/05−12/07. Outcome comparison of concomitant RPS and TOS was performed at 6 months post-op. Pre-op evaluation included multi-channel urodynamics (UDS). Symptoms were assessed with a standard questionnaire. Failure was defined as subjective symptoms of stress urinary incontinence (SUI) or a positive cough test. Statistical analysis including Chi-square and multivariable logistic regression were performed.

Results: 194 women were treated, 156(80%) had minimum of 6 months follow-up and were included: 72(46%) had RPS and 84(54%)

had TOS. There were no differences in the rate or length of follow-up between groups. There were no differences in age (57 ± 11yrs), parity (2.7 ± 1.4), BMI (28 ± 5), post-menopausal status (71%), prior sling (6%) or POP-Q stage. Incontinence diagnosis based on symptoms and objective leakage was SUI (38%) and mixed incontinence (MI) (62%) with no difference between groups (p = 0.12). Concomitant procedures, blood loss and hospital stay were similar. On univariate analysis no significant risk factors for sling failure were identified including age, post-menopausal status, prior sling, prior reconstructive procedure, sling type and incontinence type. The overall resolution of SUI was 89%. Resolution of SUI by sling type was comparable: RPS 86% and TOS 92% (p = 0.27) as was incontinence type: SUI 95% and MI 85% (p = 0.06). The overall resolution rates of other urinary symptoms were urge incontinence 85%, urgency 90%, frequency 79% and nocturia 69%. Urinary symptoms were similar between groups (Table 1). This study has 90% power to detect a 10% decrease in sling success with concomitant TCR from a minimum estimated 85% success rate of isolated sling procedure.

Conclusion: Previous data has suggested that mid-urethral sling procedures are less effective when performed concomitantly with TCR. Our results show that sling procedures, including TOS, can be performed effectively in conjunction with grafted transobturator cystocele repairs.

Key Words: Stress incontinence, mid-urethral sling, transvaginal graft repair, retropubic sling, transobturator cystocele repair, transobturator sling

Disclosure - Nothing to disclose.

Oral Presentation 12

TVT-O VS TVT-S: FIRST RANDOMIZED, PROSPECTIVE, COMPARATIVE STUDY OF INRAOPERATIVE COMPLICATIONS, PERIOPERATIVE MORBIDITY AND ONE YEAR POSTOPERATIVE RESULTS

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Objectives: The Gynecare TVT Secure System (TVT-S) from Ethicon, Inc. - the third TVT generation, a novel midurethral sling implant has been introduced for clinical use in 2006. This polypropylene mesh tape, which is four times shorter that traditional slings, is introduced to the patient with a new attach-and-release mechanism that promotes stable, controlled placement without skin exits. Virtually no scientific papers appeared in the literature on this subject. The first in Israel TVT-S has been done by the author in August 2006, and following the previous success of TVT-O slings on more than 250 patients, it has been decided to curry on a prospective randomized comparative study of these two minimally invasive different techniques for stress urinary incontinence performed by one experienced surgeon. The author's experience composed from more than 600 cases of midurethral slings of different branches. The aims of this clinical trial were to prospectively compare the incidence of intraoperative complications and to assess the perioperative morbidity (primary end point) and one year postoperative efficacy (secondary end point) of TVT-O vs. TVT-S in women with urodynamic stress incontinence. The author initially performed 10 TVT-S operations for "to know-how" purposes. These cases were not included to the study.

Materials and Methods: Eighty four consecutive patients were included comprising 2 clinical groups with 42 women in each group: TVT-O and TVT-S. Both groups were similar by age, parity, BMI and menstrual status. TVT-S "hammock" only fixation was used. No patients were lost to follow-up. The shortest follow-up was 12 months and the longest − 2 years.

Results: No bladder injury or abnormal bleeding happened in both groups. Vaginal perforation occurred in 1 patient from the TVT-O group. Thigh, groin or vaginal pains were noted in 13 patients from the TVT-O group (31%) and in 6 in TVT-S (14.3%). Urine obstruction or retention lasting more than 72 hours happened in 4 women from TVT-S group (9.5%) and in none in TVT-O. Tape was removed in 2 cases from patients who received TVT-S (4.7%). No tape exposure was observed during the follow-up period. Thirty nine women (93%) from TVT-O group were cured, while only 26 (62%) from TVT-S group. De novo urgency of 7.1% (3 women) was documented in TVT-O group and 26% (11 patients) in TVT-S group.

Conclusion: From our study we conclude that TVT-O technique is more superior to a new non tension- free TVT-S device to treat urinary stress incontinence.

Key Words: incontinence surgery, TVT-O, TVT Secur

Disclosure - Nothing to disclose.

Oral Presentation 13

LONG-TERM EFFICACY OF THE PUBOVAGINAL MERSILENE MESH SLING

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Objectives: To determine short, intermediate and long-term, objective and subjective efficacy of the pubovaginal Mersilene mesh sling (PVMMS) for complicated urodynamic stress incontinence (USI) diagnoses.

Materials and Methods: In this continuation and supplement of a 5-year follow-up study of 200 PVMMS (Am J Obstet Gynecol 2001), patients were followed annually and at one, five, 10 and 15 years with urodynamics. Patients were grouped by diagnostic hierarchy: ISD > Recurrent > IAP. Follow-up included Pelvic Floor Distress Inventory (PFDI−20), Pelvic Floor Impact Questionnaires (PFIQ−7) and a home pad test. Cough stress test (CST) determined objective cure. Subjective cure was response to PFDI question #17, "Do you usually experience urine leakage related to coughing, sneezing, or laughing?" Data was stratified into 3 groups: short-term (<24 months), intermediate (24 months − 5 years) and long-term (>5 years). Results are reported as means (standard deviation, range) and proportions ('success rate' with 95% exact confidence intervals). Statistical analyses included Wilcoxon signed rank test to compare pre- and postoperative PFDI question #17 responses.

Results: Between 1990 and 2008, 306 patients had a diagnosis of USI complicated by: 133 (43.5%) intrinsic sphincter deficiency (ISD), 82 (26.8%) recurrent USI, and 91 (29.7%) chronically increased intra-abdominal pressure (IAP). 194 short-term UDEs were performed at a mean of 12.7 months (range 3−22); 45 intermediate (mean 48.5 months; range 24−60) and 57 long-term (mean 91 months; range 61−182). Objective cure rates were: 89.2% short-term (95%CI 84.3, 93.2), 86.7% intermediate-term (95%CI 73.2, 95.0), and 91.2% long-term (95%CI 80.7,97.1). Forty-eight patients had short and long term UDEs showing cures of 100% (95%CI 92.6, 100.0) and 91.7% (95%CI

80.0, 97.7), respectively. Diagnostic subgroup objective cure rates at short-term were: ISD 81.3% (n = 91; 95%CI 71.8, 88.7), recurrence 96.2% (n = 53; 95%CI 87.0, 99.5), IAP 96% (n = 50; 95%CI 86.3, 99.5). At intermediate-term, they were: ISD 71.4% (n = 21; 95%CI 47.8, 88.7), recurrence 100% (n = 11; 95%CI 71.5, 100.0), IAP 100% (n = 13; 95%CI 75.3, 100.0). At long-term, they were: ISD 90.5% (n = 21; 95%CI 69.6, 98.8), recurrence 84.2% (n = 19; 95%CI 60.4, 96.6), IAP 100% (n = 17; 95%CI 80.5, 100.0). 136 patients completed PFDI−20/PFIQ−7 (mean 108 months, SD 52, range 6−208). Of these, 119 answered PFDI question #17 (bother scale: "no" = 0, "quite a bit" = 4): mean score 0.57. Pre and postoperative answers showed significant stress incontinence symptom improvement (n = 52, mean change of score = minus 2.96, SD 1.36, range −4 to +2, $p < 0.0001$).

Conclusion: In this population, we found PVMMS to be subjectively and objectively effective in treating complicated forms of USI. Further, we demonstrated that high cure rates can be maintained over long-term follow-up.

Key Words: urodynamic stress incontinence, stress urinary incontinence, pubovaginal sling, Mersilene mesh, intrinsic sphincter deficiency, long-term results of pubovaginal sling

Disclosure - Nothing to disclose.

Oral Presentation 14

INCIDENCE OF PELVIC NERVE INJURY FOLLOWING GYNECOLOGIC SURGERY: A PROSPECTIVE COHORT STUDY

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Objectives: The aim of our prospective cohort study was to identify the incidence and time course of pelvic nerve injury following gynecologic surgery.

Materials and Methods: A single cohort of consecutive female patients undergoing elective gynecologic surgery for benign or malignant conditions at a tertiary care academic medical center were screened for postoperative neuropathy of the lower extremities. After obtaining informed consent, research subjects underwent a neurologic history and comprehensive standardized neurologic examination by a single trained examiner pre-operatively and then again post-operatively within 24 hours of discontinuation of anesthesia. A study neurologist was available to confirm all cases of suspected neuropathy. Research subjects with evidence of neuropathy at the 24 hour visit were re-examined at their routine postoperative visit and then quarterly for up to one year or resolution of symptoms.

Results: Of 642 subjects who were enrolled and underwent surgery, 616 (96%) were screened for neuropathy post-operatively. Common surgical procedures included vaginal hysterectomy (14%), abdominal hysterectomy (21.5%), vaginal prolapse surgery (25%), mid-urethral slings (26%), hysteroscopy (16.6%), and pelvic lymphadenectomy (5%). Laparoscopic procedures comprised 161 (26.1%) of the total. Pre-existing lower extremity neuropathy was observed in 12 (2.0%; 95% CI 1.1% − 3.4%) patients prior to the operation. After surgery, 14 new-onset peripheral nerve injuries were observed in 11 patients, making the overall incidence of postoperative neuropathy 1.8% (95% CI 1.0%−3.2%). Injury to the lateral femoral cutaneous (5), femoral (5), common fibular (1), ilioinguinal/iliohypogastric (1), saphenous (1), and genitofemoral (1) nerves were detected. Bilateral femoral neuropathy was observed in 2 patients, and bilateral lateral femoral cutaneous neuropathy was observed in a single patient. All nerve injuries were purely sensory except one bilateral femoral neuropathy which manifested both motor and sensory components. Complete resolution of neuropathic symptoms occurred in all but one patient (91%). Mean time to resolution of symptoms was 59 days (range 1 day to 6 months). Age, BMI, surgery type, use of self-retaining retractors, and patient positioning were not found to be associated with post-operative neuropathy.

Conclusion: In conclusion, the incidence of lower extremity neuropathy attributable to gynecologic operations is low, and appears to be self-limiting in the great majority of cases.

Key Words: Neuropathy, Gynecologic Surgery, Post-operative Complications

Disclosure - Nothing to disclose.

Oral Presentation 15

RISK FACTORS FOR THE DEVELOPMENT OF VESICOVAGINAL FISTULA AFTER INCIDENTAL CYSTOTOMY AT THE TIME OF A BENIGN HYSTERECTOMY

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Objectives: To evaluate risk factors for the development of vesicovaginal fistula after incidental cystotomy at the time of a benign hysterectomy.

Materials and Methods: Charts from all hysterectomies performed at Grady Memorial Hospital for benign indications between January 1, 2000 and May 31, 2004 were reviewed. Demographic and operative data were abstracted. Cystotomies were scored using the American Association for the Surgery of Trauma (AAST) grading system for iatrogenic operative cystotomies. Patients who developed a vesicovaginal fistula (VVF) following incidental cystotomy were compared to those who did not. The χ^2 or Fisher's exact test (where appropriate) were used to analyze categorical variables while the Student's t-test was used for continuous variables.

Results: During the study period, 1319 hysterectomies were performed for benign indications. Of these, 51% (675) were abdominal, 45% (588) vaginal and 4% (56) were laparoscopic assisted vaginal hysterectomies. A total of 35 (2.7%) incidental cystotomies occurred with 3 (0.2%) resulting in a VVF. There were no differences in the age, gravidity, parity or ethnic breakdown between those developing a VVF and those that did not. There were no differences in the rate of hypertension, diabetes, tobacco use, prior Cesarean delivery, prior sexually transmitted infections, pelvic adhesive disease or prior pelvic surgeries. The route or indication for hysterectomy did not differ between the 2 groups. Patients who developed a VVF did weigh more (225 ± 7 vs. 157 ± 46 pounds, $p < 0.001$) and their surgeries took longer to complete (376 ± 218 vs. 210 ± 96 minutes, $p = 0.02$). In addition, patients developing a VVF were more likely to have an AAST Grade 5 cystotomy (100% vs. 7%, $p < 0.001$).

Conclusion: Patients with an AAST Grade 5 cystotomy are at increased risk for developing a vesicovaginal fistula following an incidental cystotomy at the time of a hysterectomy performed for benign indications. In addition, they tend to weigh more and their

surgeries took longer to complete than those with incidental cystotomies not resulting in a VVF.

Key Words: hysterectomy, risk factors, vesicovaginal fistula

Disclosure - Nothing to disclose.

Oral Presentation 16

ACCURACY OF INTRA-OPERATIVE FROZEN SECTION CONSULTATION IN DIAGNOSIS OF EPITHELIAL OVARIAN TUMORS

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Objectives: The study was designed to investigate the correlation between intra-operative frozen section (FS) versus final pathology (FP) findings for diagnosis of epithelial ovary tumors. Specific aims included determining the diagnostic accuracy of FS when reported as benign, LMP (low malignant potential), or malignant.

Materials and Methods: The Virginia Commonwealth University database was searched for records of all FS intra-operative consultations reported as an epithelial ovarian tumor between Jan 1995 and June 2007. 188 cases were retrieved from the database. 44 were excluded after review revealed non-ovarian disease, non-epithelial ovarian disease, or non-neoplastic disease on FP. The remaining 144 cases were categorized by FS reports as benign, LMP, or malignant. Accuracy of each category was determined. Further examination of FS reporting LMP with qualifying terms that suggest increased index of suspicion for malignancy was performed to determine if qualifying terms increased likelihood of malignancy on FP.

Results: Overall accuracy of FS at our institution was 93.1% (134/144). FS reported as benign was 94.2% accurate (65/69) with 5.8% upstaged to LMP (4/69) but none to malignant. FS reported as malignant was 98.1% accurate (51/52) with 1.9% downstaged to LMP but none to benign. FS reported as LMP had 78.3% accuracy (18/23) with 13.0% (3/23) upstaged to malignant and 8.7% downstaged to benign. Six FS reports of LMP were identified that contained qualifying terms that indicated increased index of suspicion for malignancy such as ″at least borderline″ and ″carcinoma not entirely excluded.″ This subset was 66.7% (4/6) accurate with 16.7% (1/6) upstaged and 16.7% downstaged.

Conclusion: FS consultation is reliably accurate at our institution with the exception of reports read as LMP. The accuracy of FS reports categorized as benign, LMP, and malignant approximates what has been reported previously in the literature. Qualifying terms in pathologists' FS report for LMP suggesting increased risk of malignancy do not appear to impact accuracy or make malignancy on FP more likely. The study findings may not be applicable to all institutions as FS accuracy is likely to vary with the available pathologists' experience and because the data was obtained from one tertiary care institution. Further examination of factors contributing to inaccuracy of FS reported as LMP may assist the surgeon in intra-operative decision making. Data in this study may be included in future meta-analysis with other similar studies available in the literature.

Key Words: frozen section, ovary, tumor, accuracy, intra-operative

Disclosure - Nothing to disclose.

Oral Presentation 17

A RANDOMIZED TRIAL OF SECONDARY CLOSURE OF SUPRAFASCIAL WOUND DEHISCENCE BY SURGICAL TAPE OR SUTURE

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Objectives: To study secondary closure of suprafascial wound dehiscence with surgical tape versus suture by comparing time for closure, pain with each method, time for epithelialization, and need to reopen the wound.

Materials and Methods: Patients with suprafascial wound dehiscence were candidates. After informed consent patients were randomized to closure with surgical tape or suture. Each patient was treated similarly prior to closure. The wound was opened for its entire length, and devitalized tissue was debrided. The wound was packed with wet to dry gauze at least twice daily. Patients were closed when granulation tissue covered the wound from skin to fascia. Patients in the suture group had a ring block with lidocaine. The wound was closed using interrupted vertical mattress, #0 polypropylene sutures. If the skin edges were not closely approximated, additional interrupted superficial sutures of 3−0 caliber polypropylene were used. In the tape group tincture of benzoin was applied to skin. Tape was applied perpendicular to the wound and pulled tautly across the wound to approximate the skin edges. Patients were discharged and followed weekly. Patient data included: weight, height, BMI, incision type, antecedent operation, primary closure technique, and presumed cause of dehiscence. Wound data included: depth of wound from skin edge to fascia, length of incision, degree of pain measured by a visual analog scale associated with closure and time required for closure. The percentage of wound epithelialization and presence of infection was evaluated at each follow-up visit. Significant infection was treated by re-opening the wound. Time to healing was judged by complete epithelialization in days. Symmetry of the skin edges was also determined. Statistical analysis was performed using SPSS. A p-value of <0.05 was considered significant.

Results: Randomization resulted in 15 patients being assigned to each group. One patient withdrew from the tape arm but was included as intent to treat. Age, BMI, incision type, presumed cause of dehiscence, and wound dimensions were similar in each group. Asymmetric wound closure (shelving of skin edges) was more likely in vertical incisions closed with tape (66 % vs. 0 %); otherwise there was no significant difference in wound healing. Table 1 shows the results.

Conclusion: Secondary closure with suture and tape are both effective treatments for suprafascial wound dehiscence. Suture closure offers quicker epithelialization and may provide a better cosmetic result in vertical incisions. Tape closure offers faster closure at the bed side, less patient discomfort and perhaps operator ease of treatment. Success of closure was not affected by BMI or depth of incision.

Key Words: Wound Dehiscence, Secondary Wound Closure, Randomized Clinical Trial

Disclosure - Nothing to disclose.

Oral Presentation 18

ANATOMICAL AND OPERATIVE OUTCOMES OF UTEROSACRAL LIGAMENT SUSPENSION VERSUS VAGINAL MESH PROCEDURE PROLIFT GYNECARE FOR PELVIC ORGAN PROLAPSE: FELLOWS' PELVIC RESEARCH NETWORK

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King[10], A. L. Nguyen[6] and S. B. Young[4] *[1]OB/GYN, Mount Sinai School of Medicine, New York, NY; [2]OB/GYN, Greater Baltimore Medical Center, Baltimore, MD; [3]OB/GYN, University of Pennsylvania, Philadelphia, PA; [4]OB/GYN, University of Massachusetts Memorial Medical Center, Worcester, MA; [5]OB/GYN, Loyola University Medical Center, Maywood, IL; [6]OB/GYN, Evanston Northwestern, Evanston, IL; [7]OB/GYN, Institute for Female Pelvic Medicine, Allentown, PA; [8]OB/GYN, Unitersity of Maryland Medical Center, Baltimore, MD; [9]OB/GYN, Brigham and Women's Hospital, Boston, MA; [10]OB/GYN, Oregon Health and Sciences University, Portland, OR*

Objectives: To compare postoperative anatomical outcomes of uterosacral ligament suspension (USLS) to vaginal mesh procedure (VMP) for pelvic organ prolapse. Secondary objectives are to compare peri-operative and post-operative complications.

Materials and Methods: A retrospective multi-center chart review of patients having prolapse surgery between 2004 and 2007 was performed at ten centers in North America. Data collection was performed using CPT codes for colpopexy (abdominal, vaginal extra-peritoneal, vaginal intra-peritoneal) and insertion of vaginal mesh. This analysis was restricted to vaginal USLS versus VMP (total and posterior Prolift). Subjects were excluded if only anterior Prolift in the VMP was used, or in either group follow-up was less than 3 months. The surgical success was defined in two ways: first by Pelvic Organ Prolapse Quantification (POP-Q) system stage 0 or 1; and secondly, by a combination of POP-Q and Baden Walker (BW) system when all points were above the hymen. Pearson $\chi 2$, Fisher's Exact, and t-tests were used for analysis; multivariate analysis controlled for the effect of multiple significant pre-operative variables.

Results: A total of 437 patient charts were collected: 231 USLS and 206 VMP. Patients who had VMP were significantly older with a mean age of 68.1 years vs. 57.1 years, more likely to be post-menopausal 93.2% vs. 65.8%, and had a greater rate of prior prolapse surgeries 22.9% vs. 10.0% (all $p < .001$). USLS had significantly longer operating times 188.1 minutes vs. 102.3 minutes, and a greater estimated blood loss, 208.2 ml vs. 114.5ml, leading to a greater transfusion rate of 3.5% vs. 0.5% (all $p < .001$). Although the mean pre-operative point C was similar between groups, mean TVL was significantly longer in the USLS group (9.45 ± 1.0 vs. 8.99 ± 1.3, $p < 0.001$). At 3−6 months postoperatively overall POP-Q stage, apical, anterior and posterior compartments had similar rates of anatomic success. The mean post-operative TVL for USLS was significantly longer than the VMP (9.06 ± 1.0 vs. 8.10 ± 1.1, $p < .001$) and the post-operative C point was higher (-8.04 ± 1.8 vs. -6.19 ± 2.1, $p < .001$). Post-operatively the VMP group had a significantly greater percentage of urinary retention (22.9% vs. 3.9%) and groin pain (10.7% vs. 1.3%) (all $p < .001$) which remained significant when controlled by concurrent incontinence surgery. There were no significant differences in rates of infection, return to the operating room, extrusion, erosion or dyspareunia between the two groups.

Conclusion: VMP (total and posterior Prolift) and vaginal USLS have similar anterior, apical, posterior and overall anatomical success rates as defined by POP-Q and BW at 3−6 month. In comparison to USLS, VMP resulted in shorter operating times and less blood loss, but greater post-operative groin pain and urinary retention.

Key Words: Prolapse, Uterosacral Ligament Suspension, Vaginal Mesh Placement, Anatomical Outcome, Prolift (Gynecare)

Disclosure - Nothing to disclose.

Oral Presentation 19

EFFECTS OF COLPOCLEISIS ON BOWEL SYMPTOMS AMONG WOMEN WITH SEVERE PELVIC ORGAN PROLAPSE

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Objectives: To evaluate changes in bowel symptoms one year after colpocleisis.

Materials and Methods: This was a planned ancillary analysis from a Pelvic Floor Disorders Network cohort study of colpocleisis in women with Stages III-IV pelvic organ prolapse. Colpocleisis (total or partial) and concomitant procedures (perineorrhaphy, levator myorrhaphy, and/or incontinence surgery) were performed at the discretion of the surgeon. Baseline and 1-year follow-up data included POP-Q examination and validated questionnaires including the Colorectal-Anal Distress Inventory (CRADI) and Colorectal-Anal Impact Questionnaire (CRAIQ). Women with baseline and 1 year questionnaire data were included. "Bothersome" CRADI symptoms were defined as the presence of a symptom and a bother >2 ("moderately" or "quite a bit"). Baseline and postoperative CRADI and CRAIQ scores were compared, and postoperative symptom resolution (bothersome symptom at baseline but not at 1 year) and new symptom development (bothersome symptom at 1 year but not at baseline) were measured. Statistical analysis was performed using McNemar's test, Wilcoxon scores test and Wilcoxon signed-rank test.

Results: 121 of 152 subjects (80%) completed baseline and 1 year questionnaires. Mean age was 79.2 ± 5.4 years, BMI was 27.8 ± 5.2, and 110 (91%) were Caucasian. Seventy-three (60%) had prior hysterectomy and 28 (23%) prior prolapse surgery. Seventy-two (62%) had stage III and 45 (38%) stage IV prolapse. Seventy-four (61%) underwent partial and 47 (39%) total colpocleisis. Most had levator myorrhaphy (71%) and perineorrhaphy (97%). At least one bothersome bowel symptom was present in 77% of subjects at baseline, including obstructive symptoms (17−26%), incontinence symptoms (12−35%) and pain/irritative symptoms (3−34%). All bothersome obstructive and most bothersome incontinence symptoms were less prevalent 1 year after surgery. CRADI (composite and subscales) and CRAIQ scores decreased significantly after surgery ($p < 0.0001$ for all), with the greatest change seen in the CRADI composite [median 53.3 (interquartile range 21.4, 106) and 23.3 (3.6, 63.6) at baseline and 1 year, respectively] and obstructive subscale [20.8 (0, 41.7) and 0 (0, 16.7) at baseline and 1 year, respectively] scores. Bothersome bowel symptoms resolved in the majority of subjects (50−100% for each symptom) with low rates of de novo bothersome symptoms (0−14%). Rates of symptom resolution and new symptom development appeared similar in those who did and did not undergo levator myorrhaphy.

Conclusion: Bothersome bowel symptoms are prevalent among women with severe prolapse undergoing colpocleisis. Most of these symptoms improve after colpocleisis, especially obstructive and incontinence symptoms, and low rates of de novo postoperative symptoms develop.

Key Words: bowel symptoms, colpocleisis, colorectal-anal distress inventory, Le-Fort

Disclosure - Nothing to disclose.

Oral Presentation 20

DEFINING "SUCCESS" AFTER SURGERY FOR PELVIC ORGAN PROLAPSE

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Objectives: Successful surgery has been variably defined for pelvic organ prolapse (POP); however, there is no consensus on the most appropriate definition. The objective of this study is to compare different definitions of surgical success after POP surgery to determine their effect on estimates of treatment success and relationship to patients' subjective assessments of improvement.

Materials and Methods: We analyzed two year outcomes of the Colpopexy And Urinary Reduction Efforts (CARE) trial, a prospective randomized trial evaluating the effect of Burch colposuspension in stress continent women undergoing abdominal sacrocolpopexy for advanced POP. Two years after surgery, subjects underwent an evaluation of pelvic support using the POPQ and completed the Pelvic Floor Distress Inventory (PFDI). Subjects rated their overall improvement relative to baseline from "much better" to "much worse" and the success of their treatment from "very successful" to "not at all successful." We considered 15 different definitions of surgical success and used data from the POPQ examinations, responses to PFDI questions regarding vaginal bulging and data on re-treatment to determine treatment success as appropriate for each definition. We assessed whether the subject's assessment of her overall improvement and treatment success differed between surgical success and failure for each of the definitions studied.

Results: 322 subjects randomized in CARE completed the 2 year follow-up allowing assessment of at least one definition of treatment success considered. Missing data were more frequent for definitions requiring POPQ values (22% to 25%) than for those requiring data from patient interview alone (0% to 10%). Treatment success varied widely depending upon definition used (18.8% to 97.2%). 71% of subjects considered their surgery "very successful" and 85% of subjects considered themselves "much better" than before surgery. Definitions of success requiring anatomic support proximal to the hymen had the lowest treatment success (18.8% to 57.6%). In contrast, 84% achieved surgical success when it was defined as the absence of prolapse beyond the hymen. Subjective cure (absence of bulge symptoms) occurred in 92.1% while absence of retreatment occurred in 97.2% of subjects. We did not detect a significant difference in the patients' subjective assessment of overall improvement between those who were considered a surgical success and those considered failures for each definition that was based solely on anatomic outcomes ($p > 0.41$). In contrast, when the absence of bulge symptoms was included in the definition of treatment success, significant improvements in the patients' subjective assessments of overall improvement were noted between those who met the definition of success and those who did not ($p < 0.05$).

Conclusion: The definition of success has a substantial effect on the rate of treatment success and on the proportion of missing data in long-term studies of POP surgery. The absence of vaginal bulge symptoms postoperatively has a significant relationship with a patient's assessment of overall improvement, while anatomic success alone does not.

Key Words: pelvic organ prolapse, surgery, outcome measure

Disclosure - Nothing to disclose.

Oral Presentation 21

DEFINING AN AT RISK COHORT FOR OBSTETRICAL ANAL SPHINCTER LACERATION

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Objectives: To calculate the number of cesarean sections needed to prevent one case of obstetrical anal sphincter laceration associated with operative vaginal delivery in an at risk cohort.

Materials and Methods: Information from a computerized database that included all deliveries occurring between September 1, 2006 and February 28, 2008 at one institution was used to analyze women with obstructed labor that could have been managed by either operative vaginal delivery or cesarean section. Women with the following coded diagnoses comprised the 'at risk' cohort for this analysis: cephalopelvic disproportion (CPD), arrest of descent, maternal exhaustion, and fetal distress. The absolute risk reduction for obstetrical anal sphincter laceration and number needed to treat were computed after subtracting the laceration rate in the cesarean section group from the laceration rate in the operative vaginal delivery group in the 'at risk' cohort.

Results: 493 women comprised the study cohort: 113 were diagnosed with CPD, 173 with arrest of descent, 249 with maternal exhaustion, and 6 with fetal distress. Operative vaginal delivery was performed in 2 (2%) of women with CPD, 20 (11.6%) women with arrest of descent, 178 (71.5%) women with maternal exhaustion, and zero women with fetal distress. 25 (12.5%) out of a total of 200 women managed by operative vaginal delivery experienced an obstetrical anal sphincter laceration compared to none in the cesarean section group ($p < 0.0001$). The absolute risk reduction therefore was 12.5% (95% CI: 7.9, 17.1) and the number needed to treat was 8 (95% CI: 5.8, 12.7).

Conclusion: Women with the coded diagnoses of CPD, arrest of descent, maternal exhaustion, and fetal distress generally have two management options: operative vaginal delivery or cesarean section. Eight cesarean sections are needed to prevent one case of anal sphincter laceration associated with operative vaginal delivery in this cohort.

Key Words: anal sphincter laceration, obstetrical injury, operative vaginal delivery

Disclosure - Nothing to disclose.

Tips & Tricks 1

LAPARO-ENDOSCOPIC SINGLE SITE (LESS) TOTAL LAPAROSCOPIC HYSTERECTOMY: INITIAL EXPERIENCE AND FEASIBILITY

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Objectives: To describe the initial gynecologic experience with Laparo-Endoscopic Single Site (LESS) total laparoscopic hysterectomy through a single umbilical incision.

Materials and Methods: Under IRB exempt status, all patients who underwent a LESS - total laparoscopic hysterectomy at an urban tertiary care center from 5/2008 – 9/2008 were identified and the electronic medical record examined. Basic medical information regarding non-identifying demographics, procedural times, additional procedures performed, and post-operative course was recorded. Descriptive statistics were performed for all variables of interest.

Results: Ten patients underwent LESS total laparoscopic hysterectomy during the study period. Candidates for vaginal hysterectomy were not offered this procedure. Concomitant procedures performed included laparoscopic excision of endometriosis, uterosacral vaginal vault suspension, appendectomy, and oophorectomy. Laparoscopic access was gained through an intra-umbilical incision using a novel multichannel port (Tri-Port, Advanced Surgical Concepts, Dublin, Ireland). All surgeries were completed without the need for additional ports or incisions using currently available instruments. Mean age was 47 years. Median BMI was 32 (19−47). Median operative time including concomitant procedures performed was 174 minutes (132−278). Median blood loss was 75 ml (10−450). Mean uterine weight was 162 grams (61−514). No intra-operative complications occurred. Mean pain scores upon discharge from the recovery room were 2.2/10 (0−6). All patients had minimal, if any, visible scar at follow up. Mean length of stay was 16 hours 45 minutes. Patients took narcotic pain medication for a mean of 3 days (0−7).

Conclusion: The initial experience suggests LESS total laparoscopic hysterectomy is feasible, well tolerated and results in essentially no scar for benign gynecologic conditions not amenable to vaginal hysterectomy. Additional procedures can be performed independently or concomitantly. Further prospective study is warranted as equipment is designed specifically for single incision laparoscopy.

Key Words: hysterectomy, laparoscopy, minimally invasive surgery, new technique, Single Incision, Single Port

Disclosure - Consulting fee: Covidien, Consultant.

FIGURE 1. Tri-Port. (Advanced Surgical Concepts, Dublin, Ireland)

Tips & Tricks 2

LAPAROSCOPIC TEMPORARY OCCLUSION OF THE UTERINE ARTERY DURING MYOMECTOMY: USE OF AN INSERTABLE ANEURYSM CLAMP

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Objective: Hemorrhage and blood loss are concerns in patients with uterine fibroids undergoing laparoscopic myomectomy. We describe a laparoscopic techniques to temporarily occlude the uterine arteries during myomectomy to reduce intraoperative bleeding.

Description: We use an insertable, removable aneurysm clamp which can be inserted through a 5 mm trocar to occlude both uterine arteries during laparoscopic myomectomy. The surgical approach is as follows: After incision of the peritoneum over the external iliac vessels, the pararectal space is opened and the internal iliac artery and the ureter along the posterior leaf of the broad ligament are identified. The internal iliac artery is followed to the uterine artery, which is isolated and temporarily clamped for the subsequent myomectomy. The clamps are removed after closure of the uterine incision.

Conclusion: Use of a removable, insertable aneurysm clamp is feasible for temporary occlusion of the uterine arteries during laparoscopic myomectomy.

Key Words: Laparoscopy, Surgical technique, Uterine fibroids

Disclosure - Nothing to disclose.

Tips & Tricks 3

THE USE OF VACUUM ASSISTED CLOSURE (VAC) THERAPY FOR COMPLEX VULVAR AND PERINEAL WOUNDS IN WOMEN

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Objective: To describe a technique for successful application of VAC therapy for the closure of complex wounds of the perineum and vagina.

Description: Place a urinary catheter in the urethra and a 4 × 4 gauze in the anus. Place a border of stoma paste around the anus, 2cm away. Cover the paste with DuoDerm®. Stoma paste and DuoDerm® can be used to fill crevices as needed. Cover any intact skin with occlusive drape (OD) to prevent skin breakdown. Place white foam over the introitus and cover with OD. The vagina may be padded with moist sterile gauze. Use OD strips to place foam over wounds ensuring all foam touches. Attach superficial foam dressings using a basket weave of OD strips until all foam is covered. Cut a hole in OD around the anus and remove the gauze. The TRAC-pad® may be positioned on the abdomen via a ″foam bridge″ applied over OD covered skin. For intra-vaginal wounds, cut a vaginal form (VF) from black foam pieces twice the diameter of the desired VF and cover in OD, squeezing out air as it's closed. Secure a large thin white foam over the VF and place in vagina. Cut OD off the exposed end of the VF. Place a piece of foam over the introitus making sure to contact both the white and black foam of the VF. Place OD over intact dry skin and TRAC-pad® as described above. Depending on the wound, continuous pressure settings will vary from 125mmhg to 50mmhg. The VAC dressing should be changed every 2−7 days. Experience: A 36yo nullipara presented after an auto-racing accident. The collision resulted in a 3C open pelvic fracture and subsequent soft tissue injury with a 40cm complex perineal laceration. After initial debridement VAC was utilized to reduce soft tissue swelling, promote wound granulation, decrease infection and prevent hematoma formation in and around the separated tissue. The wound was evaluated and revised every 48−72 hrs. Primary closure of the mons and vagina were achieved after 16 days. One year post-injury she has Stage I vaginal support and is continent of both urine and stool.

Conclusion: The use of VAC in complex vulvar wounds is both feasible and effective. In this case VAC resulted in rapid healing of the mons pubis and perineal area. We believe the continuous negative pressure prevented hematoma formation periurethrally and paravaginally, thus preventing pressure necrosis of the urethrovesical junction and facilitating reattachment of the paravaginal sulcus to the pelvic sidewall.

Key Words: perineum, wound, vulva, vagina, female, vacuum

Disclosure - Honoraria: Astellas, Speaker; Honorarium: Astellas, Consultant.

Tips & Tricks 4

AN EDUCATIONAL MODEL FOR MINIMALLY-INVASIVE SACRAL COLPOPEXY

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Objective: Sacral colpopexy can be performed via robotic-assisted or conventional laparoscopy. We aimed to design an inexpensive surgical model to facilitate education and training for these minimally-invasive techniques.

Description: An articulated female pelvis was affixed to a wooden board using commercially available hardware. A strip of 1-inch elastic was affixed to the sacrum to simulate the anterior longitudinal ligament. A 4-inch diameter embroidery hoop was attached to the pelvic outlet. A sock was used within the embroidery hoop to simulate the vagina. Commercially available nylon tulle was used to simulate a macro-porous polypropylene mesh. All materials were commercially available. The total cost of materials was $136.00. The model can be re-used indefinitely and was constructed such that the simulated vagina and anterior longitudinal ligament could be replaced. The model was easy to transport and can be used in a variety of settings including laparoscopic simulators, operating room tables, and with the da Vinci robot. With an end-to-end anastomotic (EEA) sizer within the vagina, the trainee is able to simulate suturing mesh to the vagina and sacrum, with similar angles and techniques as is used in live surgery.

Conclusion: We designed an inexpensive, easily constructed inanimate model for robotic-assisted or laparoscopic colpopexy. This model can be used to facilitate clinical training and educational research in these surgical techniques.

Key Words: surgical education, colpopexy, inanimate model

Disclosure - Nothing to disclose.

Tips & Tricks 5

SURGICAL APPROACH TO HIGH OBSTRUCTING VAGINAL SEPTUM USING AN INTRODUCER WITH DILATOR

S. J. Wallach *U C Davis Medical Center, Sacramento, CA*

Objective: To describe a novel surgical approach for treating obstructing congenital anomalies of the vagina using a gastrostomy introducer kit.

Description: Congenital obstructing anomalies of the vagina present at varying times during childhood and adolescence. Clinical manifestations at initial diagnosis include a mass, cyclic pain or rarely peritonitis. The lack of communication with the lower vagina and outside can lead to dilation of the upper vagina and uterus with mucus, blood, fluid or rarely pus. The surgical approach to these septa can be quite challenging especially since these patients may have other congenital anomalies of the urinary and skeletal system. We describe a novel surgical approach to a treat a patient with an obstructed hemi-vagina. The patient is an 18 year old who presented with a pelvic mass found on ultrasound performed for cyclic abdominal pain with primary amenorrhea. Her history is significant for multiple congenital anomalies including spina bifida with a tethered cord and contractures, renal failure on dialysis, a bladder augmentation, chronic constipation requiring a cecostomy tube for bowel irrigation and a BKA for osteomyelitis. On exam she was noted to have a 3 cm long vagina angling ventral toward the pubic ramus with a fullness pushing into the apex and posterior wall of the vagina. MRI confirmed the diagnosis of a transverse vaginal septum with hematocolpos. It was difficult to reach the apex of the vagina to incise the septum because this patient's positioning was limited due to her contractures and the sharp orientation of her vagina from her prior surgeries. A spinal needle attached to a syringe with suction was passed into the hematocolpos using ultrasound guidance. An 11 blade scalpel was used to make a stab incision at the location of the needle. The syringe was removed and a guide wire passed down the needle. With the guidewire holding the position, the needle was removed. 12, 16, 20 and 24 Fr dilators from a gastrostomy introducer kit were then used to serially dilate the incision until the surgeon's finger could pass into the space. Then the septum was resected, the vaginal mucosal edges mobilized and the upper vagina anastamosed to the lower vagina using a Z-plasty technique.

Conclusion: A gastrostomy introducer kit can be useful adjuvant to help maintain orientation in the surgical approach of high obstructing vaginal septum.

Key Words: septum, transverse, hematocolpos

Disclosure - Nothing to disclose.

Oral Poster 1

SLING PROCEDURES AFTER REPAIR OF OBSTETRIC VESICOVAGINAL FISTULA IN NIAMEY, NIGER. A REPORT FROM THE INTERNATIONAL ORGANIZATION FOR WOMEN AND DEVELOPMENT

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Objectives: To evaluate the results of sling procedures for stress incontinence after repair of vesico-vaginal fistulae at the National Hospital in Niamey, Niger from 12/03 − 3/08.

Materials and Methods: This is a retrospective chart review of 701 women surgically treated for vesicovaginal fistulae. Of these, 140 were subsequently treated with a sling procedure for stress urinary incontinence after successful vesicovaginal fistula repair. The type of sling procedure was at the discretion of the surgeon.

Results: Key: LTF (lost to follow-up), Synthetic (Various types of polypropylene mesh), Success = Dry + DI (no SUI).

Conclusion: Stress urinary incontinence is a common problem following repair of obstetric vesicovaginal fistula because of frequent involvement of the closing mechanism in the fistula. Both the percentage of post-operative patients without continued stress incontinence and those who are completely dry is low compared to published studies on sling procedures in the general population. This is likely due to the frequent complete loss of a urethral sphincter in these patients as well as the high prevalence of detrusor overactivity and severely decreased bladder capacity. The risk of repeat bladder injury as a result of sling placement is a significant risk in these patients. Because of the risk of erosion of the synthetic material in these severely malnourished patients,

we have abandoned its use. The correction of stress urinary incontinence is a difficult challenge after obstetric vesicovaginal fistula repair.

Key Words: surgery, fistula, stress incontinence, sling procedures

Disclosure - Nothing to disclose.

Oral Poster 2

TWENTY-MONTH OBJECTIVE AND QUALITY-OF-LIFE OUTCOMES OF VAGINAL PROLAPSE REPAIR USING SYNTHETIC POLYPROPYLENE MESH (PROLIFT)

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Objectives: The purpose of this study was to assess the long-term success and quality-of-life outcomes in patients undergoing vaginal prolapse repair using polypropylene mesh.

Materials and Methods: This was a prospective cohort of 62 patients undergoing vaginal reconstructive surgery using Prolift from 08/2005 to 05/2007 with a mean (median) follow-up of 18.9 (20.0) months (range 2.7 − 30.6 months). History and physical examination including POP-Q measurements and validated quality-of-life (QoL) questionnaires (PFDI & PFIQ short forms, PISQ−12) were assessed at baseline, 3, 12, and 24 months. Adverse events, including negative effect on sexual function and peri-operative complications, were also assessed.

Results: Patient demographics included: age 64.6 (±8.6) years, parity 2.9 (±1.5), and BMI 27.5 (±4.7). Forty-six (74.2%) of patients were Caucasian and 13 (21.0%) were African American with 93.6% being postmenopausal. Seventeen patients (27.4%) had prior surgery for prolapse. Baseline POP-Q stages were: 11 (17.7%) stage 2; 47 (75.8%) stage 3; and 4 (6.45%) stage 4. Vaginal colpopexies with total mesh insertion were performed in 27 patients; anterior mesh in 30 and posterior mesh in 5. Concomitant vaginal hysterectomy was performed in 9 patients and concomitant suburethral tension-free slings in 6. At a median follow-up of 20 months, POP-Q stages were: 8 (11.4%) stage 0, 12 (17.1%) stage 1, 12 (17.1%) stage 2, and 1 (1.4%) stage 3. Prolapse stage in all compartments and QoL variables for prolapse, urinary and bowel symptoms were significantly improved at 12 and 24 months postoperatively. Thirty-two women (51.6%) were sexually active preoperatively, and 5 (23.8%) of 21 women who were not active preoperatively became sexually active postoperatively. Sexual function did not change postoperatively. Mean time from surgery to POP recurrence was 8.5 ± 7.2 months (n = 29) with 64.3% of recurrences noted in the anterior compartment. Recurrent apical prolapse requiring sacrocolpopexy was necessary in 2 patients within 1 year. Other complications included 6 (9.8%) cases of mesh erosion (5 by 3.3 months and 1 at 16.0 months); 1 seroma with delayed bleeding; and 2 cases of myofascial pain. There was no association between mesh erosion and hysterectomy at the time of Prolift. There were no blood transfusions, visceral injuries, fistulae, nerve injuries, or Dindo grade 2−4 postoperative complications.

Conclusion: At 20 months, prolapse stage and QoL variables were significantly improved in patients undergoing vaginal prolapse repair using synthetic polypropylene mesh. Concern for delayed mesh erosion exists.

Key Words: rectocele, pelvic organ prolapse, Prolift, cystocele, polypropylene mesh, vault prolapse

Disclosure - Nothing to disclose.

Oral Poster 3

VAGINAL EVISCERATION; A COMPREHENSIVE LITERATURE REVIEW

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Objectives: We sought to perform the most comprehensive literature review on vaginal evisceration following hysterectomy, pelvic surgery, trauma, and spontaneous events.

Materials and Methods: Our study design was a review of the literature.

Results: We collected 173 case reports in the world literature, dating from 1864−2008. Included were 3 previously unpublished cases, one of which was the first reported vaginal evisceration in the English literature after an abdominal sacrocolpopexy. Overall, there were 48 patients who underwent total abdominal hysterectomy (including 5 radical hysterectomies and one pelvic exenteration), 62 patients following vaginal hysterectomy, 12 patients following a total laparoscopic hysterectomy (TLH), and 7 hysterectomies of unknown type. No cases of evisceration have been reported following a laparoscopic supracervical hysterectomy (LSCH) to date. There were 12 patients who underwent pelvic surgery without concomitant hysterectomy. These surgeries included abdominal sacrocolpopexy, Burch urethropexy, uterosacral ligament suspension, anterior and posterior colporrhaphy, Manchester repair, enterocele repair, colpocleisis, sacrospinous fixation, and an Altemeier perineal proctectomy. One case of evisceration followed an abdominal salpingo-oophorectomy, and another case was encountered intra-operatively during a suction dilation and curettage for an elective termination. There were also 14 cases of spontaneous vaginal evisceration without prior surgery. We found similar demographics as other literature reviews in regards to patient age, menopausal status, surgical history, precipitating factors, and type of cuff closure. We also noted a trend toward personal history of cancer and presence of autoimmune disease with associated immunosuppression as likely risk factors. Various approaches to repair were described, with an emergence of cases successfully repaired with a combined vaginal and laparoscopic approach when no evidence of bowel compromise was present.

Conclusion: Vaginal evisceration is a rare and serious complication which has been documented following every type of hysterectomy with the exception of LSCH. It has also been associated with a variety of pelvic floor reconstructive surgeries. The incidence of vaginal evisceration after hysterectomy is between 0.14% and 0.28%, however, the incidence following pelvic surgery is unknown. There has also been a recent increase in cases following TLH, with one case series reporting an incidence as high as 4.93%. Our study is the most comprehensive collection of vaginal evisceration cases to date, with the first reported case following abdominal sacrocolpopexy in the English literature. We conclude that, excluding LSCH, vaginal evisceration should be considered a rare but potentially serious complication following any hysterectomy or pelvic reconstructive operation, with even greater risk following TLH compared to other types of hysterectomies. In the absence of intestinal compromise or concomitant pelvic floor defects requiring surgical correction, a simple vaginal repair with or without laparoscopic examination of the bowel appears to be a safe alternative to laparotomy.

Key Words: vaginal evisceration, vaginal cuff dehiscence, bowel evisceration, intestinal prolapse, postoperative complication, literature review

Disclosure - Nothing to disclose.

Oral Poster 4

STRUCTURED OPERATING ROOM ASSESSMENT OF RESIDENT SURGICAL SKILLS

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Objectives: To compare surgical skills evaluations completed by attending physicians immediately after performing a surgical case with a resident to those completed by faculty observing resident performance during the same case.

Materials and Methods: Attending physicians completed a 19-item checklist evaluation immediately after completing each case with the resident. Observing faculty completed the same checklist evaluation while the surgery was being performed. Differences between scores given by the operating attending and the observing faculty were compared and Kappa coefficient of agreement was used to analyze the level of correlation of the scores.

Results: Evaluations were completed for sixteen cases of dilation and curettage with hysteroscopy. The average score given by operating attendings was 18.1 (maximum possible = 19) and was consistently higher than the average score of 11.3 given by observing faculty. Kappa coefficient of agreement revealed a statistically significant correlation for only one of the 19 checklist items. The overall agreement between scores for all 19 items was 64%, indicating there was poor correlation between evaluations.

Conclusion: Despite using a checklist approach to evaluate technical skills immediately after a surgical case, there was poor correlation between reported skills and observed skills. These results suggest there is a need for further study of methods to objectively evaluate resident surgical skills while performing surgery.

Key Words: surgical skills, surgical education, resident evaluation

Disclosure - Nothing to disclose.

Oral Poster 5

A COMPARISON OF MIDURETHRAL SLING VERSUS BURCH URETHROPEXY FOR TREATING URODYNAMIC STRESS INCONTINENCE AT THE TIME OF ABDOMINAL SACROCOLPOPEXY

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Objectives: To compare outcomes in terms of bladder function in women with pelvic organ prolapse (POP) and urodynamic stress incontinence (USI) undergoing Abdominal Sacrocolpopexy (ASC) and either Burch urethropexy (RPU) or synthetic midurethral sling (MUS).

Materials and Methods: In this retrospective study, medical records of women with pelvic organ prolapse who underwent ASC and concomitant surgical treatment of USI at 7 centers during 2005−2007 were reviewed. Data reviewed included stage of POP, pre-op urodynamics results, operative reports and symptoms of urgency/frequency (UF) or urinary incontinence at 6 weeks post op and at the last visit of record. Patients were divided into 2 groups: those undergoing ASC with synthetic midurethral sling (MUS group) and those undergoing ASC with Burch (RPU group). Incontinence surgery was chosen by patient or physician preference. For this report, outcomes for the two groups were compared based on patient subjective complaints of any loss of urine (stress or urge) for the incontinence category, regardless of number of leakage episodes or severity. Similarly, women were reported to have UF if they reported any episodes of urgency or frequency. Data were compared using the Pearson Chi Square or the Fisher Exact Test as appropriate.

Results: During the study period, 224 women underwent ASC with concurrent treatment for USI: 165 in the MUS group and 59 in the RPU group. All women had urodynamic evidence of stress incontinence with or without prolapse reduction. The mean age was 60.9, and mean stage of prolapse stage 3, with no significant difference between groups. There were no significant differences in patient demographics, operative parameters or postoperative complications between the groups. The numbers of patients with post op incontinence or UF who had preexisting urgency and/or Detrusor Overactivity (DO) did not differ significantly between groups: 86 (52%) with preop UF in the MUS group, and 26 (44%) in the RPU group. The number of evaluable patients at the 6 week visit were: MUS 158 and RPU 47, and at last visit (mean 39 weeks): MUS 102 and RPU 44. The results are outlined in Table 1.

Conclusion: Synthetic midurethral sling results in a significantly lower rate of any post operative incontinence symptoms than Burch urethropexy, in stress incontinent women undergoing Abdominal Sacrocolpopexy, with no significant difference in irritative bladder symptoms.

Key Words: midurethral sling, Abdominal sacrocolpopexy, Burch urethropexy, prophylactic incontinence surgery

Disclosure - honorarium: Ethicon Women's Health & Urology, consultant, Boston Scientific, consultant.

Oral Poster 6

THE EFFECT OF DETRUSOR OVERACTIVITY PRESSURE ON MIDURETHRAL SLING OUTCOMES

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Objectives: To determine the impact of detrusor overactivity pressure on the outcome of midurethral sling procedures for the treatment of urodynamic stress urinary incontinence (USI) and detrusor overactivity (DO).

Materials and Methods: We retrospectively reviewed the charts of 428 women treated with transvaginal slings for USI and DO on urodynamic testing. Detrusor overactivity pressures were divided into 2 groups: Group I had DO pressures > 25 cm H2O and Group II < 25 cm H2O. The impact of detrusor pressure on midurethral sling outcomes was evaluated using chi-square tests.

Results: 325/428 patients who underwent midurethral sling procedures consisting of retropubic ([SPARC = 9% (30); TVT = 32% (104)]) and transobturator sling 59 % (191) procedures were extracted. Bladder neck slings (n = 103) were not included. DO pressure of >25 cm H2O was diagnosed in 106/325 women (33%) in group I with 67% having DO pressures < 25 cm H2O in group II. Mean age (range) was 61.3 (32−88); BMI 27.5 (18−70) cm/m2, and median parity 2 (1−10). No significant differences were found in age, parity, or BMI between groups. Pre and postoperative urinary flow rates and PVR were not different in the two groups. Chi-square analysis revealed that detrusor pressure was unrelated to postoperative UUI, SUI, or DO resolution in women who underwent

retropubic midurethral slings. However in the transobturator group, DO pressure of '25 cm H2O was significantly associated with persistent postoperative DO 68% vs. 37% OR 3.7 (95% CI: 1.7 − 8.3) $p < 0.001$; postoperative SUI 30% vs. 13% OR 2.9 (CI: 1.3 − 6.2) $p < 0.006$; and postoperative UUI 50% vs. 21% OR 3.8 (CI: 1.9 − 7.3) $p < 0.001$. Further, higher preoperative detrusor pressure was related to postoperative UUI severity as defined by Likert scale (0, 1, 2 vs. 3, 4; $p = 0.009$). Multivariable analysis showed this relationship persisted even after controlling for age, BMI, and concomitant procedures The outcomes of transobturator tape procedures are significantly associated with preoperative DO pressure, with a higher failure rate and persistent OAB syndrome symptoms when higher preoperative DO pressures are present.

Conclusion: Preoperative pressure at which DO occurs should be considered when performing midurethral sling procedures in women with USI and DO. Although similar results were not illustrated in retropubic slings, data collection is ongoing.

Key Words: detrusor overactivity, stress urinary incontinence, midurethral slings

Disclosure - Nothing to disclose.

Oral Poster 7

ROBOTIC SACROCOLPOPEXY VERSUS VAGINAL MESH COLPOPEXY FOR TREATMENT OF ANTERIOR AND APICAL PROLAPSE - A RETROSPECTIVE COHORT STUDY

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Objectives: To compare short-term anatomic support and perioperative data, including complications, for robotic sacrocolpopexy (RSC) and vaginal mesh colpopexy (VMC).

Materials and Methods: This was a retrospective cohort study involving all RSC and VMC (Prolift) procedures performed over an 18 month period from January 2007 to June 2008. Only those subjects with stage ≥2 anterior and apical prolapse were included. Our primary outcome was short-term anatomical cure defined as stage <2 for the anterior and posterior walls and apical support above the midpoint of the vagina. Secondary outcomes included operative time, blood loss and perioperative complications using the Dindo classification system. POP-Q examinations were performed at baseline and at 3 months and 1 year postoperatively. Descriptive and univariate analyses were used to determine statistical significance ($p < 0.05$).

Results: Of the 55 women who underwent VMC, 13 were excluded due to participation in another study and 6 failed to meet inclusion criteria. The remaining 37 VMC were compared to the 17 women who underwent RSC. VMC subjects were significantly older (mean age 62.6 ± 9.8 vs 55.8 ± 9.8, $p = 0.02$), menopausal (81% vs. 53%, $p = 0.049$), heavier (BMI 28.3 ± 4.0 vs. 25.4 ± 2.6, $p = 0.01$), and had more severe prolapse (median stage 3, range 2−4 vs. stage 2, range 2−3, $p = 0.04$; Ba 3.8 ± 2.3 vs. 2.9 ± 2.3, $p = 0.002$), than the RSC group. There was no difference in parity, race, prior hysterectomy or prior prolapse surgery between groups. At a mean follow-up of 5.2 months (range 3−16) for the VCM and 3.6 (range 2−8) months for RSC, both groups showed significant improvement of prolapse ($p < 0.001$). The anatomical cure rate of prolapse was similar between the groups: 88.3% for RSC and 86.5% for VMC (NS). Mean post-operative Ba and C points were also similar between groups (−2.6 ± 0.87 and −8.8 ± 1.24 for RSC vs. −2.5 ± 1.22 and −7.4 ± 2.37 for VMC, $p = NS$). Total vaginal length was significantly shorter after VMC (9.8 ± 0.53 preoperatively vs. 8.0 ± 3.82 postoperatively, $p = 0.005$) but remained unchanged after RSC. RSC had longer operative time compared to VMC (359.7 ± 61.0 vs. 203.3 ± 47.0 min, $p < 0.001$) and longer hospital stay (1.3 ± 0.5 vs. 1.1 ± 0.3 days, $p = 0.04$). However, RSC had lower blood loss (70.6 vs. 118.6 ml, $p < 0.001$). Dindo grade 3 complications were similar between groups (RSC n = 1 vs. VMC n = 3, p = NS). Vaginal mesh erosion occurred in 1 case of VMC (2.7%) and in none of the RSC (p = NS).

Conclusion: In this study, RSC and VMC result in similar short-term cure rates for prolapse with similar complication rates.

Key Words: Robotic vaginal suspension, Robotic sacrocolpopexy, Vaginal mesh colpopexy, Anterior vaginal prolapse, Apical vaginal prolapse

Disclosure - Nothing to disclose.

Oral Poster 8

LEFT UPPER QUADRANT LAPAROSCOPIC INSTRUMENT INSERTION ANGLE: ABDOMINAL ANATOMY CHARACTERIZATION BY MAGNETIC RESONANCE IMAGING

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Objectives: The left upper quadrant (LUQ) is an alternative site for Verres needle and primary trocar placement for patients at increased risk for intra-abdominal adhesions. Instruments are placed into the abdomen at Palmer's point, 3 cm below the left subcostal margin in the midclavicular line. In the axial plan, it is recommended that the instruments be inserted perpendicular to the surface of the abdomen. In the sagittal plane, various angles of insertion from vertical to 45° toward the lower abdomen have been recommended. However, little is known about the dimensions of the abdominal cavity beneath Palmer's point and thus the safest angle for instrument insertion is uncertain. This study was designed to determine the angles of insertion of laparoscopic instruments at Palmer's point least likely to injure retroperitoneal structures and to determine if insertion angle should be varied according to the patient's body mass index (BMI = kg/m2).

Materials and Methods: Abdominal magnetic resonance images were reviewed for 78 women between 18 and 50 years of age. Abdominal wall thickness at Palmer's point and the distance from the skin to the retroperitoneal structures were measured vertically (0°), at 30° and at 45° from vertical toward the lower abdomen. The results were correlated with BMI using Pearson's correlation coefficient. The location of the aorta in relation to the line of insertion was also determined.

Results: The abdominal wall thickness ranged from 1.1 to 5.1 cm and correlated positively with BMI. The distance from the skin to the retroperitoneal structures ranged from 7.1 to 23.6 cm and correlated positively with BMI and angle of insertion. A Verres needle or trocar inserted to its complete 11 mm length would contact retroperitoneal structures in 35% of patients if inserted vertically (0°), 23% at 30°, and 1% at 45°. In the axial plane, the insertion line perpendicular to the abdominal wall was always lateral to the aorta.

Conclusion: Verres needles and laparoscopic trocars placed into the abdomen at Palmer's point should be inserted at an angle of at least 30° from vertical toward the lower abdomen to minimize the risk of injuring retroperitoneal structures. In women with a BMI <25, the angle should be increase to 45°. In the axial plane, the angle of insertion should not be shifted toward the midline, since the aorta always was medial to the instrument tip when the angle of insertion was perpendicular to the abdominal wall.

Key Words: anatomy, laparoscopy, surgical complications, laparoscopic techniques

Disclosure - Nothing to disclose.

Oral Poster 9

ROBOT-ASSISTED LAPAROSCOPIC MYOMECTOMY IS AN IMPROVEMENT OVER LAPAROTOMY FOR PATIENTS WITH A LIMITED NUMBER OF FIBROIDS

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Objectives: To compare surgical and postoperative results of robot-assisted laparoscopic myomectomy versus myomectomy via laparotomy in patients with 3 or less fibroids.

Materials and Methods: In a retrospective, case-control study, the first 75 patients having undergone a robotic-assisted laparoscopic myomectomy were compared to a historical cohort of patients having undergone myomectomy via laparotomy. Women offered the robotic-assisted myomectomy were required to have 3 or less fibroids confirmed pre-operatively by MRI. The comparison group consisted of 50 women with three or fewer fibroids on pathology report from a previous study. These patients would have been offered the laparoscopic route if it were available at that time. Charts were reviewed to determine length of surgery, operative and post-operative complications as well as other surgical and post-operative variables.

Results: There was no statistically significant difference between the patients in terms of age, indication for surgery, fibroid weight, ethnicity, body mass index, or parity. There was a significant increase in the average time of surgery for the robotic-assisted procedure versus the procedure via laparotomy: 192min versus 138 minutes ($p = 0.01$). There was a significant decrease in blood loss in the robotic-assisted cases: 226cc versus 459cc ($p = 0.009$), as well as change in hematocrit on post-operative day 1: 5.11 versus 7.09 ($p = 0.05$), length of hospital stay: 0.51 days versus 3.3 days ($p = 0.000$), days to regular diet: 0.85 versus 2.3 ($p = 0.000$), and febrile morbidity: 1.33% versus 38% ($p = 0.000$). There were no significant differences in operative or post-operative complications.

Conclusion: While the robot-assisted cases took significantly longer, primarily due for the need to morcellate the fibroids for extraction, the majority of other variables improved in comparison to similar procedures via laparotomy. In selected patients with a small number of fibroids seen on MRI, robot-assisted laparoscopic myomectomy is favorable to a myomectomy via laparotomy in most operative and post-operative outcome measures.

Key Words: robotic surgery, robotics, myomectomy, myoma, fibroids

Disclosure - Salary: Intuitive Surgical, Surgical Preceptor for robotic cases.

Oral Poster 10

ROBOTIC-ASSISTED LAPAROSCOPY IN COMPARISON TO OPEN LAPAROTOMY FOR THE TREATMENT AND STAGING OF ENDOMETRIAL CANCER

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Objectives: We sought to compare robotic-assisted laparoscopic hysterectomy (RALH) with staging to traditional laparotomy techniques for the treatment and staging of endometrial cancer.

Materials and Methods: A retrospective comparative study was performed using a departmental database to identify all patients undergoing RALH with staging using the da Vinci Robotic Surgical System and to assemble a 3:1 control group of patients undergoing traditional laparotomy with staging. For each patient, the following data were collected: surgery date, age, parity, body mass index (BMI), the type of procedure performed, surgeon, uterine size, estimated blood loss (EBL), the number of prior cesarean sections, the number of prior laparoscopic abdominal surgeries, the number of prior open abdominal surgeries, the time of entrance into operating room (OR), the anesthesia induction start time, the procedure start time, the procedure end time, and the time the patient departed the OR. The stage of disease as defined by the International Federation of Gynecology and Obstetrics (FIGO) guidelines, the histological grade, the number of pelvic lymph nodes obtained, the number of periaortic lymph nodes obtained, the total length of hospital stay, and the occurrence of intraoperative or postoperative complications were also recorded. Operative times were condensed to total OR time, total procedure time, time to induction, time to procedure, and induction to procedure time. Lymphadenectomy results were combined to reflect $>$ or $<$ 5 pelvic lymph nodes in the pathology tissue sample and the presence or absence of periaortic lymph nodes in the pathology sample. The stage of disease was determined using FIGO guidelines.

Results: A total of 14 patients undergoing RALH and 50 patients undergoing exploratory laparotomy were identified from July 2005 to February 2008. Statistically significant differences were noted for estimated blood loss (300 ± 157 mL laparotomy vs. 148 ± 147.5 mL RALH, $p = 0.002$), total OR time (314 ± 36 min RALH vs. 192 ± 39 min laparotomy, $p < 0.0001$)) and total procedure time (265 ± 34 min RALH vs. 147 ± 38 min laparotomy, $p < 0.0001$), and length of average postoperative stay (3.5 d laparotomy vs. 1.8 d RALH, $p < 0.0001$). The total hospital cost was also noted to be statistically significant, with an average cost difference of $12,977.98 ($p < 0.01$), with RALH being more expensive. No statistically significant differences were noted for the number of pelvic or periaortic lymph nodes or intraoperative/postoperative complications.

Conclusion: Robotic-assisted laparoscopic surgery utilizing the da Vinci Robotic Surgical System is a safe and effective minimally invasive alternative to traditional laparotomy for the treatment and staging of endometrial cancer, resulting in decreased blood loss, a decreased hospital stay, and comparable staging of disease at the time of surgery. Drawbacks include an increased operative time and increased hospital costs. We feel that the patient benefits of robotic-assisted laparoscopic surgery outweigh potential financial considerations and that operative time will continue to improve as further comfort and experience with the procedure are gained.

Key Words: Robotics, da Vinci, Endometrial, Cancer, Ochsner, staging

Disclosure - Nothing to disclose.

Oral Poster 11

FROZEN SECTION ANALYSES OF PELVIC LYMPH NODES IN PATIENTS WITH ENDOMETRIAL CANCER

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Objectives: Recent prospective data support the trend towards systematic pelvic and para-aortic lymphadenectomy in patients with

high risk endometrial cancer. The low likelihood of skip metastasis to the para-aortic region in patients with endometrial cancer would allow findings of negative pelvic nodes at intraoperative frozen section examination to omit para-aortic dissection. We analyzed the diagnostic accuracy of frozen section examination of pelvic lymph nodes in patients with endometrial cancer.

Materials and Methods: We reviewed 131 patients with endometrial cancer who underwent surgery including systematic pelvic lymphadenectomy (n = 101) or pelvic and para-aortic lymphadenectomy (n = 27). Intraoperative frozen section examination of pelvic lymph nodes was performed in 72 (55%) patients to determine the extent of lymphadenectomy. The results of frozen section examination were compared with those of final histopathology. The diagnostic accuracy of frozen section examination of pelvic lymph nodes was assessed by calculating the negative predictive value, the positive predictive value, specificity, sensitivity, and overall accuracy.

Results: A total of 1063 and 2666 pelvic lymph nodes were analyzed by frozen section examination and by final histopathology, respectively. Pelvic lymph node metastases were found in 7 cases (10%) at frozen section examination, and in 17 cases (24%) at final histopathology (false-negative rate 59%). No false positive cases were noted.

Conclusion: These results suggest that intraoperative frozen section analysis of pelvic lymph nodes in endometrial cancer can miss up to almost 60% of patients with positive nodes. We do not recommend tailoring the extent of lymphadenectomy based on the results of frozen section examination.

Key Words: Surgery, Endometrial cancer, Pelvic/para-aortic lymphadenectomy, Frozen section

Disclosure - Nothing to disclose.

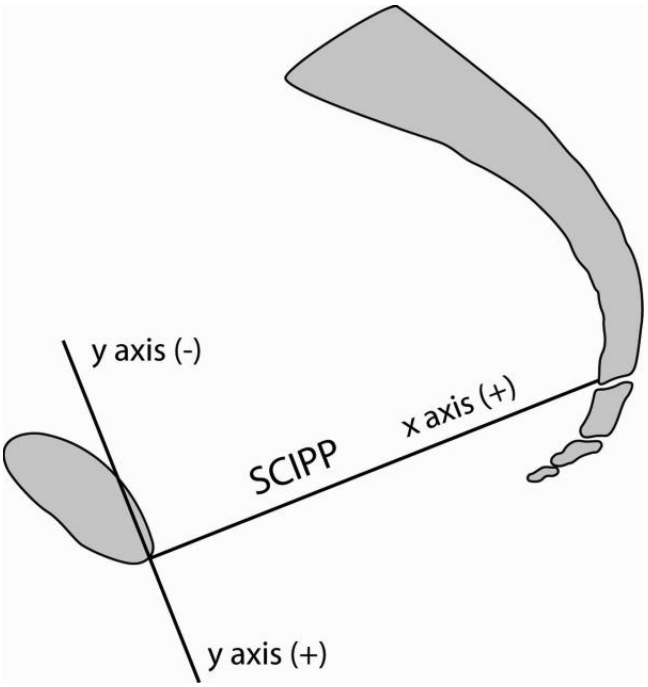

FIGURE 1. The sacro-coccygeal inferior pubic point line (SCIPP) and the axes.

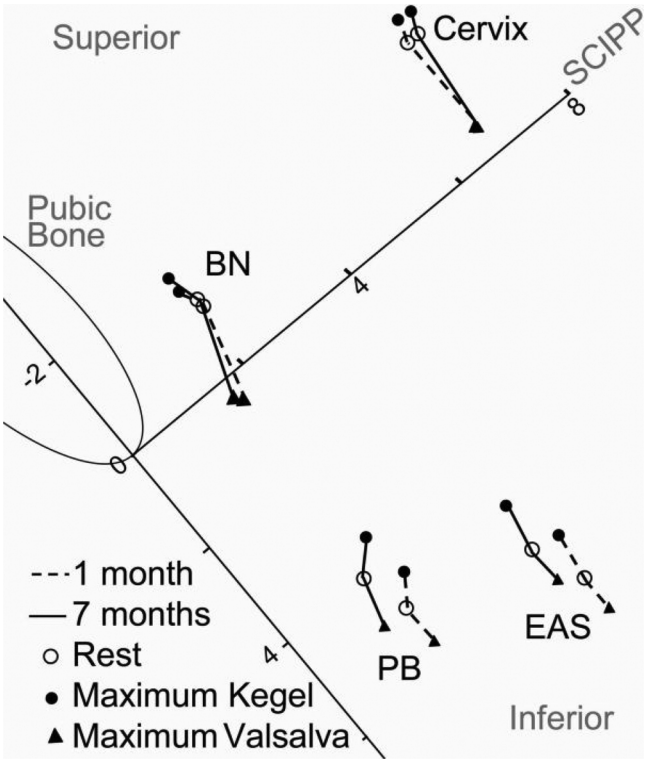

FIGURE 2. Average location of the Perineal Body (PB), External Anal Sphincter (EAS), Bladder Neck (BN), and Cervix at rest, maximum Kegel and maximum Valsalva at 1 month and 7 months postpartum shown in the upright posture.

Oral Poster 12

PELVIC FLOOR RECOVERY IN PRIMIPAROUS WOMEN AT 1 MONTH COMPARED TO 7 MONTHS AFTER VAGINAL DELIVERY

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Objectives: It is known that certain factors related to vaginal delivery (e.g. prolonged second stage, external anal sphincter tears, forceps) are associated with damage to the levator ani muscles. This injury can affect both 1) the location of pelvic structures ("sagging") and 2) pelvic floor movement during Kegel or Valsalva. We do not know whether healing after delivery affects one or both of these parameters. We tested the null hypothesis that there were no changes in location or movement of pelvic floor structures at early (1 month) compared to late (7 months) postpartum as observed on dynamic MRI activities at rest, Kegel, and Valsalva.

Materials and Methods: We studied 17 primiparous women who had birth events associated with levator muscle damage. Women were studied by mid-sagittal MRI in the supine position with scans obtained at the early and late postpartum time-points. We made measures at rest, at maximum Kegel and at maximum Valsalva. The locations of the perineal body, external anal sphincter, bladder neck and cervix were determined as x and y coordinates with the origin set at the inferior pubic point and the x-axis aligned with the sacro-coccygeal inferior pubic point line (SCIPP) using ImageJ 1.41 (NIH) software (Fig.1). We calculated displacements from rest to maximal Kegel and

Valsalva, and urogenital and levator hiatus diameters and levator plate angles relative to the SCIPP line.

Results: At rest, the perineal body and external anal sphincter were higher on late scans by a mean (SD) of 0.8 ± 0.9 cm and 0.9 ± 0.9 cm respectively ($p < 0.001$ for both) (Fig.2). During Kegel, the bladder neck moved 0.3 ± 0.5 cm more on the later scans ($p = 0.004$). There were no differences in displacement during Kegel and Valsalva at either time-point for other structures. At rest, Kegel and Valsalva, the urogenital and the levator hiatus diameters were shorter on the late scans compared with the early scans (see table). The levator plate angle did not differ from early to late time-points.

Conclusion: The perineal body and the external anal sphincter are higher at rest at 7 months compared to 1 month after vaginal delivery in women with known risk factors for levator ani injury. Overall, the amount of pelvic visceral movement with Kegel and Valsalva is similar over time, suggesting that factors other than muscle activation must be at play in the recovery of resting position.

Key Words: MRI, Vaginal delivery, Pelvic floor recovery, Levator ani muscles

Disclosure - Nothing to disclose.

Oral Poster 13

IMPROVEMENT IN PATIENT-REPORTED OUTCOMES AFTER CONCURRENT SURGERY FOR PELVIC FLOOR DISORDERS IN OLDER VERSUS YOUNGER WOMEN

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Objectives: To estimate the effect of age on improvement in symptom severity and life impact in women undergoing combined surgery for pelvic organ prolapse and stress urinary incontinence.

Materials and Methods: We performed a retrospective cohort study of women who underwent combined surgery for both symptomatic pelvic organ prolapse and stress urinary incontinence between June 2006-August 2007.Younger women were defined as <65 years and older women were defined as ≥65 years. Patient-reported outcomes included symptom severity, measured using the Pelvic Floor Distress Inventory−20 (PFDI) and life impact, measured using the Pelvic Floor Impact Questionnaire−7 (PFIQ). Women who underwent surgery for prolapse or incontinence alone were excluded. Multiple linear regression analyses were performed to estimate the effect of age on improvement in PFDI and PFIQ scores, adjusting for variables that differed by age group at baseline. Variables with $P \leq 0.1$ were retained in final models.

Results: One hundred twenty-two younger women and 70 older women met inclusion criteria. The mean post-operative follow-up time was 10 +/− 1.2 months. All women had prolapse surgery and a suburethral sling for stress urinary incontinence. Mean age was 71 +/− 1.1 years in the older group and 47 +/− 8 years in the younger group. Older women had lower baseline PFDI scores (91 +/− 56 vs. 107 +/− 56, P = .02) and PFIQ scores (37.3 +/− 45 vs. 69.1 +/− 73, P = .003) compared to younger women. A larger proportion of older women underwent hysterectomy (40% vs. 25%, P = .03), but there was no difference in other repairs. There was no difference in perioperative complications between groups (7% in older vs. 12% in younger, P = 0.3). Within groups, both age groups had significant improvement in PFDI and PFIQ scores, as well significant improvement for all prolapse, urinary and colorectal subscales of both questionnaires ($P < .01$ for all). Between groups, older women had lower mean improvements in PFDI scores (mean improvement 63 + 61 vs. 83 + 63 points for older vs. younger respectively, P = .04) and PFIQ scores (mean improvement 25 + 40 vs. 50 + 60 for older vs. younger, respectively, P = .01). On multiple linear regression, older women reported less subjective improvement in PFDI scores (9 point lesser decrease, 95% CI 3−16 points, P = .04) and PFIQ scores (10 point lesser decrease, 95% CI 3−17 points, P = .03) compared to younger women after adjusting for insurance, co-morbidity, baseline POPQ and baseline scores.

Conclusion: Older women undergoing concurrent repairs for prolapse and incontinence experience significant improvement in symptoms and life impact, although overall improvements may be less than younger women.

Key Words: prolapse, quality of life, incontinence, patient outcomes, concurrent surgery

Disclosure - Nothing to disclose.

Oral Poster 14

ANTIBIOTIC PROPHYLAXIS FOR SHORT-TERM POST-OPERATIVE TRANSURETHRAL FOLEY CATHETER USE IN WOMEN AFTER SUB-URETHRAL SLING

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Objectives: To determine if antibiotic prophylaxis during short-term outpatient transurethral Foley catheter use in women after sub-urethral sling procedures decreases bacteriuria within 30 days of surgery.

Materials and Methods: We performed a retrospective cohort study of all women who underwent sub-urethral sling placement in the Division of Urogynecology from 1/2003−6/2008, and subsequently had short-term transurethral Foley catheter drainage. All women had negative urine cultures prior to surgery and received pre-operative prophylactic intravenous antibiotics. Women who had catheter drainage for longer than 7 days or no urine culture sent within 30 days of surgery were excluded. Demographic and clinical information was abstracted. Women were separated into two groups: women who received prophylaxis with once daily nitrofurantoin macrocrystals during catheterization and women who did not. The primary outcome was positive urine culture (103colonies) from a catheterized specimen within 30 days of surgery. Assuming post-operative bacteriuria in 24% of women not treated with prophylactic antibiotics, a sample size calculation called for 51 women in each group to have 80% power for detecting 80% reduction in post-operative bacteriuria. Multivariable logistic regression analysis was used to explore the effect of potential confounders ($p < .1$) on the odds of post-operative bacteriuria.

Results: One hundred thirty four women were included in this study. Fifty-three (40%) women received prophylaxis and 81 (60%) did not. Demographic and clinical data (age, parity, race, BMI, menopausal status, tobacco use, type of sub-urethral sling performed, intra-operative complications, and estimated blood loss) did not differ significantly for the two groups. Women receiving prophylaxis were more likely to undergo concomitant vault suspension (32.1% vs. 11.1%, p = .003) and anterior repair (43.4%

vs. 27.1%, p = .01). Groups were similar for duration of catheterization (4.2 (±2.5) vs. 3.8 (±2.6) days, p = .37). Fifty-three women had documented bacteriuria (103colonies) within 30 days of surgery with no statistically significant difference between the two groups (prophylaxis vs. no prophylaxis, 32% vs. 44% .p = .15). After controlling for surgeon, prior urinary incontinence procedure, and concomitant procedures, there remained no statistically significant difference in odds of bacteriuria between groups (adjusted OR = .81, 95%CI (.17, 3.87)). Groups did not differ significantly for number of women performing intermittent self catheterization (ISC) after Foley removal nor the duration of ISC. No women were diagnosed with pyelonephritis or readmitted to the hospital within 30 days of surgery. Fifteen women underwent sling release with no statistically significant difference between the groups (prophylaxis vs. no prophylaxis, 5.8% vs.14.8%, p = .16).

Conclusion: Antibiotic prophylaxis with once daily nitrofurantoin macrocrystals in women during short-term outpatient transurethral Foley catheter use after sub-urethral sling placement does not appear to reduce bacteriuria in our study population.

Key Words: suburethral sling, antibiotic prophylaxis, Foley catheter

Disclosure - Nothing to disclose.

Oral Poster 15

FACTORS ASSOCIATED WITH SUCCESSFUL VOIDING TRIALS IMMEDIATELY AFTER TRANSVAGINAL PELVIC ORGAN PROLAPSE SURGERY

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Objectives: To determine the factors associated with successful voiding immediately after transvaginal surgery for pelvic organ prolapse with or without concomitant stress urinary incontinence surgery.

Materials and Methods: We conducted a retrospective cohort study of 118 women who underwent surgery for pelvic organ prolapse. Voiding trial and follow-up data were sufficient for evaluation of 80 patients. It is standard practice at our institution to place a Foley catheter in the operating room and perform an initial trial of void on postoperative day 1 or 2 depending on surgeon preference. Patient characteristics, preoperative findings including urodynamic parameters, and perioperative data were culled from the medical record and analyzed. This data was correlated with time to successful voiding after initial trial of void. P value of <0.05 was considered significant. Our analysis was performed using chi square testing to preliminarily examine each variable then log-linear multivariate regression to determine what factors are associated with time to successful voiding. This was defined as the postoperative day on which the catheter was removed and the patient was able to void without need for replacement of the Foley catheter.

Results: Anterior stage 1, 2, and 3 pelvic organ prolapse was present in 6% (n = 5), 41% (n = 33), and 53% (n = 42) of patients, respectively. Posterior stage 0, 1, 2, 3, and 4 pelvic organ prolapse was present in 5% (n = 4), 16.25% (n = 13), 67.5% (n = 54), 10% (n = 8), and 1.25% (n =1) of patients, respectively. In addition, 11.25% (n = 9), 45% (n = 36), 13.75% (n = 11), 26.25% (n = 21), and 3.75% (n = 3) of patients had stage 0, 1, 2, 3, and 4 apical prolapse, respectively. The diagnosis of stress urinary incontinence in addition to pelvic organ prolapse was present in 60% (n = 48) of the patients analyzed. Colporrhaphy +/- apical suspension was performed with concomitant midurethral sling in 62.5% (n = 50) of patients. 50% (n = 40) of the patients had an initial voiding trial on postoperative day 1. Of these patients, 37.5% (n = 15) successfully voided on postoperative day 1. 43 % (n = 34) had an initial voiding trial on postoperative day 2 with 65% (n = 22) successfully voiding on postoperative day 2. This difference in successful voiding between initial trial of void on postoperative day 1 versus 2 was significant (p = 0.04). Log-linear multivariate regression analysis revealed that the initial day of trial of void, pelvic organ prolapse stage, preoperative genital hiatus measurement, genuine stress urinary incontinence, history of prior vaginal hysterectomy, and concomitant midurethral sling placement were significantly associated with time to successful voiding postoperatively.

Conclusion: This data suggests that vaginal hysterectomy, preoperative POP-Q stage, midurethral sling placement, and initial day of voiding trial influence time to successful postoperative voiding after transvaginal surgery for pelvic organ prolapse with or without anti-incontinence surgery. The initial voiding trial on postoperative day 2 may predict higher rates of successful voiding.

Key Words: postoperative voiding, successful trial of void, transvaginal surgery for pelvic organ prolapse

Disclosure - Nothing to disclose.

Oral Poster 16

EROSION RATES THREE MONTHS FOLLOWING MESH AUGMENTED VAGINAL RECONSTRUCTIVE SURGERY

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Objectives: The utilization of polypropylene mesh to augment vaginal reconstructive surgery for pelvic organ prolapse is increasing. The objective of this study was to establish the overall graft erosion rate in a synthetic graft augmented repair in the first three months post-operatively.

Materials and Methods: An IRB approved, retrospective chart review was performed to evaluate the erosion rates of synthetic monofilament polypropylene mesh in a cohort of subjects who underwent graft augmented vaginal reconstructive surgery during an 18-month period (June 2005 to December 2006). The grafts were placed either utilizing a fashioned 10 x 15cm piece of mesh, designated here as traditional repair (arcus to arcus graft augmented anterior repair and posterior graft augmented repair with sacrospinous ligament fixation) or the 'lift-kit' repair (transobturator/trans-ischiorectal repair). In the traditional graft augmented arm we used either Gynemesh (Ethicon, Somerville, NJ) or Pelvitex (Bard Urologic Division, Covington, GA). The 'lift-kits' utilized for reconstruction were the Prolift system (Ethicon, Somerville, NJ) or the Avaulta system (Bard Urologic Division, Covington, GA). These companies used the same mesh weave for the mesh sheet and for the 'lift kit'. We defined graft erosion as any exposure of mesh upon visual inspection of the entire vagina at the three month post-operative visit. We considered cases by compartment so that subjects who underwent a combined anterior and posterior graft repair were counted twice (once in the anterior repair group and once in the posterior repair group). Statistical tests performed to evaluate differences included the Pearson Chi Square and Fisher Exact Test.

Results: Among the 94 subjects identified, data for 91 were complete and included in analyses. Thirty one had an anterior defect graft repair, 27 had a posterior defect graft repair, and 33 subjects had a combined anterior and posterior procedure; therefore the total number of grafts implanted was 124 grafts, with 64 anterior and 60 posterior. The overall erosion rate was 11.3%; the table depicts the erosion rates by product. There was no difference in the erosion rates when combining and comparing the products from company 1 and company 2 (10.4% (7/67): 12.3% (7/57); p = 0.551). There was a significantly lower erosion rate in the 'lift-kits' (Avaulta plus Prolift) versus our traditional repairs (Pelvitex plus Gynemesh) (1.4% (1/69): 23.6% (13/55); p = 0.0003). Demographic data were similar in all groups.

Conclusion: The overall erosion rate of vaginal graft augmented repairs in our study is comparable to those rates previously published in patients undergoing an abdominal sacrocolpopexy. There is no difference in erosion rate between products of the two companies. There was a significantly lower rate of erosions in the 'lift-kit' arm when compared to our traditional graft-augmented repair arm.

Key Words: mesh, erosion, vaginal reconstructive surgery

Disclosure - Nothing to disclose.

Oral Poster 17

IN VIVO ASSESSMENT OF ANTERIOR COMPARTMENT COMPLIANCE AND ITS RELATION TO PROLAPSE

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Objectives: The relationship between compliance (the inverse of stiffness) of the anterior vaginal wall supports and the position of the anterior vaginal wall between cases and controls is not known. We tested the null hypothesis that anterior compartment compliance does not differ between women with and without prolapse and explored factors predicting variation in cystocele size.

Materials and Methods: A subset of nineteen parous women with normal support (Controls, N = 10) and varying degrees of anterior compartment prolapse (Cases, N = 9) were obtained from an ongoing study. A bladder catheter was placed to measure abdominal pressure (Datascope®). For dynamic imaging, a multiphase, single level image of the pelvis in the mid-sagittal plane was obtained approximately every second for 23−27 seconds using a T2-weighted single-shot fast spin-echo (SSFSE) sequence with the subject in the supine position. Is there a way to combine these two sentences, as it somewhat repeats itself. A set of 20 successive images were acquired in 23−27 seconds during rest and graded Valsalva effort. In each image, the distance from the most dependent bladder point (black dot, Fig. 1) to the average bladder location in 20 nullipara (black triangle) was measured using MATLAB v7.0 (MathWorks, Natick, MA). Abdominal pressure and bladder displacement was plotted for each subject, and best-fit lines (Figure 1) for the loading portion of the curve to the maximum displacement were obtained using linear regression (the line slope is a measure of compliance). Bivariate analysis (Student t-test) comparing cases and controls and multivariate analysis of all subjects (correlation coefficients and linear regression modeling) were performed.

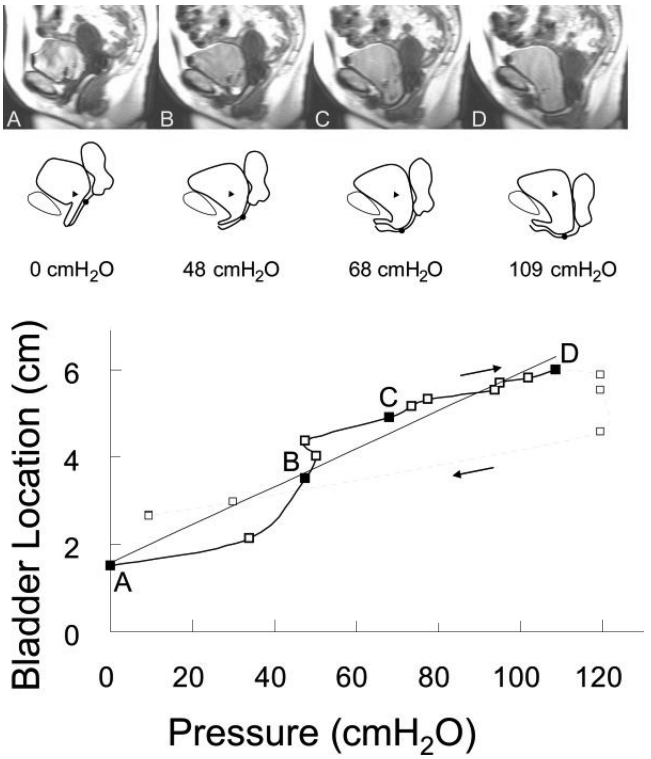

FIGURE 1. Pressure Displacement Curve for a subject. The displacement between the black triangle (average bladder point in nullipara) and the black dot (most dependent bladder point) was plotted against the abdominal pressure for each image. The loading portion of the curve is shown as a solid dark line. A best fit line for the loading curve (solid light line) was plotted to measure compliance.

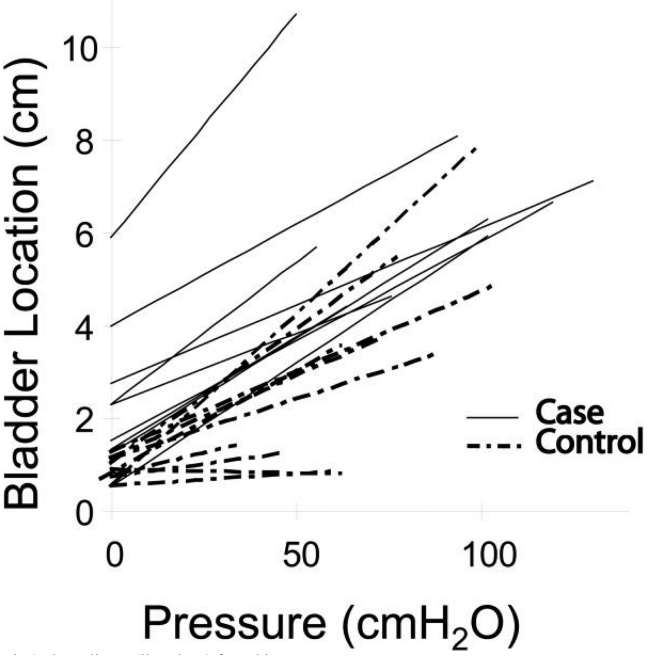

FIGURE 2. Compliance (line slope) for subjects.

Results: Mean compliance was 67% higher in cases than controls (0.5 ± 0.06 SEM vs. 0.3 ± .07 mm/cm H2O, p = .039). The individual compliances of cases and controls are shown in Figure 2. Bladder location at rest was 1.5 cm lower in cases than controls (2.4 ± 0.5 vs. 0.9 ± 0.1 cm, p = .024). The maximum abdominal pressure was similar for cases and controls (70 ± 23 vs. 87 ± 27 mmHg, p = .15). Taken individually, 75% of bladder descent could be explained by compliance (R2 = .75, p < .001), 55% by location of the bladder at rest (R2 = .55, p < .001), and 15% by maximum abdominal pressure (R2 = .15, p = .102). Linear regression modeling showed that resting bladder point explains 55% of the variation of maximum bladder displacement (p < .001). Adding the effect of compliance increased it to 86% (p < .001) and adding maximum abdominal pressure increased it further to 93% (p = .001).

Conclusion: The null hypothesis was rejected. Women with cystoceles have a 67% more compliant support system compared to controls. Surprisingly, the location of the bladder at rest also plays an important role in predictor of cystocele size.

Key Words: anterior compartment prolapse, pelvic floor, In vivo material property testing, compliance, biomechanical property

Disclosure - Nothing to disclose.

Oral Poster 18

EFFECT OF ESTROGEN REPLACEMENT ON THE HISTOLOGICAL RESPONSE TO POLYPROPYLENE MESH IMPLANTED IN THE RABBIT VAGINA MODEL

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Objectives: A paucity of literature exists investigating the effects of hormone replacement in postmenopausal women undergoing transvaginal repair of pelvic organ prolapse with graft augmentation. The objective of this study was to determine the impact of estrogen (E2) replacement after ovariectomy (OVX) on the histological response to polypropylene mesh implanted in the rabbit vagina.

Materials and Methods: Thirty adult New Zealand White rabbits were randomly assigned to Group 1 (sham laparotomy), Group 2 (OVX), Group 3 (OVX, preoperative E2), Group 4 (OVX, postoperative E2), or Group 5 (OVX, preoperative and postoperative E2) with 6 animals per group. Rabbits underwent sham surgery or OVX and were continuously infused with vehicle or 17-ÿ estradiol (200 ÿg/day) for 4 weeks ("preoperative" E2), after which time all rabbits were surgically implanted with a 1.5 x 0.8 cm strip of polypropylene mesh in the posterior vaginal wall between the fibromuscular layer and vaginal epithelium. Rabbits were then infused with E2 ("postoperative" E2) or vehicle for an additional 8 weeks after graft implantation at which time grafts with surrounding host tissues were harvested. Serial full thickness sections were stained with hematoxylin-eosin, Masson trichrome, and antibodies to smooth muscle actin to evaluate the host inflammatory response and degree of tissue incorporation within the graft. Inflammation, neovascularization, and fibroblastic proliferation (collagen deposition) were scored on a scale of 0 to 4 (0 = none, 1 = minimal, 2 = mild, 3 = moderate, 4 = severe) by a pathologist blinded to treatment. SigmaScan Pro 5.0 image analysis software was used to measure thickness of the vaginal epithelium, muscularis, and vaginal wall. Data were analyzed using analysis of variance and posthoc tests.

Results: Graft implantation surgery was considerably more challenging in OVX rabbits infused with vehicle for 4 weeks secondary to vaginal atrophy and epithelial thinning. Erosion occurred in 2 rabbits that did not receive postoperative E2 (1 each in Groups 2 and 3). Histologically, OVX animals that did not receive E2 for 8 weeks after graft implantation demonstrated significant atrophy of the muscularis (p < 0.001) and decreased epithelial thickness (p < 0.001) resulting in thinning of the vaginal wall (p < 0.001). E2 infusion increased vascularity in the lamina propria and restored thickness of the epithelium, muscularis, and vaginal wall comparable to or greater than that of intact animals. At the graft site, scores for inflammation (p = 0.33) and neovascularization (p = 0.23) were not different among groups but scores for fibroblastic proliferation were increased with estrogen replacement (p = 0.005). Animals receiving both preoperative and postoperative E2 had the highest scores for fibroblastic proliferation.

Conclusion: Estrogen replacement administered for 8 weeks postoperatively increases collagen deposition into polypropylene mesh implanted in the rabbit vagina. Advantages exist for the use of preoperative as well as postoperative estrogen therapy during vaginal surgery in this model.

Key Words: pelvic organ prolapse, polypropylene mesh, synthetic graft, estrogen replacement, rabbit model

Disclosure - Nothing to disclose.

Oral Poster 19

VAGINAL SURGICAL SKILLS INDEX: A NEW INSTRUMENT TO OBJECTIVELY ASSESS VAGINAL SURGICAL SKILLS

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Objectives: To develop a valid, reliable, and feasible instrument to evaluate surgical skills during vaginal surgery and to compare this instrument to a widely used scale of operative performance.

Materials and Methods: We used a cross-sectional study design to assess post-graduate Obstetrics and Gynecology trainees (PGY 1−7) from two institutions. Trainees were directly observed in the operating room by supervising surgeons while performing a vaginal hysterectomy. All trainees were assessed immediately after the procedure using the newly developed, 13-item Vaginal Surgical Skills Index (VSSI), the 6-item global rating scale (GRS) of operative performance developed by Reznick et al. and a visual analogue scale (VAS). All cases were videotaped in a standardized fashion in an effort to blind reviewers to the operating trainee. Blinded videotaped assessment of trainee performance was done by the same supervising surgeon four weeks after the live surgery and the video was sent to a different blinded surgeon at a third institution. Internal consistency was evaluated using Cronbach's alpha. Inter-rater and intra-rater reliability were evaluated using the Intraclass correlation coefficient (ICC). Construct validity was evaluated by quantifying the relationship between VSSI scores (range 0−52) and both the GRS (range 0−30) or VAS scores (range 0−100) using Pearson correlation coefficient (r) and by comparing VSSI scores to training level and surgical volume. Additionally, linear mixed effect models were used to evaluate the relationship between the VSSI scores and training levels or surgical volume while considering the random trainee effect and the

correlation within surgery. Paired multiple comparisons of VSSI scores among different training levels were performed using Tukey method with an adjusted significance level of 0.05.

Results: 212 surgical evaluations were analyzed on 76 surgeries from 27 trainees. Internal consistency of the VSSI was high (0.95−0.97) and scores on the VSSI correlated with those on the GRS (r = 0.92−0.94) and VAS (r = 0.91−0.93). Among the three measures, the VSSI had the highest inter-rater reliability (ICC = 0.53) and intra-rater reliability (ICC = 0.82). Mean VSSI scores for trainee levels 1,2 were significantly less than those for the levels 3,4,5,6 and 7 ($p < 0.001$). Furthermore, mean scores for level 3 were significantly less than those for the levels 6 and 7 ($p < 0.001$). Surgical volume also had a significant effect ($p < 0.001$) on the VSSI scores. There was an estimated increase of 0.3 points in the VSSI score (Parameter estimate = 0.27 (95%CI 0.20−0.34 $p < 0.001$) for each additional surgery performed after controlling for rating surgeon and level of surgical difficulty.

Conclusion: The Vaginal Surgical Skills Index is a feasible, reliable, and valid instrument to assess vaginal surgical skills and has better reliability than a commonly used global rating scale of operative performance.

Key Words: vaginal surgery, surgical education, competency, surgical skill, assessment

Disclosure - Nothing to disclose.

Oral Poster 20

TWO YEAR OUTCOME DATA ON EFFICACY AND QUALITY OF LIFE FOLLOWING MESH AUGMENTED VAGINAL RECONSTRUCTION

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Objectives: To evaluate objective, subjective and quality of life outcomes 2 years following mesh augmented vaginal reconstructive surgery.

Materials and Methods: After Institutional Review Board approval a cohort of subjects who underwent type 1 polypropylene mesh augmented vaginal reconstructive surgery between June 2005 and December 2006 were invited to participate in this study. Subjects were asked to fill out validated quality of life questionnaires (PFDI, PFIQ and PISQ). Subjective evaluation was based on the following 3 questions: 1) Would you do the surgery all over again? 2) Would you recommend the surgery you had to a friend? 3) In terms of your prolapse how do you feel; 1: Markedly worse 2: Worse, 3: Same, 4: Improved 5: Markedly improved? Each patient then underwent a physical exam including a POP-Q.

Results: Eighty-one patients underwent a mesh augmented repair during the 18 month period. Thirty-seven patients (45.6%) consented to return for this study, and were included in the analysis. The mean age at the time of surgery was 58 +/− 9.9 years; most were Caucasian (84%), post-menopausal (84%) and did not have a hysterectomy prior to reconstructive surgery (68%). The average length of follow-up was 25 +/− 6 months. Five patients underwent an anterior mesh augmented repair only, 7 patients had a posterior mesh augmented repair only, and 25 patients had a combined anterior and posterior mesh augmented repair. The median POP-Q points for the anterior compartment (Ba), pre-operatively, 3 months post-op and 2 year post-op were: +1, −3, −2 respectively; for the posterior compartment (Bp) they were: −2, −3, −3 respectively; and for the vaginal apex (C) they were: −5, −7.5, −6 respectively. The median pre-operative and 2 year post-operative PFDI scores were: 239.2 and 26.5, respectively. The median pre-operative and 2 year post-operative PFIQ scores were: 152.2 and 4.8, respectively. The median score for the PISQ−12 two years post-operative was 27.1. There was no pre-operative PISQ−12 to compare and eleven out of thirty seven patients were not sexually active at time of 2 year follow-up. There were 2 subjects who underwent additional surgery for recurrent prolapse during the 2 year follow-up period. There was one mesh erosion at the 2 year follow-up visit. Eighty-four percent said they would have the surgery again and 95% would recommend the surgery to a friend. The median score for satisfaction was 5: markedly improved. Those subjects with recurrent prolapse (defined as Point Ba, Bp or C > -1) were more likely to have had previous urogynecology surgery ($p = 0.042$); nothing else was associated with surgical failure. Of the forty four patients who did not participate in this study, 21 were reached by phone; none of these patients underwent additional surgery for recurrent prolapse; 20 stated they would have the surgery again and would recommend it to a friend.

Conclusion: There was overall improvement in quality of life and outcome variables 2 year post-operative, following mesh augmented vaginal reconstruction. Most patients stated they would have the procedure again, would recommend it to a friend and in terms of their prolapse considered themselves markedly improved.

Key Words: prolapse, quality of life, mesh, vaginal reconstructive surgery, pop-q

Disclosure - Honorarium: Boston Scientific, Consulting, speaking and teaching, Bard, Consulting, speaking and teaching, Pfizer, Speaking and teaching.

21

IMPACT OF ABDOMINAL SACRAL COLPOPERINEOPEXY ON DEFECATORY DYSFUNCTION

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Objectives: To determine the impact of abdominal sacral colpoperineopexy on defecatory dysfunction symptoms.

Materials and Methods: This is a retrospective cohort study of abdominal sacral colpoperineopexies (ASCPs) performed between 2001 and 2005 at the Johns Hopkins Bayview Medical Center. IRB approval was obtained. ASCPs were identified using CPT codes and confirmed by individual record review. We included abdominal sacral colpopexies (ASC) if the posterior colpopexy graft was attached to a graft placed vaginally for rectocele repair. We excluded women with neurological conditions that could affect defecatory dysfunction. The outcomes of interest included defecatory dysfunction and other colorectal symptoms investigated using the Colorectal-Anal Distress Inventory (CRADI) scale of the Pelvic Floor Distress Inventory 20 (PFDI−20). Specifically, patients were contacted postoperatively and asked to complete a mailed questionnaire that included the PFDI−20. Results were compared to preoperative questionnaires. Overall satisfaction was assessed with a single question, "Were you satisfied

with your surgery?" Descriptive statistics were computed using standard methods for means, medians and proportions.

Results: The study population includes 38 women (36 who underwent ASCP and 2 who underwent ASC and a posterior repair with mesh). Ten patients had concurrent rectopexy (14%) and 6 had a sigmoid resection (12%). At the time of surgery, the median age was 60 years (31 to 85) and median body mass index was 24.5 kg/m2 (20.1 to 33.5). Prolapse beyond the hymen was noted in 31 (82%) cases. Preoperative defecatory dysfunction was reported by 25 of 27 women completing questionnaires (93%), including 21 with splinting, 15 with straining and 23 with incomplete evacuation. Twenty-six women (68%) completed the postoperative questionnaire 35 to 90 months after surgery (median 65). There were no significant differences between those who did and those who did not respond to our post-operative survey with respect to age, BMI, or pre-operative defecatory symptoms. Of 19 women who completed a questionnaire both before and after surgery, 18 reported defecatory dysfunction before surgery. Among those 18 women, only 2 reported no defecatory dysfunction after surgery (11%; 95% CI 0%, 25.5%). Satisfaction with the surgical outcome was reported by 17/23 (74%; 95% CI 56%, 92%).

Conclusion: In this population, ASCP was unlikely to relieve all defecatory dysfunction symptoms. However, most patients reported satisfaction with the outcome of this surgery. This likely reflects the achievement of other surgical goals, including relief of symptoms of pelvic organ prolapse or restoring anatomy. Thus, ASCP may be useful for correcting pelvic support but may be suboptimal for eliminating defecatory dysfunction symptoms.

Key Words: prolapse, defecatory dysfunction, abdominal sacral colpoperineopexy, colorectal, perineal descent

Disclosure - Nothing to disclose.

22

RISK OF MESH EROSION AFTER ABDOMINAL SACROCOLPOPEXY WITH CONCOMITANT HYSTERECTOMY

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Objectives: The purpose of this study was to evaluate the effect of concomitant hysterectomy at the time of abdominal sacrocolpopexy on the risk of mesh erosion with the use of type 1 polypropylene mesh.

Materials and Methods: This was a retrospective case control study. All cases of vaginal mesh erosion after abdominal sacrocolpopexy diagnosed between October 2003 and May 2007 (n = 31) were identified and compared to matched controls (n = 93) in a 3:1 ratio. Cases and controls were matched for age, menopausal state, use of hormone therapy, diabetes mellitus status, smoking status, and abdominal-vaginal rectocele repair. Demographic data, concomitant procedures and postoperative complications were also compared between groups using 2-sample Student t test for continuous data and Pearson Chi-square test for categorical data.

Results: The odds of a vaginal mesh erosion was no different for those undergoing a hysterectomy at the time of abdominal sacrocolpopexy (odds ratio 0.95; 95% CI, 0.41, 2.18; P = 0.899) when potential confounders were similar between groups.

Conclusion: Hysterectomy at the time of abdominal sacrocolpopexy is not a risk factor for vaginal mesh erosion with the use of type 1 polypropylene mesh.

Key Words: mesh erosion, hysterectomy, abdominal sacrocolpopexy, polypropylene mesh

Disclosure - Nothing to disclose.

23

ONE YEAR OUTCOMES OF TENSION-FREE VAGINAL TAPE SLINGS IN OVERWEIGHT AND OBESE WOMEN

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Objectives: To assess the potential relationship between body mass index (BMI) and lower urinary tract symptoms, patient satisfaction and complications one year following tension-free vaginal tape (TVT) sling surgery for stress urinary incontinence.

Materials and Methods: Outcome data for women undergoing a TVT sling procedure between January 2001 and June 2005 were accessed from a genitourinary outcomes database. Measures included the Urogenital Distress Inventory (UDI−6) and Incontinence Impact Questionnaire (IIQ−7) at baseline and 1 year after surgery and a validated Patient Satisfaction Question (PSQ) one year post operation. A total of 195 of 484 (48.5%) patients returned the questionnaires. Chart review was performed to obtain demographic data, medical co-morbidities, previous pelvic surgery history, pelvic organ prolapse quantification (POP-Q), urodynamic parameters and concurrent surgery. Stress or urge incontinence were defined as answering "moderately" or "greatly" on either the stress or urge question subsets of the UDI−6. Total UDI−6 and IIQ−7 scores and patient satisfaction rates were also evaluated. BMI classes were defined using the World Health Organization definitions. Multivariable logistic and linear regression assessed for an association between BMI and success of the procedure. Baseline severity, diabetes, and Valsalva leak point pressure at maximal cystometric capacity were considered potential confounding variables among the three groups and were controlled for in the analysis.

Results: There were 68 normal weight women, 65 overweight women and 62 obese women included. The mean ages were 60.8 ± 13.8 (normal weight), 61.1 ± 11.0 years (overweight) and 56.7 ± 12.1 years (obese women). All outcomes demonstrated significant improvements within each BMI group (Table), but no differences were found in symptom improvement among the three groups (stress incontinence P = 0.91, irritative symptoms P = 0.95, total UDI−6 P = 0.22, total IIQ−7 P = 0.17). Complication rates were low, with the most common being short-term urinary retention (lasting <6 weeks). A total of 4 patients (normal weight N = 2, overweight N = 1, and obese N = 1) had long-term urinary retention. Patient satisfaction was overall high with the TVT sling and was not significantly different among the BMI groups (P = 0.98).

Conclusion: There was no significant difference among the 3 BMI subgroups in urinary symptom distress, impact and patient satisfaction 1 year post surgery for SUI. This may be useful information when counseling our obese patients prior to undergoing a TVT sling procedure for stress incontinence.

Key Words: Obesity, Urinary Incontinence, TVT sling

Disclosure - Nothing to disclose.

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VAGINAL SACRAL COLPOPEXY

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Objectives: A vaginal technique is described combining the single apical fixation point of sacral colpopexy with tension-free coverage of anterior and posterior compartments extending to the urethrovesical junction and the perineal body respectively.

Materials and Methods: IRB approval was obtained to study a technique enabling transvaginal retroperitoneal dissection to the sacrum under laparoscopic control. Using this, sacral colpopexy was performed vaginally. Anterior and posterior compartment coverage with polypropylene graft (Gynemesh PS) was individualized. Coverage could extend from sidewall to sidewall and to the urethrovesical junction anteriorly and the perineal body posteriorly. No fixation sutures were used in the vagina. Patients with apical prolapse (>stage 1) were selected for the surgery. Primary endpoints are pelvic support using POP-Q measurements and validated QOL instruments (PFIQ−7 and PFDI−20).

Results: Between 8/2007 and 8/2008, sixteen patients were enrolled in the study. Two procedures were abandoned during laparoscopic adhesiolysis because of bleeding and colon injury. A vaginal sacral colpopexy was completed in the remaining fourteen patients. The average operating time was 3h 26m. The average estimated blood loss was 130 ml. There were no wound infections and no transfusions. No patients have experienced pelvic pain or dyspareunia. A small erosion in the anterior vagina occurred in one patient. This was successfully treated conservatively. Eight patients have been evaluated for at least three months following surgery. One patient had an anterior failure (Aa +1). Preoperatively, she had vaginal procidentia and now has a good overall result with point C improving from +10 to −10. She is not symptomatic from the recurrent cystocele. The quality of life instruments reveal universal improvement.

Conclusion: A technique enabling performance of a vaginal sacral colpopexy under laparoscopic control is being developed. The graft can be easily visualized through the peritoneum, flat against the pelvic sidewall, assuring that it is not under tension. Because there is no fixation between the graft and the vagina, there is less likelihood of creating vaginal tension points. The ability to cover broad areas of both anterior and posterior compartments enables support to be distributed over larger surface areas. All of these features may result in a lower incidence of graft erosion, pelvic pain and recurrent prolapse. The technique is still evolving. The first three cases utilized laparoscopic suture fixation of the graft to the presacral fascia. Currently, helical tacks are being used transvaginally. While the peritoneum overlying the sacral promontory is opened to aid exposure of the fascia and identification of the middle sacral vessels, techniques and instruments are being developed that will enable the entire procedure to be performed retroperitoneally.

Key Words: sacral colpopexy, apical prolapse, vaginal vault prolapse

Disclosure - Nothing to disclose.

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MRI-BASED 3-D MODEL OF ANTERIOR VAGINAL WALL POSITION AT REST AND MAXIMAL STRAIN IN WOMEN WITH AND WITHOUT PROLAPSE: A PILOT STUDY INVESTIGATING "WHAT REALLY OCCURS"

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Objectives: Data from 2-D mid-sagittal MR imaging during Valsalva demonstrates that both apical support and vaginal length contribute to anterior vaginal wall prolapse. Objective information is still lacking on the role played by paravaginal defects between the vagina and arcus tendineous fascia pelvis (ATFP) and the degree of transverse vaginal stretching. The aim of this study was to develop a 3-D technique to study the vagina and its relationship to the pelvic sidewall at rest and maximal Valsalva and to report preliminary findings.

Materials and Methods: Five symptomatic women with anterior vaginal wall prolapse and five asymptomatic women with normal support were recruited from an ongoing study. Supine, multi-planar MR imaging of the pelvis was performed at rest and maximal Valsalva with gel in the vagina to delineate the lateral sulci. 3-D reconstructions of the pelvic bones and anterior vagina at rest and during Valsalva were created using 3-D Slicer (Slicer2). The pelvic bones of resting and Valsalva scans for each subject were aligned to allow direct comparison of vaginal position. A line representing the normal ATFP location was constructed from the inferior pubic bone to the ischial spine to allow assessment of vaginal position relative to this landmark.

Results: With Valsalva the vaginal apex descended in women both with and without prolapse. In women with prolapse several other phenomena were also visible: (a) the vagina moved downward along its length, increasing the vertical distance between the lateral sulci and normal ATFP; (b) the degree of apical descent allowed the lower vagina to slide below the introitus where it was no longer in contact with the perineal body; (c) the distal portion of the vagina not supported by the levator ani exhibited evidence of "cupping" with a modest increase in transverse diameter (Fig. 1); (d) the vagina above this portion where it was in contact with the posterior wall did not reveal any transverse stretching;

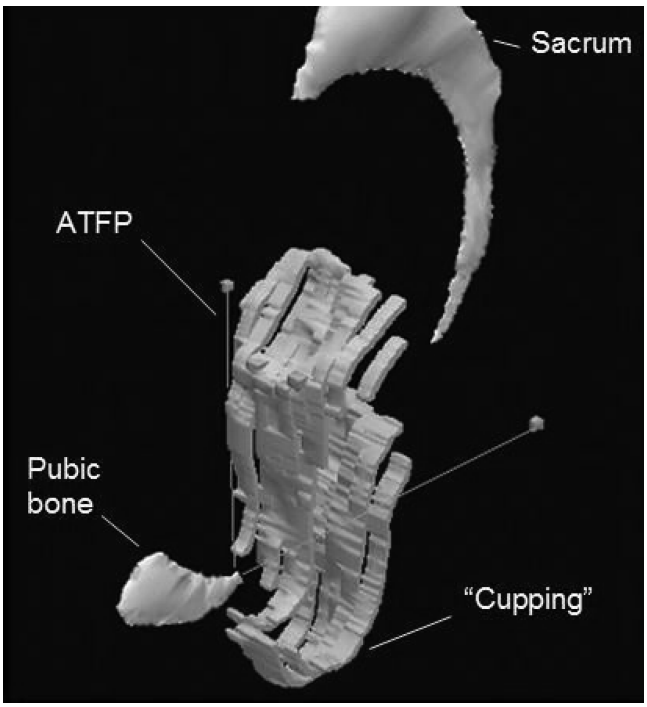

FIGURE 1. Oblique 3-D model illustrating distal vaginal "cupping." Vaginal wall is modeled with sagittal strips for accuracy. Vagina is shown at rest (pink) and during Valsalva (blue). Also shown are cervicovaginal junction (purple), ATFP (green, with the ischial spines as cubes); and mid-sagittal pubic bone and sacrum (white).

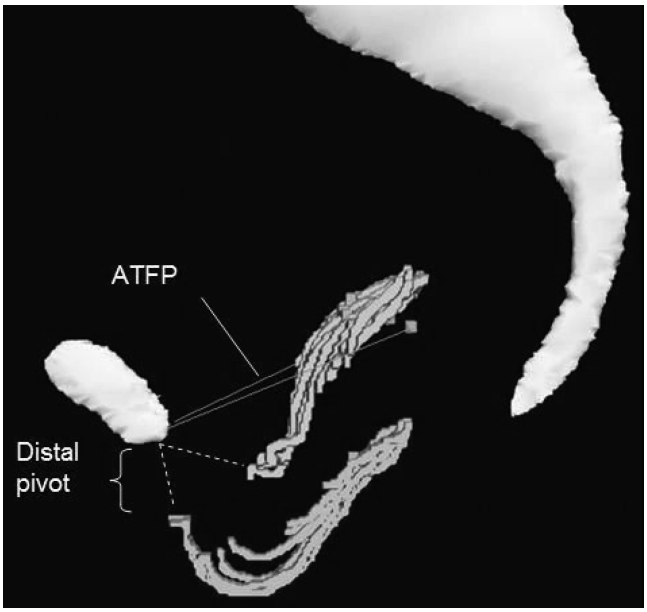

FIGURE 2. Sagittal 3-D model illustrating the relationship of the vagina to the ATFP and distal vaginal "pivot" around inferior pubis.

and (e) the distal end of the vagina appears to rotate downward along an arc centered on the inferior pubis (Fig. 2).

Conclusion: This novel technique allows objective analysis of vaginal position during Valsalva in women both with and without prolapse. This demonstrates additional processes which could contribute to cystocele size and severity - not only the change in relationship between the vagina and pelvic sidewall with increased vertical distance from the normal ATFP, but also the distension and "cupping" of the unsupported distal wall, and the mobility inferior to the pubic bone.

Key Words: pelvic organ prolapse, MRI, anterior vagina, 3-D model, biomechanics

Disclosure - Nothing to disclose.

26

OUTCOMES OF REVISION PERINEOPLASTY FOR PERSISTENT POSTPARTUM DYSPAREUNIA

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Objectives: To determine outcomes of revision perineoplasty for women with persistent pain and anatomic distortion of the vagina and perineum following obstetric perineal laceration repair.

Materials and Methods: A prospective cohort study of women who underwent revision perineoplasty by a urogynecologist for persistent dyspareunia and perineal scarring between January 2005 and January 2008 was performed. Demographic data, obstetric history, time from delivery to revision, and number of practitioner visits prior to referral were recorded. Variables such as perineal pain (graded on a scale from 0−10), frequency of coital activity, dyspareunia, impact on relationships and self-esteem, vaginal scarring and distortion, and granulation tissue were compared pre- and 3 months post-operatively by an independent investigator. Statistically analysis was performed using paired t-tests with a p-value $<.05$ was considered significant.

Results: Nine women were included in this analysis. Eighty-nine percent were Caucasian and primiparous and mean age was 30 ± 6.5 years. Mode of delivery included 6 spontaneous, 2 vacuum-, and 1 forceps-assisted, and the degree of perineal laceration assigned at delivery were 7 second-degree tears, 1 third-degree, and 1 fourth-degree. No subject experienced dyspareunia prior to delivery. The average number of practitioner visits for complaints of perineal pain/dyspareunia prior to specialist referral was 2.9 ± 1.5. Frequency of intercourse was reported as none, 1−2 times/month, and 1−2 times per week by 3, 2, and 4 women, respectively. Greater than 50% reported a displeasure in vaginal appearance, decline in self-esteem, negative impact on personal relationships, impaired social activities, and ability to perform all required activities of daily living. All women had evidence of asymmetric perineal scarring and distortion of the perineal body prior to surgical revision. The mean time from delivery to revision was 9.6 ± 14.6 months. Post-operatively, no woman had persistent scarring or granulation tissue. There was a significant decline in perineal pain and dyspareunia (maximum score = 10) from 6.1 ± 2.89 to 0.5 ± 1.13 ($p = .02$) and 89% of subjects reported an increase in coital frequency and satisfaction ($p = .0002$). An improvement in self-esteem and lifestyle were reported by 77% and 89%, respectively.

Conclusion: In women with perineal scarring and poor healing following perineal laceration repair, early consideration should be made for revision perineoplasty as a significantly positive impact is noted on sexual function and quality of life.

Key Words: dyspareunia, perineoplasty, postpartum

Disclosure - Nothing to disclose.

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WOMEN'S PERCEPTION OF THEIR BODY IMAGE PREDICT SEXUAL ACTIVITY REGARDLESS OF VAGINAL TOPOGRAPHY

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Objectives: Over 1/3 of women with symptomatic pelvic organ prolapse (POP) are not sexually active secondary to POP, and women seeking treatment for advanced POP report decreased self-perceived body image and quality of life. Since body image relates to sexual function, the relationship between sexual function and POP may be related to the effect of POP on body image. The aim of our study was to determine in women with POP the relationship between: (1) sexual function and self-perceived body image; (2) sexual function and POP; and (3) self-perceived body image and POP.

Materials and Methods: After IRB approval, consecutive women with > stage II POP presenting for urogynecologic care at one of 8 academic medical centers in the US were invited to participate. In addition to routine urogynecologic history and physical examination, including Pelvic Organ Prolapse Quantification (POPQ), consenting participants completed, three validated questionnaires: Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ−12) to assess sexual function Lower PISQ scores = More sexual dysfunction

Modified Body Image Perception Scale (MBIS) to assess self-perceived body image Higher MBIS scores = Lower body image perception; and POP subscale of Pelvic Floor Distress Inventory−20 (POPDI−6) to assess condition specific bother from POP. Higher POPDI−6 scores = More bother from POP. Pearson's correlations were used to investigate the relationship between independent variables. Logistic regression was used to evaluate independent predictors for sexual activity. In the final model we included all statistically and clinically significant variables, ie: age, BMI, marital status, prior POP and incontinence surgery, prior hysterectomy, heart disease, hypertension, menopause, total MBIS and POPDI scores, POP-Q stage.

Results: 384 women with a mean age of 62 ± 12 years participated. The majority were Caucasian (90%). Median POPQ stage was 3 (range 2−4). 62% (N = 241) were sexually active, and 77% (304) were post-menopausal. Mean PISQ−12, MBIS, and POPDI scores were (33 ± 7, 6±−5, 39±23, respectively). In multivariable modeling, MBIS independently predicted sexual activity; for every 1 unit increase in MBIS score, the odds of a woman being sexually active decreased by 7% (OR = .93, C.I .87-.99). PISQ−12 scores were not related to POP stage (P = .93) or leading edge of POP in any vaginal compartment [Ap (anterior), Bp (posterior), and C (apex), P > 0.3)]. PISQ−12 scores inversely correlated with both MBIS (rho = -.39, P < 0001) and POPDI scores (rho = -.34, P < 0001); sexual dysfunction correlated with poorer body image and more bother from POP. MBIS scores correlated with POPDI (rho = .37, P < 0001), but were not associated with POP stage (P > 0.05); Lower body image correlated with greater bother from POP.

Conclusion: Sexual function is related to a woman's self-perceived body image and degree of bother from POP regardless of vaginal topography. Sexual function may be more related to a woman's perception of her body image than to actual topographical differences in POP, suggesting treatments should be broader than just anatomical correction of POP.

Key Words: Pelvic organ prolapse, Sexual function, Body image

Disclosure - Nothing to disclose.

28

SACROSPINOUS VAGINAL VAULT SUSPENSION: ASSESSMENT OF ANATOMIC POSITION OF ANCHORING SUTURE IN A HUMAN CADAVER STUDY

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Objectives: Sacrospinous vaginal vault suspension is an accepted procedure for vaginal vault suspension for treatment of apical prolapse. The vaginally placed sutures are in close proximity to the adjacent Pudendal vessels and nerves, placing them at risk of injury. Using the ischial spine as an anatomical landmark we have consistently targeted to place the sacrospinous suspension suture 1 centimeter medial to the palpated ischial spine. We have encountered scant to no bleeding with no nerve entrapment using this reproducible method. The purpose of this study was to identify the anatomical relationship, using a cadaver study, between the position of the anchoring sacrospinous suture placed 1 centimeter medially from the spine into the ligament, and the Pudendal nerve-vessel bundle.

Materials and Methods: Six fresh frozen cadavers were utilized for the study. Three operators performed the dissections and measurements. Consistent with our usual practice, an anterior sacrospinous suspension technique was used to approach the sacrospinous ligament through a vertical anterior vaginal incision and dissection of a paravaginal and paravesical space. The sacrospinous ligament was reached from an anterior approach and identified by palpation with minimal dissection. The sacrospinous anchoring sutures were placed 1 centimeter medial to the ischial spine, using a 'push-and-catch' suturing device (Capio). The sacrospinous ligament and surrounding vessels were then abdominally dissected. Measurements recorded included the distance between the ischial spine and the anchoring suture, the distance between the suture and the Pudendal nerve-vessels bundle, and the depth of penetration into the sacrospinous ligament for each anchoring suture in each cadaver.

Results: In two cadavers the anchoring suture was placed on the right and in the remaining, the sutures were placed on the cadaver's left side. In all six cadavers the anchoring suture was placed 0.9−1.1 cm medial to the ischial spine into the sacrospinous ligament. The sutures were all delivered using the Capio device and their depth ranged from 0.3 to 0.4 cm into the sacrospinous ligament. Distances from the Pudendal nerve and vessels were 1.5, 1.8, 2.0, 2.0, 2.2 and 2.5 centimeter to the anchoring sutures in the sacrospinous ligament.

Conclusion: This cadaver study indicates that bilaterally, the anchoring suture was placed at least 1.5 cm away from the Pudendal nerve and vessels, providing a reproducible and reliable window of anatomic safety. The sacrospinous ligament is a prominent, easily palpated and vaginally accessible pelvic landmark, which allows for consistent, reproducible and precise placement of anchoring sutures for apical vaginal vault suspension.

Key Words: sacrospinous ligament, apical suspension, ischial spine, apical prolapse, anatomic cadaver study, pudendal nerve

Disclosure - Nothing to disclose.

29

THE IMPACT OF TENSION FREE VAGINAL TAPE COMBINED WITH SITE-SPECIFIC PELVIC RECONSTRUCTIVE SURGERY ON QUALITY OF LIFE AND SEXUAL FUNCTION

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Objectives: To assess the impact of combined vaginal sling with site specific pelvic floor reconstructive surgery on sexual function and quality of life as measured by the Incontinence Impact Questionnaire (ILQ−7), Urogenital Distress Inventory (UDI−6) and Index of Female Sexual Function (IFSF).

Materials and Methods: Consecutive patients presenting to a urogynecology center with stress urinary incontinence and pelvic organ prolapse undergoing surgery were prospectively evaluated. Preoperative assessment included a comprehensive history and physical exam, pelvic organ prolapse quantitation (POP-Q), multi-channel cystometrics, and three validated quality of life questionnaires (ILQ−7, UDI−6 and IFSF). Operative management included a tension free vaginal tape (TVT) sling along with the appropriate site-specific repair. Patients then completed the ILQ−7, UDI−6 and IFSF at their 8 week and most recent post-operative visits. Preoperative and

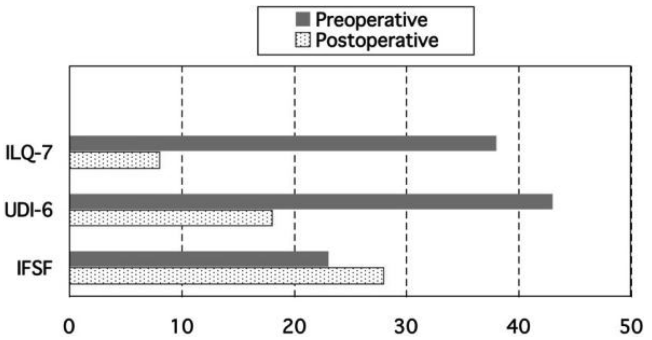
postoperative scores on all 3 questionnaires were compared. Composite scores were translated to a scale of 0 to 100. Results were analyzed using the Wilcoxon matched-pairs signed-rank test and Spearman's rank correlation.

Results: Twenty-six patients met inclusion criteria for the study and 24 patients completed the questionnaires at a mean follow up of 4 months (range 2−9 months) post-operatively. Concomitant procedures included 87% anterior and posterior repair, 35% sacrospinous ligament fixation, and 17% paravaginal repair. Of those patients who completed the study, there was a significant improvement in ILQ−7 scores (mean 38 vs. 8 $p < 0.005$) as well as ILQ subcategories of physical activity, emotional health and social activity). Total mean scores on UDI−6 improved significantly (mean 43 vs. 18 $p < 0.005$) as well as subcategories of obstruction, stress and urge scores. The change in sexual function did not meet significance however the scores were improved (23 to 28), with the greatest improvement in satisfaction and sensitivity. Specific concomitant procedures did not significantly impact the quality of life scores.

Conclusion: Quality of life as measured by standardized questionnaires improved significantly in patients who underwent TVT along with site-specific pelvic reconstruction. Individual concomitant procedures did not deter from the improvement in quality of life. Sexual function did not significantly change but trended toward improvement regardless of concomitant procedure performed with the TVT.

Key Words: sexual function, Stress urinary incontinence, Tension free vaginal tape, quality of life, pelvic reconstructive surgery

Disclosure - Nothing to disclose.



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PELVIC ORGAN PROLAPSE QUANTIFICATION SYSTEM: ADOPTION TREND IN SPECIALIZED JOURNALS (2004−2007)

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Objectives: To evaluate the utilization of the Pelvic Organ Prolapse Quantification System (POPQ) in comparison to other pelvic organ prolapse (POP) reporting systems in 2004 and 2007 in Urogynecology, Urology and Gynecology journals.

Materials and Methods: Two independent reviewers searched full text articles published in 2004 and 2007 from the following specialized journals: AJOG, BJOG, BJU International, International Urogynecology Journal, Journal of Urology, Neurourology and Urodynamics, Obstetrics & Gynecology, Urology. Articles were included if an attempt to grade POP by any method was mentioned. Reviews, editorials and articles only in abstract format were excluded. Methods for POP description were categorized as POPQ, Baden-Walker (BW), other defined systems and not specified systems (NS), which is when a grade or stage was mentioned but no system was defined. Other information included article's country of origin, journal and first author's specialty, article's focus (i.e. imaging studies, quality of life, surgical technique, case report). Significance was determined at $p = 0.05$ using Chi-square test.

Results: 163 articles met inclusion criteria. POPQ use significantly increased between 2004 and 2007 from 64.9% to 82.1% ($p = 0.01$) while the use of other systems decreased (BW, 17.5 to 14.2%; other systems, 5.3% to 2.8% and not specified systems, 17.5% to 8.5%). POPQ was used in 82% of the articles originating in the US, 70% of European articles and 65% of articles from other areas of the world. Articles authored by urologists used POPQ less frequently (53%) than gynecologists and urogynecologists (77−82%) and used BW more often. Urology journals were less likely to use POPQ (57%) compared to Ob/Gyn and Urogynecology journals (78−82%). Journals from POPQ endorsing institutions used POPQ in 80% of their articles compared to 67% of other journals. Case reports were more likely to use NS systems (26%) than other articles (9%) and less likely to use POPQ. All articles reporting MRI used POPQ compared to 75% of other types of articles. Articles reporting sexual function were more likely to use POPQ (90%) than other types of articles (75%).

Conclusion: Adoption of POPQ in the literature has significantly increased from 64.9% in 2004 to 82.1% of the articles in 2007. This is in line with the trend observed from 1999 to 2002 (13.3% to 28%) by a prior similar study. A marked decrease in NS systems was noted. Use of POPQ is greater in journals endorsed by the institutions that developed it and in articles originated in the US. Use of POPQ is less frequent in articles from Urology journals and those 1st-authored by urologists, nonetheless, from 2004 to 2007, the use of POPQ increased in all subgroups studied, showing that this system has been adopted as the universal scientific language of the field.

Key Words: prolapse, POPQ, quantification, system

Disclosure - Nothing to disclose.

31

A NEW ELECTROSURGICAL INSTRUMENT SPECIFICALLY DESIGNED FOR USE DURING ABDOMINAL (OPEN) HYSTERECTOMY

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Objectives: This clinical trial was performed to demonstrate the safety and efficacy of a new electrosurgical instrument specifically designed to reduce operative time during the performance of abdominal (open) hysterectomy.

Materials and Methods: While superior to clamps and suture in operative time reduction and blood loss, currently available electrosurgical instruments are capable of sealing and dividing only very short lengths of tissue per application. The electrosurgical instrument evaluated in this clinical trial allows the surgeon to rapidly seal and divide lengths of tissue ranging from 1.0cm to 12.0cm of tissue per instrument application. The instrument was designed to seal and divide the broad ligaments, round ligaments, infundibulopelvic ligaments, fallopian tubes, uterine vessels, and uterosacral ligaments. Thus, with exception of transection of the uterus from the vagina or cervix, the investigational instrument was designed to seal and divide

all other tissue structures transected during the performance of a routine abdominal (open) hysterectomy. The surgeon simply determines the length of tissues appropriate for transection per instrument application, and no measuring by the surgeon is required. The surgeon places the selected tissues, which can range in length from 1.0cm to 12.0cm, and which can include any or all of the aforementioned ligaments and vessels, within the instrument jaws. The jaws are closed, and the surgeon initiates radiofrequency energy delivery via a foot pedal, rapidly sealing the selected tissues. The system generator controls energy delivery, indicating completion of tissue sealing via an auditory signal. Next, the surgeon rapidly and easily divides the sealed tissue using a mechanical blade actuator on the instrument handle. The jaws are opened via a button on the instrument handle, and the instrument is removed. Ten women underwent elective abdominal hysterectomy for benign indications. The study instrument was used to seal and divide all broad, round, and infundibulopelvic ligaments, fallopian tubes, uterine vessels, and uterosacral ligaments in all study subjects.

Results: Mean subject age was 43 years (range 34 to 53), and mean subject BMI was 35 (range 27 to 47). Mean unilateral target tissue length was 10cm (range 6 to 23, the maximum in a subject with a 20-week size uterus). Mean time for complete bilateral target tissue sealing and division was 2 minutes 5 seconds (range 1 minute 15 seconds to 3 minutes 30 seconds). Mean total number of instrument applications was 4.8 (range 4 to 7). There were no device-related adverse events during the procedure or the 30 day follow up period.

Conclusion: The investigational electrosurgical instrument safely and effectively sealed and divided all targeted ligamentous and vascular tissues in all study subjects. The rapid completion of safe transection of all ligamentous and vascular tissues suggests that this new electrosurgical instrument may allow for operative time reduction during abdominal (open) hysterectomy.

Key Words: hysterectomy, abdominal, electrosurgical

Disclosure - Nothing to disclose.

32

PROSPECTIVE RANDOMIZED TRIAL OF ILIOHYPOGASTRIC-ILIOINGUINAL NERVE BLOCK ON POST-OPERATIVE MORPHINE USE AFTER INPATIENT SURGERY OF THE FEMALE REPRODUCTIVE TRACT

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Objectives: To determine the impact of pre-operative and intra-operative ilioinguinal and iliohypogastric nerve block on post-operative analgesic utilization and length of stay (LOS).

Materials and Methods: We conducted a prospective randomized double-blind placebo controlled trial to assess effectiveness of ilioinguinal-iliohypogastric nerve block (IINB) on post-operative morphine consumption in female study patients (n = 60). Patients undergoing laparotomy via Pfannensteil incision received injection of either 0.5% bupivacaine + 5mcg/ml epinephrine for IINB (Group I, n = 28) or saline of equivalent volume given to the same site (Group II, n = 32). All injections were placed before the skin incision and after closure of rectus fascia via direct infiltration. Measured outcomes were post-operative morphine consumption (and associated side-effects), visual analogue pain scores, and hospital length of stay (LOS).

Results: No difference in morphine use was observed between the two groups (47.3mg in Group I vs. 45.9mg in Group II; p = 0.85). There was a trend toward lower pain scores after surgery in Group I, but this was not statistically significant. The mean time to initiate oral narcotics was also similar, 23.3h in Group I and 22.8h in Group II (p = 0.7). LOS was somewhat shorter in Group I compared to Group II, but this difference was not statistically significant (p = 0.8). Side effects occurred with similar frequency in both study groups.

Conclusion: In this population of patients undergoing inpatient surgery of the female reproductive tract, utilization of post-operative narcotics was not significantly influenced by IINB. Pain scores and LOS were also apparently unaffected by IINB, indicating a need for additional properly controlled prospective studies to identify alternative methods to optimize post-surgical pain management and reduce LOS.

Key Words: pain, gynecology, Ilioinguinal, iliohypogastric, nerve block, post-operative

Disclosure - Nothing to disclose.

33

DECLINE IN URETHRAL SPHINCTER NEUROMUSCULAR FUNCTION DURING PREGNANCY PERSISTS AFTER DELIVERY

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Objectives: To assess the effect of pregnancy and first vaginal delivery on urethral striated sphincter neuromuscular function.

Materials and Methods: Quantitative electromyographic (QEMG) interference pattern analysis was performed on concentric needle EMG recordings from one suprameatal site in the urethral sphincter of 23 normal nulliparas and 31 third trimester primigravidas who later underwent term vaginal delivery. These assessments were repeated at 6 weeks and 6 months following delivery. Mean motor unit parameters over full contraction effort were compared in nulliparas and primigravidas before and after delivery. The 95% confidence limits were calculated for the ratio of number of turns:amplitude over the full range of muscle contraction for nulliparas, and individual primigravidas were tested for significant differences from this range. Wilcoxon rank sum and signed rank tests were used where appropriate.

Results: Nulliparas and primigravidas were similar in age (mean 28 vs. 29.5 yrs). Nine (39%) of the nulliparas were Caucasian vs. 20 (65%) primigravidas. Mean BMI differed appropriately due to pregnancy (25.6 vs. 28.9 kg/m2). Mean neonatal weight was 3330 ± 534 g and the mean duration of second stage of labor 75 ± 48 min. Mean motor unit parameters in the primigravidas were significantly lower than those of the nulliparas even before delivery, with decreased number of turns, lower amplitude, and less activity. Because of the greater absolute decrease in number of turns relative to the decrease in amplitude, the turns:amplitude ratio in primigravidas was also significantly less than the normal nullipara range in 20/31 subjects. The only significant change at 6 months post partum was a further decline in the number of turns resulting in a

further decrease in turns:amplitude. All other motor unit parameter abnormalities persisted at six months post partum and remained significantly abnormal relative to those of the nulliparas.

Conclusion: Urethral sphincter function, as assessed by QEMG, declined significantly during pregnancy and this decline persisted post partum. The pattern of EMG changes observed antepartum could be due to muscle edema and/or acute neurogenic injury, and lack of recovery after presumed resolution of any pregnancy-related edema at 6 months post partum suggests that pregnancy alone produces EMG abnormalities in the urethral striated sphincter consistent with neurogenic injury. This finding supports a physiologic impact of pregnancy itself on future risk of urinary incontinence.

Key Words: pregnancy, urethra, electromyography, neuropathy

Disclosure - Nothing to disclose.

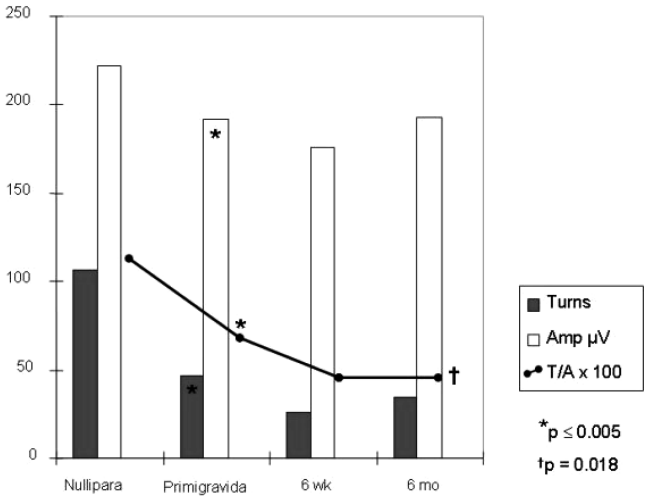

FIGURE 1. Turns, amplitude, and T/A × 100 for nulliparas and primigravidas before and after delivery. (* and † indicate level of significance)

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MATERNAL, FETAL, AND DELIVERY ASSOCIATED RISK FACTORS FOR ANAL SPHINCTER LACERATION AT THE TIME OF VAGINAL DELIVERY

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Objectives: To determine the maternal, fetal, and delivery risk factors associated with anal sphincter laceration at the time of vaginal delivery.

Materials and Methods: In this large retrospective case control study we assessed the impact of maternal, fetal, and delivery factors on the development of anal sphincter laceration (third and fourth degree perineal lacerations) at the time of vaginal delivery. There were 1049 cases (anal sphincter laceration) identified at our institution between 1997 and 2007. Controls were the next singleton, viable vertex vaginal delivery identified.

Results: The following seven variables were identified as being associated with anal sphincter laceration using univariate analysis: maternal age, nulliparity, number of previous vaginal deliveries, gestational age, infant birthweight, instrumental delivery (forceps, vacuum), and episiotomy. Multivariate stepwise regression analysis determined that the best model for anal sphincter laceration included the following five variables: nulliparity, number of previous vaginal deliveries, infant birthweight, instrumental delivery, and episiotomy. However, the coefficient of determination (r2) for this model was only 0.37. Odds ratios and confidence intervals were as follows: nulliparity 9.47, 7.69 − 11.65; instrumental delivery 18.69, 11.77 − 29.69; episiotomy 5.68, 3.42 − 9.43. Infant birthweight greater than the overall mean (3176 grams) resulted in an odds ratio of 2.09, 1.72 − 2.54.

Conclusion: Although there are a number of independent maternal, fetal, and delivery factors that can be identified as having significant and in some cases, sizeable risk associated with them for anal sphincter laceration at the time of vaginal delivery, these factors only account for 37% of the variation in sphincter injury with our model. Although we did not look at the impact of other potential factors such as epidural anesthesia, length of second stage of labor, or fetal position it is surprising that the model developed with the most recognized risk factors for injury accounted for just over a third of the variation in injury. Therefore, there appear to be other unidentified and perhaps un-measurable factors that are also associated with anal sphincter injury. These may include factors such as maternal expulsive efforts, elasticity of the maternal perineum, fetal adaptation to the soft tissue of the pelvis, experience and skill of the birth attendant, among others. Further research into these other potential factors is needed.

Key Words: anal sphincter, risk factors, vaginal delivery

Disclosure - Nothing to disclose.

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COMPARISON OF TRANSVAGINAL ANTERIOR MESH SYSTEMS FOR SUPPORT OF ANTERIOR AND APICAL COMPARTMENTS IN A CADAVER MODEL

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Objectives: Our objective was to compare the degree of established apical support following implantation of a sacrospinous anterior/apical transvaginal pelvic floor repair system (Pinnacle) to other available anterior/apical mesh systems (Anterior Prolift, Perigee, Anterior Avaulta Solo). We hypothesized that the Pinnacle system would provide a greater degree of apical support and total vaginal length supported by the mesh.

Materials and Methods: Mesh implantations, pelvic dissections, and outcome measurements were performed on 10 unembalmed female cadavers. IRB approval was not required. Demographics were available for 8 of 10 cadavers. Prior to mesh placement, measurements of the distance from the hymen to the ischial spines and total vaginal length (TVL) were documented. Static measurements of support were taken using the POP-Q system. Meshes were placed by each of the two investigators as per manufacturer's directions. All four systems were placed in random order to randomly assigned cadavers. Dissections were then done under the supervision of an anatomist. Ischial spines and sacrospinous ligaments were dissected. The bladder was dissected off the vagina, exposing the mesh. A string was held in position between the ischial spines by probes affixed to each spine. The location of the apical edge of the mesh relative to the string was measured. Measurements were "negative values" if the apex was caudal to the spines or "positive" values if cranial to the spines. The total length of anterior vaginal wall supported by mesh from the

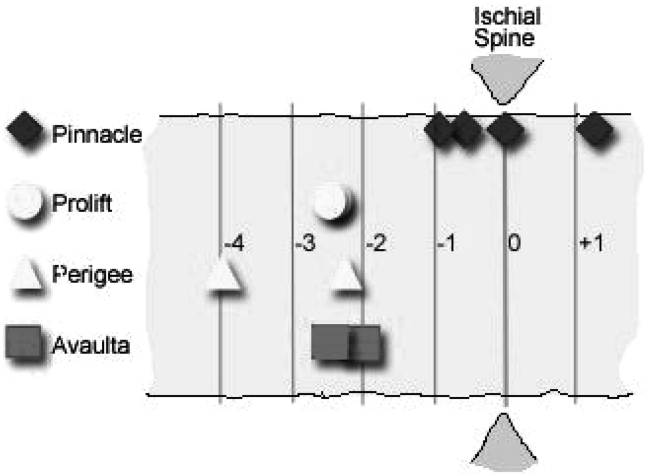
hymen to the mesh apex was determined. The percentage of TVL supported by mesh was calculated. Four cadavers with mesh secured to the sacrospinous ligament (Pinnacle) were compared to 6 cadavers with pre-spinous fixation systems (Avaulta, Prolift, Perigee). A t-test compared mean differences between outcomes for the Pinnacle versus the other devices using SAS software.

Results: Cadavers were similar for race (Caucasian), age (67 y/o), and BMI (25). Mean TVL was 7.4cm. Point Aa averaged of −1.3cm. Average stage of static support was Stage 1. Distance from hymen to ischial spines averaged 7.2cm. The location of the mesh apex relative to the ischial spines was caudad to the spines for each individually placed pre-spinous system (average: −2.6 cm+/−0.8 cm). The Pinnacle mesh apex averaged 0.0cm+/−1.0 cm from the spines. The mean percentage of anterior vaginal wall supported by pre-spinous systems varied by manufacturer (average 66%+/−17; range 61−75%). The Pinnacle supported 91%+/−19 (range 67−111%).

Conclusion: The recent development of an anterior mesh system that utilizes the sacrospinous ligament appears to provide a suspension point closest to the level of the ischial spines. Compared to pre-spinous fixation systems, this appears to result in a greater potential to target correction of both anterior and apical compartment defects.

Key Words: prolapse, sacrospinous ligament, mesh, ischial spine

Disclosure - Honorarium: Boston Scientific, Consultant, Ethicon WHU, Preceptor; Research Grant: J&J Medical, Investigator; research Grant: Boston Scientific, Investigator; royalty: Boston Scientific, Inventor.



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RACIAL DIFFERENCES IN BOTHER DUE TO URINARY INCONTINENCE

C. Lewicky-Gaupp[1], C. Brincat[1], E. R. Trowbridge[2], J. L. DeLancey[1], K. Guire[1], D. A. Patel[1] and D. E. Fenner[1] *[1]Obstetrics and Gynecology and Pelvic Floor Research Group, University of Michigan, Ann Arbor, MI; [2]Obstetrics and Gynecology, University of Virginia, Charlottesville, VA*

Objectives: The purpose of this study was to compare differences in degree of bother in women with urinary incontinence (UI) in a population-based sample of black and white women. Specifically, we were interested in how frequency of UI episodes, quantity of urine loss and type of UI would affect bother among black and white women.

Materials and Methods: A population-based, epidemiologic research study was conducted investigating the prevalence, impact and structural mechanisms of urinary incontinence in women of southeastern Michigan. Women aged 35−64, who self-identified as black or white race, completed a telephone interview to assess their UI, as well as the Incontinence Impact Questionnaire short form (IIQ−7) to assess their bother. Women were queried about how often they lost urine and how much urine was lost during their UI episodes. Type of incontinence (mixed, stress, urge, below threshold) was determined based on a factor analysis of a 10-item questionnaire. Incontinence "below threshold" denoted women who did not reach a threshold of "often" on any of the 10 questions. Statistical analysis included 2-way analysis of variance (ANOVA) for post-hoc comparisons of IIQ−7 scores between the two races at different levels of frequency, amount and type of UI.

Results: Black women tended to have higher IIQ−7 scores at each level of incontinence frequency, with the exception of women leaking <1 time in the last 12 months. This trend was statistically significant at frequencies ranging from 1−24 times in the last 12 months (Table). Black women had higher IIQ−7 scores than white women at various quantities of urine loss as well, however, most of these differences were not statistically significant (Table). Black women with mixed and urge incontinence were significantly more bothered than white women with mixed and urge incontinence. Conversely, black and white women with below threshold and stress incontinence reported equal bother. Women with mixed incontinence had the highest bother scores regardless of race (Figure).

Conclusion: When controlling for frequency of incontinence and quantity of urine loss, black women with mixed and urge incontinence are significantly more bothered than white women. Overall, increases in frequency and amount of urinary leakage bother black women more than white women.

Key Words: urinary incontinence, race, bother

Disclosure - Nothing to disclose.

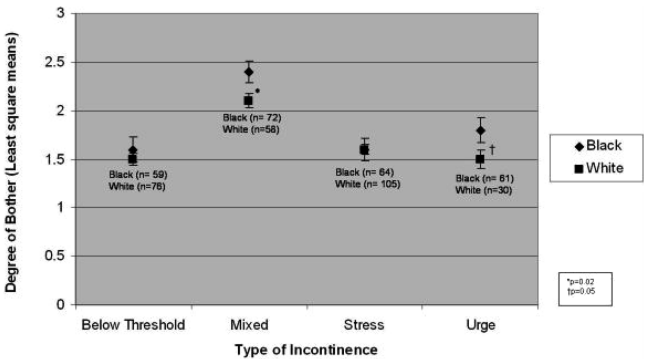

FIGURE 1. Degree of bother based on type of incontinence among black and white women.

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SYMPTOMS INFLUENCING INITIAL TREATMENT CHOICE IN WOMEN WITH PELVIC ORGAN PROLAPSE

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Objectives: Are there specific pelvic floor symptoms that are associated with the initial choice of treatment among women with pelvic organ prolapse?

Materials and Methods: 114 consecutive women presenting for initial evaluation to the Urogynecology office were included if they had pelvic organ prolapse grade 2 or greater on clinical exam and had completed validated questionnaires about their pelvic floor symptoms. Women with neurologic disease or recent pelvic surgery were excluded. All women underwent complete urogynecologic evaluations including multichannel urodynamics. Women were then educated about treatment options. Conservative therapy was defined as observation or pessary use. Women who chose surgical treatment were compared to women who chose conservative treatment. Associations between initial treatment choice, patient characteristics and pelvic floor symptoms were evaluated by univariate and multivariate logistic regression.

Results: 66 womenn(58%) initially chose conservative therapy and 48 women (42%) opted for surgical treatment. There were no differences in mean age (61+13yrs), BMI (27+5) or parity (2.6+1.5) among women initially choosing conservative treatment vs. surgery. There were no differences in the rates of co-morbidities such as HTN, DM or tobacco use on choice of treatment. There was an increasing trend of choosing surgery with increasing grade of prolapse (OR 4.0 for every increase in grade, p = .006). Women reporting at least moderate bother from pain or discomfort in the lower abdomen or genital region were also more likely to choose surgery (OR 3.1; 95% CI 1.4,6.7). Among prolapse symptoms, women reporting at least moderate bother from heaviness or dullness in the pelvic area or from having a bulge in the vaginal area were more likely to choose surgical over conservative treatment (OR 3.5; 95% CI 1.6, 7.8, OR 6.7; 95% CI 2.4,19.2). Women with incomplete bowel-emptying were more likely to choose surgery (OR 10.4 ; 95% CI 2.9,36.9) while this association was not seen in women with incomplete bladder emptying. A correlation between other bowel symptoms and choice of treatment for prolapse was not apparent. Additionally, co-existent stress or urge incontinence did not influence choice of treatment. Women who reported that their vaginal or pelvic symptoms affected their ability to do household chores or physical activities were more likely to choose surgical treatment (OR 2.5;95% CI 1.1,5.8, OR 2.3; 95% CI 1.0,5.2). However, there was no difference in choice of treatment among women who reported that symptoms affected their social or entertainment activities. No differences in the rates of sexual activity or function were seen among women initially choosing conservative treatment vs. surgery. On multivariate analysis, after controlling for age and grade of prolapse, bother from a vaginal bulge was a significant independent predictor of choosing surgical treatment (OR 6.1; 95%CI 2.1, 17.8).

Conclusion: Severe prolapse symptoms and higher grade of prolapse were associated with choosing surgical treatment. Co-existent urinary or fecal incontinence did not affect choice of treatment. Women were more likely to choose surgical treatment if their symptoms affected their ability to do physical, but not social activities.

Key Words: pelvic organ prolapse, pelvic floor symptoms, treatment choice

Disclosure - Nothing to disclose.

38

GRAFT MATERIALS IN TRANSVAGINAL PELVIC RECONSTRUCTIVE SURGERY: A SURVEY OF ATTITUDES, JUDGMENT AND PRACTICE PATTERNS AMONG GYNECOLOGIC SURGEONS ATTENDING THE SOCIETY OF GYNECOLOGIC SURGEONS ANNUAL MEETING

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Objectives: To survey gynecologic surgeons attending the annual Society of Gynecologic Surgeons Conference in Savannah, Georgia in April 2008 regarding their current practice patterns and experience with transvaginal application of graft materials in pelvic reconstructive surgery.

Materials and Methods: A survey instrument was developed and piloted prior to use. It contains 8 demographic questions, 4 questions related to practice description, 17 questions about experiences with graft materials including types, practice patterns, factors governing use, and complications. The surveys were handed out at the beginning of proceedings on April 14th and collected at the end of the day. Results were reported as percentages of respondents with Pearson's Chi-square used to test comparisons or as composite variables with non-parametric methods for comparison.

Results: Responses were obtained from 135 physicians, which represented 47% of 290 attendees. The mean respondent age was 45.5 years old. Fifty-nine (43.7%) respondents were women and 76 (56.3%) were men. Fifty-seven (42%) reported having completed a urogynecology fellowship. Ninety-six (71.1%) reported using either biologic or synthetic graft materials in vaginal reconstructive surgery. Thirty-nine (28.9%) reported using vaginally applied mesh in pelvic reconstructive surgery. There appeared to be no relationship between vaginal use of graft materials and surgeon gender ($p = 0.46$) or fellowship training ($p = 0.69$). Using a model of estimated experience, gynecologic surgeons with less vaginal graft material experience (below the median of 84 cases) were less likely to recommend its use on themselves or their spouse for a primary repair ($p < 0.0001$). Both experience groups were more likely to recommend use of vaginal graft materials in re-operations for recurrent prolapse ($p = 0.0005$). Estimates for percentages of complications based on reports of 93 surgeons with an overall estimate of 21,981 cases, ranged from 0.8% for intraoperative complications, 3.2% for scarring or contractures, 7.5% for dyspareunia, 7.8% or recurrence of stage 2 or greater prolapse, to 8.4% for re-operation.

Conclusion: Use of transvaginal graft material in pelvic reconstructive surgery in this subset of gynecologic surgeons is common. Practice patterns appear to be influenced by experience.

Key Words: pelvic organ prolapse, pelvic reconstructive surgery, polypropylene mesh, synthetic graft, biologic graft

Disclosure - Nothing to disclose.

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PREDICTORS OF OUTCOMES OF DRUG THERAPY, COMBINED DRUG AND BEHAVIORAL THERAPY AND DRUG DISCONTINUATION IN THE TREATMENT OF URGE URINARY INCONTINENCE IN WOMEN

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Objectives: To identify predictors of short-term outcome of drug therapy alone or drug therapy combined with behavioral therapy for the treatment of urge predominant urinary incontinence (UUI) in women; and to identify predictors of ability to discontinue drug and sustain improvements 6 months after treatment discontinuation.

Materials and Methods: This is a planned secondary analysis of data from the BE-DRI study, a 2-stage randomized controlled trial of drug therapy alone versus drug therapy plus behavioral treatment for UUI in women. In the first stage, participants received 10 weeks of active therapy; in the second stage, active therapy was discontinued and participants were followed for 6 months. Separate analyses were performed to identify predictors for the 2 outcome variables: short-term success (defined as at least 70% reduction in incontinence episodes at the end of 10 weeks of active therapy) and successful discontinuation at 6 months after active treatment (defined as not receiving drugs or any other therapy and at least a 70% reduction in incontinence episodes compared to baseline). Potential predictor variables included: demographic characteristics (age, race/ethnic group, education level, income); severity of incontinence (Medical, Epidemiological, and Social Aspects of Aging questionnaire score, incontinence episodes on bladder diary, Incontinence Impact Questionnaire score, Overactive Bladder Questionnaire (OAB-q) score, duration of incontinence); prior treatment/surgery for incontinence; self-assessment of overall health; fluid intake; current estrogen use; diabetes; presence of fecal incontinence; body mass index; POP-Q measures; baseline pelvic floor muscle strength; SF−12 score; and Health Utilities Index−2 score. Logistic regression was used to identify predictors of each outcome controlling for treatment group.

Results: 307 women with a mean +SD age of 56.9+13.9 years (range 21−87), were randomized to either drug therapy alone (n = 153) or combination therapy (n = 154). Of the 269 women who completed the 10-week visit (short term success) and had valid data, 175 (65%) had successful outcomes. Six months after active therapy, 84 of the 237 completers (35%) had successfully discontinued treatment. The only variable associated with short-term treatment success, controlling for treatment group, was age (OR 0.8, 95% CI 0.66, 0.96, p = 0.02). At 6 months, after controlling for treatment group and 10-week outcome, the only variable associated with successful treatment discontinuation was POP-Q point Aa (OR 1.33, 95% CI 1.03, 1.7, P = 0.03).

Conclusion: Younger women were more likely than older women to have a successful short-term outcome of drug therapy alone or combined with behavioral treatment for UUI. Greater anterior wall prolapse was associated with successful treatment discontinuation 6 months later. This may reflect an increased "kinking" of the proximal urethra and decreased effect of urine irritation of the proximal urethra leading to less irritative symptoms. Although age and anterior wall support have some predictive properties with respect to treatment outcomes, it is not reasonable to withhold therapy for advancing age.

Key Words: urge urinary incontinence, treatment outcome, older woman

Disclosure - Nothing to disclose.

40

SEXUAL FUNCTION AMONG WOMEN WITH PELVIC FLOOR DISORDERS (PFDS)

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Objectives: To determine if PFDs negatively affect sexual function.

Materials and Methods: Heterosexual women ≥40 years old with urinary incontinence (UI), anal incontinence (AI) and/or pelvic organ prolapse (POP) were recruited from urogynecology clinics at 9 sites. All participants completed pelvic floor disorder symptom severity and quality of life questionnaires including the Incontinence Severity Index (ISI), Wexner Fecal Incontinence Scale (FIS), Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ−12), and underwent a focused pelvic exam including Pelvic Organ Prolapse Quantification (POP-Q). For this research, UI was defined as a score of ≥1 on the ISI questionnaire, AI was defined as a score of ≥1 for the incontinence of liquid or solid stool questions of the FIS questionnaire, and POP was defined as a leading vaginal edge at or beyond the hymen on POP-Q examination. Total PISQ−12 score was the primary outcome measure with lower values indicating poorer sexual function. Student t-tests were used to assess continuous variables while categorical variables were assessed with Fisher's exact test and logistic regression. A multivariate logistic regression model was used to control for interactions between the PFDs. Univariate and multivariate analyses was used to assess the impact of type and combination of PFDs on individual items as well as total PISQ−12 scores.

Results: Two hundred and five women were recruited for this study and 125 (61%) reported sexual activity; 16 women did not report any UI, AI or POP and were excluded from further analyses. A total of 109 (87%) sexually active women with PFDs completed the PISQ−12 questionnaire. The mean age of this cohort was 53.8 ± 10 years. Eighty-six women reported UI, 52 women reported AI, and 47 women had POP on physical exam. Forty-eight women had only one PFD while 61 women had ≥2 PFDs. The diagnosis of any one specific PFD (UI, AI, or POP) did not affect total PISQ−12 scores when controlling for other PFDs (all P ≥ 0.05). However, women with ≥2 PFDs had significantly lower total PISQ−12 scores compared to women with a single PFD (33.1 ± 6.7 vs. 36.3 ± 5.3, P = 0.01). Women with a combination of UI and POP scored lowest on the PISQ−12 with scores at least 6 points lower than any other combination of PFDs (all P ≤ 0.03). As expected, women scored poorly on PISQ−12 questions related to their specific disorder; however women ≥2 PFDs reported poorer scores on the questions related to pain with intercourse and negative emotions with sexual activity than women with any one PFD (P = 0.01 and 0.03, respectively). Although the minimally clinically important difference (MID) for the PISQ−12 has not been determined, differences in scores were equal to half the standard deviation of the baseline scores which serves as a conservative estimate of the MID.

Conclusion: Women with multiple PFDs (2 or more) have lower sexual function scores on the PISQ−12 than women with any single

PFD. The combination of UI and POP had the greatest impact on sexual function when compared to combinations of other disorders.

Key Words: urinary incontinence, sexual function, pelvic organ prolapse, Anal Incontinence, women

Disclosure - Nothing to disclose.

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SYNTHETIC GRAFT USE IN VAGINAL PROLAPSE SURGERY: OBJECTIVE AND SUBJECTIVE OUTCOMES

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Objectives: Since the popularity of transvaginal graft placement has outpaced the data generated, the purpose of this study was to report one year subjective and objective outcomes of patients who underwent a transvaginal approach for the treatment of POP with the PROLIFT (Gynecare/ Ethicon, Somerville, NJ) synthetic graft system.

Materials and Methods: After IRB approval was obtained, 68 patients who had undergone POP surgical repair with the PROLIFT system from 7/1/2006 to 6/30/2007 were identified. Follow-up data was obtained on 50 women (74%). For participants, treatment included use of Anterior (32%), Posterior (32%), or Total (36%) graft systems. Objective outcomes were measured using the Pelvic Organ Prolapse Quantification (POP-Q)system. Subjective outcomes were measured using validated questionnaires including the Pelvic Floor Impact Questionnaire (PFIQ), Pelvic Organ Prolapse/ Urinary Incontinence Sexual Function Questionnaire (PISQ), and the Pelvic Floor Distress Inventory (PFDI). Chart review yielded demographic information as well as intra-op and post-op complications. Paired t-tests were used to compare pre- to post-operative data.

Results: Mean age was 61.8 ± 9.8 years; mean BMI was 29.4 ± 6.1 kg/m2, and mean parity was 2.7 ± 1.3. Mean follow-up was 425.0 ± 80.0 days (range 237−717). Previous prolapse surgery had been performed in 20 participants (40%). Of the 48 who answered the patient satisfaction question, 35 (73%) were completely satisfied; 11 (23%) were somewhat satisfied and 2 (4%) were not satisfied. At one year post-op, POP-Q measurements of Ba, Bp, and C were significantly improved from baseline, with overall improvement noted in POP-Q stage. There were significant improvements in quality of life scores without a significant impact noted on sexual function. See Table 1. Complications included graft exposure [n = 1,(2%)], dyspareunia [n = 2,(4%)], and granulation tissue [n = 3,(6%)].

Conclusion: The PROLIFT graft system appears to be a safe and effective transvaginal method of repairing POP, showing significant improvement in anatomic findings at one year follow-up with minimal complications. High patient satisfaction and significant improvement in quality of life measures were noted.

Key Words: pelvic organ prolapse, POP-Q, graft, PROLIFT

Disclosure - Nothing to disclose.

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DOES SIZE MATTER? A COMPARISON OF BOTHER SYMPTOMS AND QUALITY OF LIFE IN WOMEN WITH PROLAPSE

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Objectives: While prolapse does not constitute a life-threatening condition, it can impact quality of life. The aim of this study was to evaluate the degree of bother symptoms for prolapse and their impact on quality of life. The null hypothesis was that younger women (less 55 years of age) would not be bothered more by prolapse than older women (55 years of age or older).

Materials and Methods: After Institutional Review Board approval was obtained, the charts of women presenting to the urogynecology offices at a university-based practice were reviewed to record demographic information, standard pelvic organ prolapse quantification (POPQ) exam and responses to the pelvic floor distress inventory (PFDI−20) and pelvic floor impact questionnaire (PFIQ−7) questionnaires. We compared the normally distributed PFDI−20 and PFIQ scores with Student's t-test at the 0.05 significance level. All statistical analysis was performed with SPSS 14.0 (SPSS Inc., Chicago, IL 2006).

Results: A total of 557 subjects were included in our analysis. There were 252 (49.2%) with stage 0 and 1, 217 (37.6%) with stage 2, 88 (15.2%) with stage 3 and 4 prolapse. Women with stage 3 and 4 prolapse were older (55 years versus 66 years, $p < 0.001$) and had a lower BMI (28.3 versus 26.0, $p < 0.001$) than women with stage 0−2 prolapse, but were not significantly different in terms of vaginal parity, prior hysterectomy and history of smoking. Overall, women who were less than 55 years old had significantly higher scores on the vaginal/ prolapse domain of the PFIQ−7 than women 55 years and older (mean score 14 versus 11, $p = 0.048$). Women who smoked and were at stage 2 prolapse had a higher bother based on POPDI−6 compared with smokers at any other stage of prolapse (mean score 54 versus 29, $p = 0.026$). Focusing on the POPDI−6, women who were bothered by a bulge or had to manually reduce a bulge to void had higher vaginal/ prolapse domain of the PFIQ−7 scores regardless of age or stage of prolapse ($p < 0.001$). For all questions on the POPDI−6, women at stages 0−2 who reported significant bother symptoms had lower scores on the vaginal/ prolapse domain of the PFIQ−7 than those with stage 3−4 prolapse and a similar degree of bother ($p < 0.001$).

Conclusion: In conclusion, younger women presenting to our office had less advanced prolapse. Those who were younger than age 55 tended to be bothered more by their prolapse than women who were 55 years and older and with more advanced prolapse. Women who noticed a vaginal bulge, or had to reduce a bugle to void, regardless of size, had a reduced quality of life regardless of age. Our findings have implications for counseling on surgical intervention, which may anatomically correct prolapse, but may not impact quality of life, especially in those who have a prolapse that does not bother them.

Key Words: pelvic organ prolapse, quality of life, bother symptoms

Disclosure - Nothing to disclose.

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VARIABILITY OF THE RETROPUBIC SPACE ANATOMY IN FEMALE CADAVERS

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Objectives: To further characterize the vascular anatomy and anatomic relationships of clinically relevant structures in the retropubic space.

Materials and Methods: Detailed dissections of the retropubic space were performed in 8 female cadavers. Distances from the midline of

the pubic symphysis and superior pubic ramus to the anterior and superior aspect of the obturator canal were recorded. Distances and the relationship between the obturator canal and ischial spine and the length of the arcus tendineous fascia pelvis (ATFP) were documented. Course and anatomic relationships of the obturator vessels, internal and external iliac vessels, and paravesical venous plexuses were documented in reference to identifiable landmarks. Closest distances of these structures to the ischial spines, obturator canal, and superior pubic ramus were annotated. The variability of the venous system in the paravaginal tissue and pelvic walls was noted in a subset of specimens injected with latex dye.

Results: The obturator canal was found [mean (range)] 6.2(5.6−7.0) cm lateral from the midline of the superior aspect of the pubic symphysis and 2.0(1.4−2.5) cm inferior to the superior pubic ramus. The ischial spines were inferior and posterior to the obturator canal. The mean distance from the obturator canal to the ischial spine was 6.2(5.1−7.6) cm. The length of the ATFP was 8.6(7.7−9.9) cm. The closest distance from the obturator vessels to the ischial spine was 3.7(2.8−4.8) cm. In all specimens, the obturator vein was the closest of the obturator bundle structures to the ischial spine. An obturator vein that drained into the internal iliac vein was noted in all 8 cadavers. Accessory obturator veins were noted in 50% of specimens. In seven of eight cadavers, the obturator artery arose from the anterior division of the internal iliac artery; in the remaining cadaver, it arose from the posterior division. Accessory obturator arteries were noted in 37% of specimens. The internal iliac vein was found embedded in the loose connective tissue lateral to the bladder and superior to the level of the ischial spine in all specimens. The closest distance of the internal iliac vein to the ischial spine was 4.5(2.1−6.2) cm. In all cadavers, the external iliac vein crossed the pubic bone medial to the external iliac artery, 7.2 (6.2−8.7) cm from the midline of the pubic symphysis. In the subset of specimens injected with latex ($n = 3$), the paravesical venous plexus was comprised of two to three rows of veins that coursed within the paravaginal tissue, parallel to the urethra and bladder. These veins formed extensive anastomosis with veins on the posterior surface of the pubic bones and extraperitoneal portion of the bladder. The paravesical veins drained into the internal iliac veins.

Conclusion: The widespread use of surgical procedures requiring blind passage of trocars through the retropubic space will likely result in decreased familiarity with the anatomy in this space. The complexity and proximity of the large internal iliac venous system to the bony landmarks used for passage of trocars is described in this study. A thorough understanding of the vascular anatomy and anatomical relationships in this space should help avoid serious operative complications.

Key Words: retropubic space, internal iliac vein, obturator vessels, paravesical venous plexus

Disclosure - Nothing to disclose.

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BLADDER SENSATION THRESHOLD IS LOWER IN YOUNG WOMEN WITH RECURRENT URINARY TRACT INFECTIONS

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Objectives: Recent research has indicated that hypersensitivity to somatic and visceral stimuli is a characteristic of chronic pain disorders. In this study, we tested the hypothesis that threshold to bladder pain is lower in young women with recurrent urinary tract infections as compared to controls.

Materials and Methods: A case- control study was performed. Inclusion criteria included women age 20−40 years. Cases were 47 women with three positive urine cultures in the last year. Controls were 83 women complaining of stress urinary incontinence and no history of recurrent infections. Women with urge incontinence and known interstitial cystitis were excluded. All cases underwent cystoscopy with hydrodistension and women diagnosed with interstitial cystitis or other bladder pathologies (such as calculus) were excluded. All women underwent complete urogynecologic evaluation including standardized questionnaire, 48-hour voiding diary and multi-channel cystometrograms. Urine dipsticks were negative prior to performing cystometrograms. The first desire to void (volume of filling associated with the first need to urinate) and maximum tolerated volume (filling volume associated with bladder pain) were recorded. Data was compared using non-parametric t-tests.

Results: Mean age and parity of women with recurrent urinary tract infections (18 ± 5.3 years and 0.5 ± 1.2 respectively) was significantly lower than controls (23 ± 6.2 and 1.8 ± 0.8, $p < .05$). Mean BMI was similar between the two groups. Mean number of voids in the daytime was higher in cases (9 ± 3.6) than controls (5.3 ± 1.2, $p < .05$). There was no significant difference in the number of night time voids in the two groups. On cystometrogram, cases demonstrated a first desire to void at significantly lower volumes (126 ± 53 ml) compared to controls (174 ± 67 ml, $p < .05$). Maximum tolerated volume (volume associated with bladder pain) was significantly lower in cases (358 ± 132 ml) than controls (437 ± 109 ml, $p < .01$). There was no significant difference in the change in intravesical pressure from the start of filling to capacity between cases and controls.

Conclusion: Sensory threshold to bladder filling is lower in women with recurrent urinary tract infection than controls.

Key Words: urodynamics, interstitial cystitis, urinary tract infection

Disclosure - Nothing to disclose.

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HYPERTROPHIC ELONGATION OF THE CERVIX: A PILOT ANALYSIS OF CONNECTIVE TISSUE AND SEX STEROID RECEPTOR CHANGES ASSOCIATED WITH CERVICAL ELONGATION

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Objectives: Define hypertrophic elongation of the cervix. Determine connective tissue and sex steroid receptor changes associated with hypertrophic cervical elongation.

Materials and Methods: We defined hypertrophic cervical elongation utilizing Pelvic Organ Prolapse Quantification (POPQ) as the difference between the maximum cervical prolapse (point C) and the maximum prolapse of the cul-de-sac (point D) being greater than 8 centimeters. Vaginal hysterectomy was performed for cervical prolapse in the study group. The control group had patients without prolapse who underwent abdominal hysterectomy. Cervical tissue sections were prepared, and slides were all stained for collagen, elastin, smooth muscle, nerve tissue, and both estrogen and progesterone receptors.

Results: 14 study patients and 28 controls were enrolled. None of the patients were on hormonal therapy. Cervical tissue estrogen and

progesterone receptors in the study group were significantly elevated over the control group (p 0.047 and p 0.015 respectively). There were no differences in elastin, collagen, smooth muscle or nerve tissue content between the two groups of women.

Conclusion: The process of cervical prolapse appears to be associated with the local activation of estrogen and progesterone receptors in the cervical tissue. There did not appear to be any loss of elastin, collagen, smooth muscle or nerve tissue. Further studies of cellular factors involved in the development of cervical elongation are needed to increase understanding of the pathophysiology of this condition.

Key Words: cervix, elongation, connective tissue

Disclosure - Nothing to disclose.

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ACUTE MANAGEMENT OF TRAUMATIC HEMI-SECTION OF THE FEMALE PELVIS: A CASE REPORT

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Objectives: To demonstrate our experience in the successful management of a woman with traumatic hemi-section of the bony pelvis and soft tissue; to outline treatment recommendations for future cases.

Materials and Methods: A 36yo nullipara presented after an auto-racing accident. The collision resulted in a 3C open book pelvic fracture and subsequent soft tissue injury, with a 40cm perineal laceration extending from the mons pubis through the sacrum. A multi-disciplinary team approach was used to repair and treat her injuries. Staged reduction and repair of the abdominal and perineal wounds, including the use of perineal wound vacuum assisted closure (VAC) resulted in full recovery.

Results: One year after the initial injury, she is asymptomatic for pelvic organ prolapse (POP). She reports rare stress incontinence (less than once a month). She is continent of solid stool and flatus but incontinent of liquid stool. Coital activity is not painful. On physical exam, genital sensation on the right is diminished but is normal on the left. She has Stage I POP. Validated quality of life (Qol) scores for urinary and fecal incontinence demonstrate no bother and minor bother respectively. Qol scores for sexual function are low (poor) in all domains except pain.

Conclusion: Traumatic soft tissue injury in women can be successfully managed using a rapid step-wise closure to maximize the return of pelvic function. A thorough knowledge of female pelvic anatomy and careful attention to anatomic landmarks is essential to identify and treat lower urinary tract injury and pelvic soft tissue derangements. Therefore, a multi-disciplinary team approach should be utilized. In addition to a diverting colostomy, a wound VAC may help decrease infectious morbidity and speed healing.

Key Words: sexual function, incontinence, female, open pelvic fracture, perineum, wound vacuum

Disclosure - Honorarium: Astellas, Speaker, Astellas, Consultant panel.

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DOES IMMEDIATE PREOPERATIVE LAPAROSCOPIC SIMULATION IMPROVE THE EDUCATIONAL EXPERIENCE FOR PHYSICIANS IN TRAINING?

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Objectives: The objective of this pilot study was to determine the benefit of immediate preoperative laparoscopic simulation for physicians in training.

Materials and Methods: Obstetrics and Gynecology residents from a single institution who were assigned laparoscopic procedures of low complexity were invited to perform a case with and then a case without simulation. The primary endpoint was to detect post-simulation improvement in house staff satisfaction and sense of preoperative preparedness as per the "educational experience" portion of the Simulation Questionnaire. The attending physician discussed the diagnosis and treatment plan with the resident and directed simulation, if assigned, in the preoperative area just prior to the case. The simulation consisted of a pelvic model with a laparoscopic tower and the residents performed bead transfer exercises. At the end of each procedure, the residents were asked to fill out a Questionnaire. Two questions pertained to the overall satisfaction with the educational experience, 8 pertained to the preoperative understanding of the procedure, and 6 related to the simulation set up. The simulation questions were completed only if the resident performed the simulation part of the study. Each question was scored on a scale of 1−5, with 1 being strongly agree and 5 strongly disagree. The attending physicians were asked to comment on the benefits of simulation in the education of the residents. Statistical analysis was performed using Students'-test to compare the mean scores.

Results: A total of 11 residents participated in the study. The mean score for overall satisfaction with the educational experience was significantly lower (better) in the simulation group ($p < 0.001$). Also, mean scores for educational experience pertaining to the resident's preoperative understanding of the laparoscopic procedure were statistically lower (better) in group 1 as compared to group 2 (Table 1). As for the evaluation of the simulation exercise; 91.7% said they were satisfied with the set up, 83.3% said it met their expectations, 91.7% thought it improved dexterity, 83.3% thought it improved their level of comfort during the actual procedure and 91.7% said it improved their understanding of the procedure. Four out of 5 attending physicians thought the set up was important for preoperative training purposes and 2 thought it was useful to for assessing baseline resident skill level.

Conclusion: Immediate preoperative simulation set up can be a helpful tool in the education and training of residents in the performance of laparoscopic procedures. Simulation may also be a facilitator of preoperative discussion of the surgical procedure to be performed.

Key Words: Laparoscopy, Education, Simulation, Preoperative, Physicians in training, Resident physician surgical skills

Disclosure - Nothing to disclose.

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MANAGEMENT OF VAGINAL MESH EXTRUSION WITH PORCINE SMALL INTESTINAL SUBMUCOSA GRAFT

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Objectives: To retrospectively evaluate the short-term clinical outcomes of patients who underwent application of the Surgisis® Biodesign™ Vaginal Erosion Repair Graft (Cook Medical, Bloomington, Indiana, USA) to treat extrusions (vaginal exposure of mesh) after failure of conservative treatment.

Materials and Methods: From October 2007 to August 2008, ten women with symptomatic extrusions (mean age 57 years, range 37−67) underwent mesh excision and subsequent repair with Surgisis® Biodesign™ Vaginal Erosion Repair Graft, a non-crosslinked porcine small intestinal submucosa graft designed to incite new tissue growth and adopt the characteristics of host tissue. Patient complaints included pelvic pain, pain with intercourse, and/or persistent vaginal discharge. All Subjects had failed treatment with local estrogen, and were deemed inappropriate for simple excision and mucosal realignment due to defect size. Mesh exposures ranged from 3 × 1.5 cm to 4 x 4 cm in dimension. Extrusions were primarily at the vaginal apex or along the posterior compartment, consequent to the use of polypropylene mesh in previous apical and/or posterior vaginal wall repairs. Mean time to occurrence was 23 months postoperatively (range 3−47). Each graft was sized to 20−30% larger than the defect, placed at least 0.5 cm beyond the mucosal margins, and secured with interrupted 2−0 polyglactin sutures without tension. No intraoperative complications occurred.

Results: Patients were followed postoperatively from 6 weeks to 10 months, with nine patients having completed 6-week follow-up. Patients were assessed for pelvic pain, pain with intercourse, persistent vaginal discharge, persistent vaginal bleeding, vaginal infection, UTI, chronic fever, and chronic malaise. One subject presented with persistent vaginal discharge and was treated for yeast vaginitis; and one reported right lower abdominal pain and urinary retention which resolved spontaneously. No other postoperative events were reported. Examination confirmed good tissue in-growth with no evidence of recurrence of mesh exposure in all patients.

Conclusion: In the short-term, the application of Surgisis® Biodesign™ Vaginal Erosion Repair Graft appears to be safe and effective in the treatment of large vaginal mesh exposures.

Key Words: mesh extrusion, small intestinal submucosa, mesh exposure, Surgisis Biodesign Vaginal Erosion Repair Graft

Disclosure - honorarium: Cook Biotech Incorporated, consultant, Medtronic, consultant, AMS, consultant.

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IMPACT OF SUTURE TYPE AND CALIBER AND LEVEL OF RESIDENT TRAINING ON THE STRENGTH OF SURGICAL KNOTS

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Objectives: To determine if type and caliber of suture or level of resident training affects strength and mode of surgical knot failure.

Materials and Methods: After IRB exemption was obtained, 73 residents in an Ob-Gyn training program were instructed to tie knots on a bench model with 2 calibers (0 and 3−0) of 2 types of surgical sutures (Vicryl and PDS). Each suture type and caliber was tied 3 times for a total of 12 knots per resident. The model consisted of 2 rods, 3 cm apart, mounted on a board and secured to a table. Residents were instructed to tie 4 single alternating knots with Vicryl and 6 for PDS. Residents were allowed 30s to tie each suture. The 12 sets of sutures were tied in an order determined by a random sequence generator. Knots were trimmed to 5 mm and the loop divided in the middle to facilitate testing. Divided ends were measured to determine loop length. After pre-soaking in 0.9% NaCl for 60s, knots were distracted at 20 mm/min using an Instron tensiometer until failure (slippage beyond 5 mm or knot rupture). Failure load and mode (unraveling vs. rupture) were recorded. Analysis was performed using ANOVA with $P \leq 0.05$ considered significant. Suture was unconditionally supplied by Ethicon, Inc.

Results: A total of 73 residents were recruited for a total of 876 knots tied. All residents successfully tied knots in the allotted time. Preliminary subset analysis was performed on a random sample of 23 participants, with 5−7 residents per class, for a total of 276 knots analyzed. Mean (±SD) age was 27.9 ± 1.7 years, and the majority were female 19/23 (82.6%), white 10/23 (43.5%) and right handed 21/23 (91.3%). Five knots were excluded from analysis due to instrumentation failure. As expected, there was a significant difference in failure load between 0 and 3−0 caliber sutures for both Vicryl and PDS, at each level of training ($P < 0.001$). Although there was no difference in failure load within each suture caliber, according to PGY level (Table), a trend towards increasing strength was seen for PGY−3 and −4 for 0-Vicryl, when compared with both PGY−1 and −2 classes. The majority of knots failed by rupture, 221/276 (80.1%), regardless of suture type and caliber, and 50/276 (18.1%) failed by unraveling. There was no association between knot unraveling and PGY-level. Junior (PGY−1, 2) residents had significantly longer suture loop lengths than senior (PGY−3, 4) residents for 0 PDS, 0 Vicryl, and 3−0 Vicryl ($P < 0.03$); and approached statistical significance for 3−0 PDS ($P = 0.059$).

Conclusion: From preliminary analyses, although there is a trend towards stronger knot strength for 0-Vicryl suture when comparing senior and junior residents, there appears to be no significant difference in knot strength according to PGY level of training with respect to other types or caliber of suture.

Key Words: suture, education, knot strength

Disclosure - Nothing to disclose.

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INFLUENCE OF LOW DOSE INTRAVAGINAL ESTROGEN ON GROWTH FACTORS ASSOCIATED WITH TISSUE REPAIR IN THE TREATMENT OF VAGINAL ATROPHY

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Objectives: Since topical estrogen has been shown to impact growth factors associated with wound healing in age related skin changes, the purpose of this pilot study was to characterize changes in growth factors associated with tissue repair when treating vaginal atrophy with 50ug of intravaginal 17-â-estradiol cream.

Materials and Methods: Twenty women, 65 years or older with vaginal atrophy, applied intravaginal cream nightly for 8 weeks followed by twice a week for an additional 8 weeks. This is a basic science outcomes substudy for this translational pilot project. Seventeen (85%) agreed to vaginal biopsies to the depth of the subepithelium at baseline and each time point (baseline, 8 weeks and 16 weeks) in order to investigate changes in transforming growth factor-beta (TGF), nuclear factor kappa B (NFKB), inducible nitric oxide synthase (iNOS), endothelial nitric oxide synthase (eNOS) and thrombospondin (Throm). Formalin fixed, paraffin embedded tissue sections were subjected to immunohistochemical staining by the peroxidase method following antigen retrieval in Citrate Buffer, ph 6.0. Reaction product was obtained after incubation of the slides with Diaminobenzidine (DAB). Slides were counterstained with hematoxylin. Four investigators, blinded to slide type and time point, scored the intensity of staining from 0 to 4, with 0 being none and 4 being strong, such that the sum of scores for each slide could range from 0 to 16. Repeated measures analysis assessed for changes in the degree of staining at baseline, 8 weeks and 16 weeks. Pearson's correlation (r) was explored between each biomarker.

Results: The mean+SD age was 73.4+6.4 years (median 72, range 65−84). The mean+SD BMI was 25.0+3.2 kg/m2(median 26.4, range 18.9−29.8). No statistical difference was found in staining for any biomarker between time points (Table). The following biomarkers were positively correlated: NF Kappa Beta/TGF ($r = 0.37$, $P = 0.01$), TGF/iNOS ($r = 0.33$, $P = 0.02$), iNOS/NFKB ($r = 0.31$, $P = 0.04$), eNOS/TGF ($r = 0.33$, $P = 0.02$), iNOS/eNOS ($r = 0.56$, $P \leq 0.01$). No correlation was found between NFKB/eNOS ($P = 0.16$), or between Throm and any other marker.

Conclusion: Even though certain biomarkers seem to play a role in skin remodeling, in this pilot study, they did not change in response to treating vaginal atrophy with low dose of estradiol cream. However, except for thrombospondin, levels of these markers did correlate modestly with each other which warrants further investigation.

Key Words: vaginal atrophy, tissue remodeling, growth factors, estrogen

Disclosure - Nothing to disclose.

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SOCIETY OF GYNECOLOGIC SURGEONS' (SGS) SURVEY: MESH USE IN VAGINAL PROLAPSE SURGERY

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Objectives: To evaluate the practice patterns of SGS members and guests regarding the use of synthetic mesh in vaginal prolapse repair.

Materials and Methods: A 26-item questionnaire regarding synthetic mesh use in vaginal prolapse repair was placed on the desks of those SGS attendees present at one of the scientific sessions of the 2008 Annual Scientific Meeting. Participation was requested and the surveys retrieved at the session's conclusion. Descriptive statistics and cross tabulation using Chi square tests were performed.

Results: 128 of the approximately 180 (|P571%) scientific session attendees completed surveys. Respondents identified themselves as 69% Urogynecologists, 14% Obstetrician/Gynecologists, 7% Fellow or Resident, and 10% other. Fifty-eight (45%) were SGS members and 70 (55%) were not. Eighty-four (66%) described their practice setting as Academic, 36 (28%) community-based, and eight (6%) other. Eighty-three (65%) were male and 45 (35%) female. Thirty-five (28%) were >20 years from completion of training, 35(28%) 10−19 years, and 57 (44%) 0−10 years. Of those who identified themselves as Urogynecologists, 64 (63%) currently use mesh versus 8 (40%) of the obstetrician/gynecologists ($p < 0.001$). Seventy-four (59%)of respondents currently use mesh. Of these, 40 (47%) use a combination of kits and free mesh, 19 (22%) mesh kits only and 27 (31%) free-mesh only. Forty-eight (56%) use mesh in both primary and recurrent repairs. For anterior repair, 82 (97%) use mesh with 26 (31%) using mesh kits, 28 (33%) free mesh, 28 (33%) both. For posterior repair, 62 (70%) use mesh with 16 (18%) using kits, 23 (26%) free mesh and 23 (26%) both. Anteriorly, 71 (84%) dissect full-thickness and 35 (43%) plicate connective tissue prior to inserting mesh. Sixty-three (90%) anchor free mesh for anterior and posterior repair, while seven (10%) do not. Seventy-four (86%) close the vaginal wall in a single-layer. Ninety-two respondents have excised mesh for indications including: persistent drainage (59%), persistent pain (21%), hispareunia (21%), dyspareunia (16%), and asymptomatic exposure (11%). Fifty percent initially manage mesh erosion with estrogen cream whereas 29% start with mesh excision.

Conclusion: The majority of attendees completing a survey at the 34th SGS annual meeting reported ongoing use of synthetic mesh in anterior and posterior repair. In this survey, mesh was used by a greater percentage of Urogynecologists than by Obstetrician/Gynecologists. Respondents utilize mesh kits and/or free mesh for primary and recurrent prolapse. Mesh was used more commonly in the anterior compartment vs. the posterior compartment. We conclude that mesh is commonly used, though in a variety of ways, amongst SGS members and guests. This data suggests that synthetic mesh has been adopted by a majority of Urogynecologists and many Obstetrician-Gynecologists for prolapse repair. This has occurred in the absence of prospective, controlled, high quality studies supporting its efficacy and safety. Research is clearly needed in this area.

Key Words: survey, mesh complications, vaginal prolapse surgery, surgical practice patterns, mesh in prolapse surgery

Disclosure - Nothing to disclose.

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MIDURETHRAL SLINGS DO NOT AFFECT THE RESOLUTION OF PREOPERATIVE URINARY RETENTION IN WOMEN UNDERGOING SURGERY FOR PELVIC ORGAN PROLAPSE

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Objectives: To determine if midurethral slings (MUS) at the time of surgery for pelvic organ prolapse (POP) impaired the resolution of urinary retention.

Materials and Methods: In this retrospective study we have reviewed the records of all women undergoing urodynamic studies between June 2004 and January 2007 to identify women with high postvoid residual (PVR). High PVR was defined as a PVR ≥100 ml. Women with persistent preoperative urinary retention (high PVR measured on all occasions), undergoing POP surgery were included in this study. Women that had undergone a MUS and concomitant surgery for POP (Group 1) were compared to women that had undergone surgery for POP without the use of a MUS (Group 2). All

women had undergone preoperative urodynamic studies and the PVR volumes were assessed with a 12 F catheter. The stage of prolapse was assessed utilizing the Pelvic Organ Prolapse Quantification system (POPQ). Data were analyzed using t tests, Signed Ranks test and chi square.

Results: From the 27 women identified as having persistent preoperative urinary retention, seventeen women (63%) had undergone a MUS placement and 10 women (37%) had not. There was no difference in age, parity or BMI between the groups. The preoperative ICS POPQ stage of prolapse was similar between the two groups [2 (range 1−3) vs. 2 (range 1−3)]. The preoperative PVR was not significantly different between Group 1 and 2 [189 ml (100−450 ml) vs. 323 ml (100 −1250 ml)]. All patients in Group 1 and 80% of patients in Group 2 had either urodynamic stress incontinence or mixed incontinence on urodynamic study. There was no significant difference in preoperative maximum flow between the two groups [10.5 ± 6.9 ml/s vs. 8.1 ± 7.0 ml/s]. Patients in Group 1 had most of the surgeries performed by the vaginal route [41.1% vaginal hysterectomy, 35.2% USLS, 35.3% anterior repair, 29.4% anterior and posterior repair and 23.5% ICS], while patients in Group 2 had most of the surgeries performed by the abdominal route [50% Burch and abdominal paravaginal repair, 40% abdominal hysterectomy, 40% abdominal uterosacral ligament suspension and 30% abdominal sacrocolpopexy]. In Group 1, thirteen women (76.5%) had a normal postvoid residual volume following surgery at the time of Foley removal on postoperative day 3, compared to six patients (60%) in Group 2. The difference did not reach statistical significance. However, no woman in either group was found to have urinary retention at two weeks following surgery.

Conclusion: A midurethral sling does not prevent the resolution of urinary retention at the time of surgery to correct POP in women with preoperative urinary retention.

Key Words: pelvic organ prolapse, urinary retention, Midurethral sling, postvoid residual

Disclosure - Nothing to disclose.

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ATTITUDES AND EXPECTATIONS OF WOMEN UNDERGOING OBSTETRIC FISTULA REPAIR IN NIGER

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Objectives: While international surgical missions to sub-Saharan Africa for obstetric fistula repair have reported "dry" rates, attitudes and expectations of women undergoing surgical repair have not been well documented. The primary objective of this study was to describe the perioperative attitudes and expectations of women undergoing surgical repair of obstetric fistula in Niger, Africa.

Materials and Methods: IRB approval was obtained for this prospective questionnaire study of women undergoing obstetric fistula repair at the National Hospital in Niamey, Niger in April 2008. Inclusion criteria required that women could answer questions verbally and complete pre- and post-operative questionnaires. Verbal consent was obtained, study personnel translated questionnaires verbally into the subjects' native language, and responses were documented in English. The women completed verbal questionnaires consisting of open-ended questions prior to surgery and 1−3 days postoperatively. All women had a preoperative education session with a Nigerien surgeon. Patient characteristics were obtained from written hospital charts.

Results: During the study period, 39 women underwent surgery and 28 women were included in this study. Mean age of women was 24.8 years (range 16−50), median parity 2 (range 0−7) and median living children 0 (range 0−5). Most common ethnicities were Hausa (39%), Zarma (29%) and Beri-Beri (14%). The majority of the women had no formal education (89%) and none had more than six years of education. 86% of women had vaginal repairs and all received regional anesthesia. 79% of women had not known anyone with a fistula prior to coming to a hospital. Most (68%) had been to a hospital before, and 61% had prior fistula repair. Preoperatively, 93% stated the potential for "health" made them happy; 50% specifically noted they were happy because there was a "solution" for their problem. 28% of women provided a detailed description of what they expected during the upcoming procedure, and only 7% stated they were scared about the procedure. When asked about hopes for the future, the majority of women wanted to have health and/or their problem fixed; 50% noted that they wanted to return to their husbands and/or home and 21% desired future children. Postoperatively, 100% of women were happy they had undergone surgery. Most women (61%) said their hospital stay was what they expected, 43% stated they wished they had known more about the procedure, and many noted various things that surprised them about their surgery and/or hospital stay. When asked what they liked about the procedure, most mentioned the opportunity to be healthy.

Conclusion: The restoration of health was the main goal of women in our study population. All women were happy in the immediate postoperative period that they received a surgical solution to their problem, though many stated they wished they had known more about the procedure. Beginning a discourse with our patients to understand attitudes and expectations not only increases the opportunity for medical care to be provided in a culturally sensitive manner, but also allows preoperative counseling and fistula education to adequately address women's concerns.

Key Words: Fistula, Niger, surgical mission, patient expectation

Disclosure - Nothing to disclose.

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THE IMPACT OF FLATAL INCONTINENCE ON QUALITY OF LIFE

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Objectives: The purpose of this study was to determine the impact of flatal incontinence on quality of life.

Materials and Methods: After IRB approval, data were analyzed from 661 consecutive new patients in an academic urogynecology practice between September 4, 2007 and May 30, 2008, inclusive. The Pelvic Floor Distress Inventory Short Form (PFDI−20) and the Pelvic Floor Impact Questionnaire Short Form (PFIQ−7) were administered upon enrollment into the practice. Subjects included in our cohort answered Question 11 of PFDI−20, "Do you usually lose gas from the rectum beyond your control?" The global scores of the PFDI−20 and the PFIQ−7 were compared in women with and without flatal incontinence using the student's T test. Subscales of the PFDI−20 (the Urinary Distress Inventory, UDI−6; the Colo-rectal-anal Distress Inventory, CRADI−8; and the Pelvic Organ Prolapse Distress

Inventory, POPDI−6) and subscales of the PFIQ−7 (the Urinary Impact Questionnaire, UIQ−7; the Colo-rectal-anal Impact Questionnaire, CRAIQ−7; and the Pelvic Organ Prolapse Impact Questionnaire, POPIQ−7) were also compared. Logistical regression was used to determine which factors predict flatal incontinence in this sample.

Results: Five hundred seventy-three women answered PFDI−20 question 11. Two hundred eighty-two (49.2%) had flatal incontinence, and 291 (50.8%) did not. Women with flatal incontinence were older (58.3 ± 14.1 vs. 52.6 ± 14.5 years, $p < 0.0001$), of greater parity ($p = 0.0089$), more likely to suffer from chronic constipation (18.1% vs. 10.7%, $p = 0.0076$), had more vaginal deliveries ($p = 0.0038$) and higher BMI (28.4 ± 6.2 vs. 27.3 ± 6.5, $p = 0.0280$) than women without flatal incontinence. Women with and without flatal incontinence did not differ significantly in prolapse stage, number of cesarean deliveries, or history of forceps deliveries. A logistic regression model was constructed using age, parity, history of chronic constipation, marital status, BMI, and prolapse stage. Only age ($p < 0.001$, OR 1.028 95% CI 1.014−1.042) and prolapse stage ($p = 0.018$, OR 0.761 95% CI 0.607−0.955) were found to be significant predictors of flatal incontinence. Completed PFDI−20 questionnaires numbered 284 and included 142 with flatal incontinence and 142 without. Those with flatal incontinence scored higher for bother on the UDI (45.2 ± 23.9 vs. 33.5 ± 23.4, $p < 0.0001$), the CRADI (30.3 ± 49.6 vs. 7.64 ± 11.2, $p < 0.0001$), the POPDI (28.4 ± 21.4 vs. 21.8 ± 18.8, $p = 0.0062$), and the PFDI−20 (104 ± 150 vs. 62.9 ± 39.4, $p < 0.0001$). Completed PFIQ−7 questionnaires numbered 445 (267 + 178) and included 222 (49.9%) with flatal incontinence and 223 (50.1%) without. Women with flatal incontinence scored higher for bother on the CRAIQ (14.3 ± 21.7 vs. 5.4 ± 15.2) and the PFIQ−7 (52.7 ± 55.4 vs. 37.9 ± 45.6) while scores for the UIQ and POPIQ were not significantly different between the 2 groups.

Conclusion: Women with flatal incontinence are older and have less severe prolapse than those without this condition. Quality of life is negatively impacted by flatal incontinence in women.

Key Words: Anal incontinence, Quality of life, Flatal incontinence, Pelvic floor dysfunction

Disclosure - Nothing to disclose.

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COMPLICATIONS RELATED TO GRAFT OR MESH AUGMENTATION IN VAGINAL RECONSTRUCTIVE SURGERY

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Objectives: To compare success and complication rates associated with vaginal repair of pelvic organ prolapse (POP) with augmentation using biologic grafts or synthetic mesh.

Materials and Methods: A retrospective review of 172 vaginal surgeries for POP including vault with augmentation using either xenograft or synthetic mesh. Surgeries were performed by 7 Urogynecologic surgeons, Jan 2005 through May 2008. Data collected included baseline, type of mesh used, intra-operative and postop complications, treatment and follow-up. Pain is described as that requiring treatment beyond 14 days of prescription narcotics postop. Success is defined as no subjective complaints of recurrent POP and no return to surgery for prolapse repair or revision due to graft/mesh complication. Recurrence indicates sensation of bulge or asymptomatic finding of descent to stage 2. Data was analyzed using Pearson Chi Square and Fisher's exact test.

Results: A total of 172 were identified and included in the study. The mean follow up was 15 months (R4− 37). In total, 66 (39%) of the augmentations were biologic grafts and 106 (61%) were synthetic meshes. A variety of xenografts & synthetic meshes with and without kits were utilized. The 2 groups were demographically similar except, the synthetic group were older, mean age 56 v 62 ($p = .001$), were more likely to have had prior hysterectomy ($p = 0.009$), prior incontinence surgery ($p = 0.037$) & vault repair ($p = 0.018$). Intra-operative complications included only bladder injury of 4%. Postop complications are described in Table 1. In the biologic graft group, 11 patients experienced persistent pain. Treatments included: muscle relaxants ($n = 6$), physical therapy (7), and trigger point injections (5). In the synthetic group, 22 experienced pain and underwent treatments including: muscle relaxants (6), physical therapy (14), trigger point injections (6), while 12 required reoperation. Overall, 91% of patients had a successful outcome with no recurrence and no reoperation for complications. The covariables parity, obesity, smoking, diabetes, or chronic steroid use were non predictive of complications, however, any estrogen use was predictive ($p = 0.009$).

Conclusion: At midterm follow up of vaginal reconstructive surgery augmented with graft or mesh, the complication rate was higher in the synthetic group in regards to erosion, pain, recurrent prolapse and reoperation for mesh related complication. Parity, obesity, smoking, diabetes, and steroid use were not predictive of complications. Women who had ever used estrogen had worse outcomes, possibly because due to atrophic changes of vaginal tissues.

Key Words: pelvic organ prolapse, prolapse, mesh, vaginal reconstructive surgery

Disclosure - Nothing to disclose.

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RISK FACTORS FOR INCIDENTAL CYSTOTOMIES AT THE TIME OF A HYSTERECTOMY

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Objectives: To evaluate risk factors for incidental cystotomy at the time of a hysterectomy.

Materials and Methods: Charts from all hysterectomies performed at Grady Memorial Hospital between January 1, 2000 and May 31, 2004 were reviewed. Demographic and operative data were abstracted. Patients who had an incidental cystotomy were compared to those who did not. The ÷2 or Fisher's exact test (where appropriate) were used to analyze categorical variables while the Student's t-test was used for continuous variables.

Results: During the study period, 1426 hysterectomies were performed. Of these, 54% (776) were abdominal, 42% (594) vaginal and 4% (56) were laparoscopic assisted vaginal hysterectomies. A total of 35 (2.5%) incidental cystotomies occurred. There were no differences in the age, gravidity, parity, ethnic breakdown, rates of prior sexually transmitted infections or indications for surgery between those who had an incidental cystotomy and those who did not. The rate of incidental cystotomy were not different between those having an abdominal, vaginal or laparoscopic assisted vaginal hysterectomy (2.2% vs. 2.7% vs. 3.6%, $p = 0.7$). Patients who had an incidental cystotomy were more likely to have a prior Cesarean delivery (47% vs. 22%; OR 3.2, 95% CI 1.6−6.3) or pelvic adhesive

disease (57% vs. 32%; OR 2.9, 95% CI 1.5−5.7). In addition, patients with an incidental cystotomy had greater estimated blood loss (771 ± 613 vs. 538 ± 480 mL, p = 0.03) and longer procedure times (225 ± 117 vs. 155 ± 67 minutes, p = 0.002) than those who did not.

Conclusion: Patients with prior Cesarean delivery or pelvic adhesive disease are at increased risk for having an incidental cystotomy at the time of a hysterectomy regardless of the route of surgery. In addition, patients with incidental cystotomies have greater operative blood loss and procedure time.

Key Words: hysterectomy, risk factors, cystotomy

Disclosure - Nothing to disclose.

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AMBULATORY CARE FOR FEMALE PELVIC FLOOR DISORDERS IN THE UNITED STATES, 1995−2006

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Objectives: Female pelvic floor disorders (PFD) are common conditions experienced by women. Despite their negative impact on quality of life, many women do not seek help. The objective of our study was to describe the annual number of ambulatory care visits for PFDs. Our secondary objective was to examine national trends in ambulatory care for PFDs between 1995−2006.

Materials and Methods: We used the National Ambulatory Medical Care Survey (NAMCS) and the National Hospital Ambulatory Medical Care Survey (NHAMCS) to collect data on ambulatory care for PFDs in the U.S. between 1995−2006. The NAMCS is an annual sample of outpatient visits to office-based community physicians, whereas the NHAMCS samples visits to hospital-based outpatient departments. For our study, patient visits were classified as encounters for PFD-related care, defined as visits for urinary incontinence, pelvic organ prolapse and/or fecal incontinence based on ICD−9 codes. Only women ≥ 21 years were included. Annual estimates were based on the most recent data for 2006. To examine trends, we collapsed 12 survey years into three study periods (1995−1998, 1999−2002, 2003−2006). We used survey weights to estimate nationally representative point estimates, standard errors and 95% confidence intervals that account for the complex survey design. P values <0.05 were considered statistically significant.

Results: In 2006, there were a total of 3.9 million (95%CI: 2.8−5.1 million) PFD-related ambulatory visits, including a total of 1.2 million (95%CI: 0.70−1.7 million) visits for urinary incontinence and 967,790 (95%CI: 559,270−1,376,310) for pelvic organ prolapse. There were 483,959 (95%CI: 238,240−729,678) total new patient visits. Twenty-one percent of visits were with general practitioners, 39.6% were with obstetrician-gynecologists, 25.9% were with urologists, and 3.5% were with general surgeons. The mean age of women evaluated for PFDs was 63.9 years, 9% were black and 14% were Hispanic. Thirty-nine percent of visits were covered by Medicare and 38% were in the South. For national trends, we found that the total number of ambulatory visits for PFDs increased from 14 million (95% CI 11.5−15.9 million) during the 1995−1998 period to 16 million (95% CI 12.4−18.9 million) during the 2003−2006 period. The number of new patients evaluated for PFDs remained stable at 2.7 million visits (95% CI 1.9−3.4 million) during the 1995−1998 period and 2.3 million visits (95% CI 1.5−3.1 million) during the 2003−2006 period. The number of urodynamic evaluations performed also remained stable, with 314,029 evaluations performed during the 1995−1998 period and 392,919 evaluations performed during the 2003−2006 period. There was an increase in the proportion of women between ages 60−69 years, women > 80 years and Hispanic women who were seen for PFD-related visits (P < 0.05 for all). The proportion of women seen by general practitioners, obstetrician-gynecologists and urologists remained stable throughout the time periods.

Conclusion: Ambulatory care for pelvic floor disorders represents a substantial number of outpatient visits to healthcare providers. Although the population is aging, the number of new patient evaluations for these disorders has remained stable.

Key Words: pelvic floor disorders, Epidemiology, Ambulatory care

Disclosure - Nothing to disclose.

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FLAT SQUARE KNOT OR NOT?

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Objectives: The purpose of this study was to examine and verify the microscopic configuration of flat square knots tied in a laboratory setting by experienced gynecologic surgeons.

Materials and Methods: A bench model was constructed to simulate open surgical knot tying. Using synthetic absorbable braided 0−0 polyglactin suture (Vicryl, Ethicon, Somerville, NJ), eight board certified faculty surgeons were given the written instruction: "Using a two-handed technique, tie the most secure flat square knot possible with 4 throws." Each surgeon was observed by one investigator during the knot tying process. Twenty-one knots were tied by each surgeon for a total of 168 knots. A second investigator placed each set of knots randomly in labeled envelopes to mask the principal investigator to the individual surgeons during microscopic evaluation. Knot configuration was then analyzed by the principal investigator, first grossly, and then microscopically under low power magnification from two separate angles. Based on microscopy, each throw of each knot was classified as flat square (FS), non-identical sliding (NS), or parallel sliding (PS). Throws with a configuration between flat and sliding were designated as intermediate (I). In this manner, a four throw code was generated for each knot. The results from microscopic examination were then tabulated according to configuration and surgeon, and the number of flat square knots determined, in addition to the most common configurations encountered during microscopic evaluation.

Results: Four of the surgeons were benign gynecologists and four had additional subspecialty training in pelvic reconstructive surgery or gynecologic oncology. In ascending order, the surgeons were 3, 6, 8, 10, 17, 25, 26, and 27 years out of residency training. A total of 166 knots were included in the analysis. Twenty-four different knot configurations were identified among the 8 surgeons with an average of 7.8 different configurations per surgeon (range 5.0 − 9.0). Only 1 out of 166 knots had the microscopic appearance of a true flat square knot. The least frequent type of single throw was "flat square" at a rate of 1.7%, and the most frequent was "intermediate" at a rate of 54.5%. The proportion of true flat square knots and the 3 most common knot configurations and their percentages of the total are listed in the table.

Conclusion: Based on microscopic evaluation of knots tied with appropriate technique by several experienced gynecologic surgeons,

flat square knots seldom result. Flat square knots tied by different surgeons or by the same surgeon vary widely in configuration. Although the "intermediate" knot configurations were the most common, the impact on strength and security of these knots has not been studied.

Key Words: education, surgical knot, knot configuration

Disclosure - Nothing to disclose.

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AGE-RELATED DIFFERENCES IN WOMEN PRESENTING FOR TREATMENT OF FECAL INCONTINENCE

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Objectives: To compare fecal incontinence (FI) severity, quality of life (QOL), bowel symptoms, and anorectal physiology measures among younger, middle aged, and older women presenting to an urogynecology clinic for FI treatment.

Materials and Methods: A prospective cohort of 171 women presenting for FI treatment at a university genito-rectal disorders clinic were consented and evaluated prior to treatment. Data included sociodemographic variables and self-reported medical history. Body mass index (BMI) was calculated from height and weight. FI severity was assessed by the Fecal Incontinence Severity Index (FISI). Health-related quality of life (HRQOL) was measured by the Modified Manchester Health Questionnaire (MMHQ), which also included questions on fecal urgency and frequency. Anorectal manometry and endoanal ultrasound were performed in a subset of women (n = 111). To examine the impact of age, women were categorized into three age groups: < 50 years (N = 64), 50−64 years (N = 60), and ≥65 years of age (N = 47). Differences among age groups were evaluated using one-way ANOVA for continuous and chi square for categorical variables. Multinomial logistical regression models were constructed with backward elimination from variables significant ($p < 0.1$) in univariate analyses with FISI scores retained in the final model.

Results: Women in the three age groups did not differ significantly on FI subtypes, frequency, or severity (FISI scores 31 ± 14, 30 ± 13, 27 ± 15, P = 0.38, respectively). However, older women had less impact on HRQOL than younger women as measured by MMHQ scores: 50 ± 26 (<50 years), 49 ± 24 (50−64 years), 37 ± 22 (≥65 years), P = 0.04. No differences (P > 0.05) were seen between the age groups for the following variables: BMI, urinary incontinence, diabetes mellitus, prior anorectal surgery, inflammatory bowel disease, prior cholecystectomy, prior cesarean delivery, frequency of bowel movements, or anorectal manometry measures (resting/squeeze pressures or capacity). Younger women were less likely to have hypertension (P < 0.001), history of cancer (P = 0.04), or heart disease (P = 0.02); middle aged women (50 to 64 years) were more likely to have undergone hysterectomy (P < 0.001). Younger women were more likely to have an external anal sphincter tear on ultrasound (P = 0.008) and have more fecal urgency (P = 0.008). After controlling for FI severity, prior hysterectomy, and chronic diseases, women in the youngest age group had greater odds of having a sphincter tear on ultrasound (odds ratio = 4.1, 95% confidence intervals 1.2, 14.5) compared to women in the older age group (≥65 years).

Conclusion: Despite no age differences in FI severity seen in our cohort, younger women seeking treatment for FI report more fecal urgency and a greater impact on HRQOL, which may be related to anal sphincter morphology. FI in women remains multifactorial, with younger women more likely than older women to have external anal sphincter tears.

Key Words: Fecal incontinence, Quality of life, Anal sphincter

Disclosure - Nothing to disclose.

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A COMPARISON OF GRAFT AUGMENTED SACROSPINOUS HYSTEROPEXY AND VAGINAL HYSTERECTOMY

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Objectives: To compare outcomes of two allograft, anterior vaginal wall augmented procedures: bilateral sacrospinous hysteropexy and anterior colporrhaphy versus vaginal hysterectomy and anterior colporrhaphy.

Materials and Methods: 33 consecutive women with >2 Stage II pelvic organ prolapse and mean follow up of 18 months who underwent a bilateral 'anterior approach' sacrospinous hysteropexy and anterior colporrhaphy were compared with 51 women who underwent transvaginal hysterectomy with modified McCall culdoplasty and anterior colporrhaphy. An allograft was secured using single permanent sutures placed 1.5cm medial to the ischial spines, on both the right and left sacrospinous ligament (SSL, and along the arcus tendineous fascia pelvis bilaterally in both groups. In the hysteropexy subjects, each SSL suture was secured to both the allograft and to a fixation point on the ipsilateral vaginal apex located 1cm lateral to the cervix on both sides, simultaneously suspending the vaginal apices. Concomitant midurethral slings and posterior repairs were performed as indicated. Changes in pre- and post-operative POPQ staging were assessed using two-sample t-tests. Validated self-report questionnaires (PFDI and PISQ) were completed to assess bothersome pelvic floor symptoms and sexual function and analyzed using 2 sample t-tests.

Results: Mean age, BMI, and median parity were similar between groups. There were no mesh erosions or significant complications in either group. Posterior colporrhaphy (97% vs. 27%, p < .001) and midurethral slings (85% vs. 24%, p < .001) were performed more frequently in patients who underwent hysteropexy versus hysterectomy. Mean follow-up was similar between groups, 19 and 17 months in hysterectomy versus hysteropexy, respectively. Both groups had significantly improved outcomes postoperatively. However, anterior compartment POP-Q staging for hysteropexy patients was significantly improved over hysterectomy: Aa −2.55 vs. −1.75 p < .004, Ba −2.5 vs. −1.75, p < .008. Total vaginal length was also significantly higher in the hysteropexy group 9.52 vs. 8.13 p < .002. Apical and posterior support was similar in both groups postoperatively. The risk of recurrent pelvic organ prolapse to the hymeneal ring and beyond after one year did not differ between the hysteropexy and hysterectomy groups: uterine prolapse 6% vs. 8% (p = 1.0), cystocele 10% vs. 29% (p = 0.08) and, rectocele 19% vs. 25% (p = 0.62). There was more dyspareunia as measured by Likert scales in the hysteropexy (28%) versus the hysterectomy group (7%)

at one year, (p = 0.07). Post-operative mean total PFDI scores were significantly more improved in the hysteropexy group relative to the hysterectomy group (47.2 vs. 80.3, p = 0.017).

Conclusion: When comparing outcomes of hysteropexy versus hysterectomy, with the addition of anterior allograft reinforced colporrhaphy, hysteropexy was found to have better anterior support, higher total vaginal length, and more improved PFDI scores than vaginal hysterectomy. However, there was a trend toward more dyspareunia in the hysteropexy group.

Key Words: sacrospinous, allograft, hysteropexy

Disclosure - Nothing to disclose.

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IS LAPAROSCOPIC SUPRACERVICAL HYSTERECTOMY BETTER IN OBESE WOMEN? A COMPARISON OF PERIOPERATIVE MORBIDITY WITH TOTAL LAPAROSCOPIC HYSTERECTOMY

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Objectives: To compare operative and post-operative indices for obese patients undergoing laparoscopic supracervical and total hysterectomy.

Materials and Methods: All women with a body mass index (BMI) of at least 30kg/m2 who underwent laparoscopic hysterectomy with or without cervical removal for benign gynecologic conditions at our institution from November 1999 to March 2007 were included in this study. Those who had any other concomitant surgery except for adnexal removal and cystoscopy were excluded. Baseline characteristics, rates of operative and postoperative complications, successful laparoscopic completion, as well as operative time, perioperative change of hemoglobin concentration, and length of hospitalization were compared between laparoscopic supracervical hysterectomy (LSH) and total laparoscopic hysterectomy (TLH).

Results: Of the 241 consecutive obese women, 132 (54.8 %) underwent LSH and 109 (45.2 %) had TLH. The groups were similar with respect to the patient characteristics such as age, race, gravidity, parity, menopausal status, adnexal removal, and past medical and surgical history. The groups had similar frequencies of morbidly obese women (BMI > 40) patients in the LSH (8.2%) group and in the TLH (8.7%) group. While most of the patients had multiple indications listed, the three most common indications for surgery for both groups were menorrhagia, symptomatic uterine leiomyoma and pelvic pain. There were more patients in the LSH group with uterine leiomyoma listed as an indication 78 (60.5%) vs. 48 (44%) in the TLH group (p = 0.011). Average uterine weight was significantly higher for TLH (269.2 ± 248.0) vs. 178.6 ± 136.2 for LSH (p = 0.04). Menorrhagia and pelvic pain were listed with similar frequency for both groups. Length of hospital stay was not statistically different between the groups, averaging 30 hours (p = 0.568). Postoperative changes in hemoglobin as well conversion to abdominal hysterectomy were not statistically different between the groups (p > 0.05). There were 13 (9.8%) cases in the LSH group and 15 (13.8%) in the TLH group that were converted to laparotomy. Operating time was longer for TLH, averaging 178 ± 62 minutes, as compared to 151 ± 58.5 minutes for LSH (p < 0.001). The rates of serious postoperative complications such as urinary injury (0.8 vs. 1.8%), fever (0 vs. 2.8%), ileus (0 vs. 0.9%), and wound infections (0.8 vs. 0.9%) were not statistically different between LSH and TLH, respectively. There were no patients in either group reported to have intestinal injury, pelvic hematoma, abscess or venous thromboembolism. All the results remained the same even after adjustment for the statistically significant baseline characteristics.

Conclusion: In this first study comparing laparoscopic supracervical and total hysterectomies in an obese population, cervical preservation does not appear to offer any clinically significant advantage.

Key Words: hysterectomy, cervix, laparoscopic hysterectomy, laparoscopic supracervical hysterectomy, subtotal hysterectomy, supracervical hysterectomy

Disclosure - Nothing to disclose.

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COMPARISON OF QUALITY OF LIFE CHANGES IN PATIENTS WITH STRESS URINARY INCONTINENCE AFTER SUBURETHRAL TENSION FREE VAGINAL SLING VERSUS SUPRAPUBIC TENSION FREE VAGINAL SLING PLACEMENT

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Objectives: To assess the impact on quality of life in patients with stress urinary incontinence (SUI) after suburethral tension free vaginal sling placement versus suprapubic tension free vaginal sling placement as measured by the urogenital distress inventory (UDI−6).

Materials and Methods: Patients with stress urinary incontinence were prospectively evaluated. Preoperative assessment included a comprehensive history and physical exam, multi-channel cystometrics, and POP-Q quotient. In addition, all patients completed the UDI−6 questionnaire prior to surgery. Patients either underwent suburethral tension free vaginal sling placement or a suprapubic tension free vaginal sling procedure based on physician and patient preference. Patients then completed the UDI−6 questionnaire at postoperative follow up. Preoperative and postoperative scores on the questionnaire for both suburethral tension free vaginal sling and suprapubic tension free vaginal sling treatment groups were compared. Results were analyzed using the student t-test and Mann Whitney U test.

Results: 76 patients underwent suprapubic tension free vaginal sling placement and 44 patients underwent suburethral tension free vaginal sling. There was no statistical difference in age, parity and BMI between the two groups. Preoperatively there was no statistical difference between mean UDI−6 scores for suprapubic tension free vaginal sling (8.7 ± 2.5) vs. suburethral tension free vaginal sling (9.2 ± 4.4). Postoperatively, those undergoing suprapubic tension free vaginal sling placement had significantly lower mean UDI−6 scores than those undergoing suburethral tension free vaginal sling placement (1.96 ± 1.9 vs. 2.9 ± 2.3 p = .02).

Conclusion: Patients who underwent suprapubic tension free vaginal sling placement had significantly better quality of life postoperatively when compared with patients who underwent suburethral tension free vaginal sling placement as assessed by the UDI−6. Longer term follow up of those undergoing suburethral tension free vaginal sling is needed to assess whether this difference is still seen.

Key Words: Quality of Life, Urogenital Distress Inventory, Suprapubic tension free vaginal Sling, suburethral tension free vaginal sling

Disclosure - Nothing to disclose.

Video Presentation 1

LAPARO-ENDOSCOPIC SINGLE SITE (LESS) TOTAL LAPAROSCOPIC HYSTERECTOMY: AN INSTRUCTIONAL VIDEO

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Objective: To illustrate the techniques used in Laparo-Endoscopic Single Site (LESS) total laparoscopic hysterectomy through a single umbilical incision with currently available instrumentation.

Description: Patients who benefit from a minimally invasive approach to hysterectomy will recover faster with less pain, return to normal activity sooner, and suffer fewer of the complications related to a more invasive procedure. For the last 10 −15 years, gynecologic surgeons have gained experience with laparoscopic hysterectomy, but the techniques have been relatively unchanged. In 2007, several procedures using multichannel, single incision laparoscopy were explored and presented primarily in the fields of urology and general surgery. Gynecologists have been slow to adopt this technique. There are no published reports in the gynecologic peer-reviewed literature. This video is an overview of the equipment and techniques necessary to begin offering this novel minimally invasive approach to hysterectomy and other procedures. We describe and demonstrate the techniques of gaining entry using a multichannel laparoscopic port, using a flexible laparoscope and reticulating instruments, and tips for improved efficiency during hysterectomy or other procedures.

Conclusion: LESS total laparoscopic hysterectomy and other procedures can be performed safely using techniques common in conventional laparoscopy. This technique is an exciting advance that may prove to have less pain and faster recovery than other minimally invasive surgery with essentially no visible scar.

Key Words: Hysterectomy, Laparoscopy, Single Incision, Single Port, Minimally Invasive Surgery, New technique

Disclosure - Consultant Fees: Covidien, Consultant.

Video Presentation 2

VAGINAL UTERINE MORCELLATION

G. B. Diwadkar, C. G. Chen, M. F. Paraiso and M. D. Walters *Urogynecology/Pelvic Reconstructive Surgery, Cleveland Clinic, Cleveland, OH*

Objective: The objective of this video is to demonstrate the steps to performing four vaginal uterine morcellation techniques, including intramyometrial coring, wedge resection, bivalving, and myomectomy.

Description: Large uterine size, especially due to fibroids, was thought to be a relative contraindication to vaginal hysterectomy due to increased morbidity from technical difficulties with removal, leading to increased blood loss and increased intraoperative time. However, vaginal hysterectomy with morcellation has been an option for a large uterus with fibroids. Morcellation refers to the piecemeal removal of a large uterus. The decreased volume of the uterus then provides exposure of the uteroovarian ligaments, allowing removal of the uterus. The four most common techniques are intramyometrial coring, wedge resection, bivalving, and myomectomy. The type of technique chosen depends on surgeon experience as well as anatomic findings. This video reviews the indications and steps to performing each morcellation technique.

Conclusion: Morcellation has allowed vaginal hysterectomy to be safely and efficiently performed making it a practical option for a patient with a large uterus.

Key Words: vaginal surgery, hysterectomy, uterus, morcellation

Disclosure - Nothing to disclose.

Video Presentation 3

THE DöDERLEINE TECHNIQUE FOR VAGINAL HYSTERECTOMY

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Objective: To provide an instructional video on the performance of the Döderleine technique for vaginal hysterectomy. The intent of this project was to provide a tool to complement the educational experience of our trainees and a refresher for the accomplished gynecologic surgeon.

Description: Hysterectomy is the second most common surgical procedure performed in the United States after cesarean delivery. Less than one quarter of hysterectomies are performed vaginally. Advantages of the vaginal approach, such as reduced morbidity and more rapid recovery, continue to make vaginal hysterectomy the surgical route of choice. We present an overview of the Döderleine technique for vaginal hysterectomy. This safe and easily accomplished procedure offers an alternative to the traditional Heaney technique. This video will review the indications, advantages, and steps involved in performing the Döderleine method.

Conclusion: The vaginal route remains the least invasive and most cost effective approach to hysterectomy. The Döderleine technique offers several advantages over traditional techniques while remaining a safe and easily adopted approach.

Key Words: Vaginal hysterectomy, Technique, Doderleine

Disclosure - Nothing to disclose.

Video Presentation 4

NEUROANATOMY AND PHYSIOLOGY OF THE LOWER URINARY TRACT WITH CLINICAL APPLICATIONS

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Objective: The objectives of this video are to present an educational tool that improves learner's knowledge of anatomy, physiology, and neural pathways involved in normal function of the lower urinary tract (LUT) system and to provide clinical correlations to LUT dysfunction. These objectives are accomplished by use of narration, original illustrations, and 2D animations. A thorough understanding of how the individual components of the lower urinary tract and central and peripheral nervous system interact and function is essential to effectively manage LUT dysfunction.

Description: Fundamentals of female LUT anatomy, with emphasis on neurophysiology are demonstrated using a combination of original illustrations and graphic animation. After a comprehensive description of the anatomy of the bladder and urethra, the neuroanatomy pertinent to LUT function is presented. This is followed by graphic animations that demonstrate how the individual components of the LUT and nervous system interact to coordinate normal storage and evacuation of urine. Lastly, clinical scenarios are presented that correlate specific types of voiding dysfunction with localized central and peripheral nervous system defects.

Conclusion: The coordinated function of the LUT system depends on the complex interactions between the nervous system and the LUT anatomy. A thorough understanding of these components and their interactions is essential to properly diagnose and manage LUT dysfunction.

Key Words: lower urinary tract, neuroanatomy, neurophysiology

Disclosure - Nothing to disclose.

Video Presentation 5

TIPS & TRICKS: PREVENTION OF PERIOPERATIVE NEUROPATHIES IN PELVIC SURGERY

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Objective: To review the mechanisms, signs and symptoms of various neuropathies that can be seen following gynecologic surgery including abdominal, vaginal and laparoscopic surgery. To review proper patient positioning to avoid perioperative neuropathies.

Description: This is an educational video that provides tips, tricks, and pearls for the prevention of perioperative nerve injuries. In pelvic surgery, most perioperative injuries are from injury to one or more components of the lumbosacral nerve plexus, which receives neural input from nerve roots of T12 caudally to level of S4. The nerves that originate from the lumbosacral nerve plexus include the iliohypogastric, ilioinguinal, genitofemoral, lateral femoral cutaneous, femoral, obturator, pudendal, and sciatic nerve. In abdominal cases, the most common gynecologic neuropathy is femoral nerve injury from lateral placement of the retractor blades. To avoid femoral nerve injury during abdominal surgery, the shortest retractor blade should be used for the shortest period of time. A laparotomy pad can be placed between the retractor blade and the abdominal wall. The obturator nerve injury can be avoided with better exposure of the obturator space with a vein retractor at the time of lymph node dissection. The risk of ilioinguinal and iliohypogastric nerve entrapment can be decreased by avoidance of lateral extension of a low transverse incision beyond the lateral border of the rectus muscle. Femoral injury during lithotomy position can be avoided by proper positioning so that hip flexion is >60 and <170 degrees. The risk of sciatic nerve injury can be decreased by avoidance of leg extension with hip flexion and inadvertent leaning on the patient's leg. Common peroneal nerve injury can occur if the lateral calf is inappropriately compressed. The ankles should be placed in the boot of the stirrups with the majority of the weight on the heel. Foam pads around the knee can be used to avoid compression from the candy canes if necessary. The upper extremities are susceptible to brachial plexus injury and ulnar nerve injury which are both avoidable with proper patient positioning.

Conclusion: Prevention of perioperative neuropathy is a team effort with the coordination of surgical, anesthesia and operating room personnel. There are certain measures that can be taken to minimize the risk of nerve injury for abdominal, vaginal and laparoscopic cases. These measures include preoperative assessment of the patient, proper positioning of patients, and correct use of self-retaining retractors. The angles to consider with patient positioning are hip flexion, knee extension, hip abduction and external rotation. One should take pride in the positioning of patients as prevention is truly the best treatment of all.

Key Words: Neuropathy, Education, Perioperative, Gynecology

Disclosure - Nothing to disclose.

Video Presentation 6

HYSTEROSCOPIC TREATMENT OF ASHERMAN'S SYNDROME

H. E. Herrell, B. E. Foulk and N. A. Assad *Obstetrics and Gynecology, East Tennessee State University, Johnson City, TN*

Objective: To teach learners methods for diagnosis and management of Asherman's Syndrome.

Description: This video illustrates methods of diagnosing Asherman's Syndrome, including using 3D Ultrasound for preoperative mapping, and demonstrates methods of hysteroscopic resection of intrauterine adhesions.

Conclusion: 3D ultrasound is a valuable adjunct to the hysteroscopic management of Asherman's syndrome.

Key Words: Hysteroscopy, Asherman's Syndrome, 3D Ultrasound

Disclosure - Nothing to disclose.

Video Presentation 7

VERSAPOINT ABLATION OF SUBMUCOSAL LEIOMYOMATA

H. E. Herrell, B. E. Foulk and N. A. Assad *Obstetrics and Gynecology, East Tennessee State University, Johnson City, TN*

Objective: To teach learners techniques for ablation of submucosal fibroids.

Description: This video teaches learners techniques for 3D ultrasound mapping of submucosal fibroids and hysteroscopic surgical techniques for their resection using the Versapoint cautery system.

Conclusion: The Versapoint system is an effective method for ablation of submucosal fibroids.

Key Words: 3D ultrasound, Hysteroscopy, Fibroids

Disclosure - Nothing to disclose.

Video Presentation 8

PARAVAGINAL TAPES FOR CORRECTION OF STAGE II OR MORE PELVIC ORGAN PROLAPSE

A. Robichaud *obs gyn, georges dumont hospital, Moncton, NB, Canada*

Objective: Vaginal repairs without graft for stage II or more pelvic organ prolapse, as defined as any vaginal site at 1 cm above the hymen or any point lower, have been associated with a 58% recurrence rate at 1 year follow up (Whiteside JL). How can we improve?

Description: Information gathered from the scientific literature is reviewed and constitutes the basis from which a surgical approach to pelvic organ prolapse is established. A paravaginal surgical technique , for correction of stage II or more pelvic organ prolapse with anatomical lateral detachment, using a polypropylene tape, sutured to the vaginal adventitia and muscularis, and anchored to the arcus tendineous fasciae pelvis and /or the sacrospinous ligament, in an anterior (case #1) and posterior compartment defect (case #2) is demonstrated.

Conclusion: This video demonstrates that paravaginal tape suspension can restore the prolapse vaginal wall.

Key Words: paravaginal tape, polypropylene graft, vaginal wall suspension

Disclosure - Nothing to disclose.