DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS:
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Geometric analysis of the urethral-vaginal interface in women with and without stress urinary incontinence

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OBJECTIVES: Previous studies have demonstrated structural differences of the urethra between women with and without stress urinary incontinence (SUI). In this pilot study, we hypothesize that there is a difference in the curvature of the urethral-vaginal interface in this population, as assessed by geometric analysis, due to differences in lateral urethral support associated with SUI.

MATERIALS AND METHODS: We conducted a pilot case-control study using magnetic resonance imaging (MRI) scans of 18 women with and without SUI. The urethral-vaginal interface at the level of the mid-urethra was marked with 9 points (Figure 1a) and fitted with a second order polynomial regression (Figure 1b). The chord length and chord-to-vertex length of the resulting parabolic curve, with respect to the lateral interface borders, were used to calculate the arc length and radius of a circular arc fitted to the interface curvature. Two evaluators made measurements. Demographic and clinical data including age, body mass index (BMI), maximal urethral closing pressure (MUCP), and POP-Q parameters were collected. The groups were stratified by those with and without SUI as well as those with and without anterior wall prolapse beyond 2 cm proximal to the hymen (Aa > 2), given the relationship between anterior wall prolapse and SUI. Normality of data was assessed using the Shapiro-Wilk test. Comparison of groups was performed using the Wilcoxon Rank-Sum test.

RESULTS: Age and BMI were similar in the two groups (Table 1). The radius of the urethral-vaginal interface curvature was found to be smaller in subjects with Aa > 2 (8.4 vs 11.9 mm, P = 0.03); this was not found to be different between subjects with and without SUI (8.8 vs 9.2 mm, P = 0.53). The chord length, chord-to-vertex length, and arch length comprising the urethral-vaginal interface curvature were similar between subjects with and without SUI, and between subjects with and without Aa > 2 (P > 0.05 for all). Subjects with SUI had a lower MUCP than subjects without SUI (41.5 vs 67.3 cm H2O, P = 0.008); MUCP among subjects with and without anterior wall prolapse, as defined above, was similar (48.0 vs 45.7 cm H2O, P = 0.82).

CONCLUSION: In this pilot study population, the radius of the urethral-vaginal interface curvature at the mid-urethra was smaller among women with anterior vaginal wall prolapse beyond 2 cm proximal to the hymen. A statistically significant difference in the urethral-vaginal interface curvature among women with and without SUI was not found; however, this may be due to the small sample size.
Randomized trial of laparoscopic versus abdominal hysterectomy for benign indications and impact on surgical success

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OBJECTIVES: To examine the differences in patient-centered goals in individuals undergoing laparoscopic versus abdominal hysterectomy for benign indications.

MATERIALS AND METHODS: This abstract is a sub-analysis of a prospective, randomized controlled trial examining the impact of laparoscopic versus abdominal hysterectomy on patient-centered outcomes including quality of life, pain, and productivity. At each pre-operative visit, each participant reported top three patient-centered goals they hoped to achieve prior to undergoing a hysterectomy. In addition, participants rated their subjective achievement of goals from 1 to 10, with 1 (goal not achieved) and 8 to 10 (goal achieved). The subjects were then randomized to total laparoscopic (TLH) or total abdominal hysterectomy (TAH). Following surgery, repeat assessment of goal achievement was obtained within each group on post-operative day 1, at 6 weeks, 6 months than 12 months post-operatively. In addition, the length of time to successful goal achievement (scores of 8 or higher during any post-operative period) was recorded in all participants. Power analysis was based on differences in the primary outcome of the initial study: Quality of Life as scored by the SF-36 form. With a clinically significant differences of 15 points in the SF-36 required a sample size of 29 patients in each group for a power of 80% with a two-sided significance level of 0.05. With that, differences in goal achievement rates and the length of time to goal achievement were examined between TLH and TAH groups using the calculated sample size of the initial study.

RESULTS: A total of 91 participants undergoing benign hysterectomy were enrolled and randomized. Three patients were lost to follow-up, with 88 subjects available for final analysis. The top three goals listed respectively were: “Abnormal Uterine Bleeding,” (AUB) “Pelvic Pain,” (PP) and “Quality of Life.” (QOL). Overall, there were no significant differences in the percentage of goal achievement between TLH and TAH groups for QOL (69% vs 67%, P = 0.88), for AUB (67% vs 51%, P = 0.14), and PP (53% vs 49%, P = 0.67), though it appears that participants who listed QOL as their top goal were more likely to achieve the goal. The mode of hysterectomy did not appear to alter differences in goal achievement. In addition, there were no significant differences in the length of time to goal achievement between TLH and TAH groups for QOL (156 days vs 159 days, P = 0.99), for AUB (96 vs 116, P = 0.25), and PP (146 vs 143, P = 0.80).

CONCLUSION: In conclusion, there were no significant differences in goal achievement rates between TLH versus TAH groups regardless of the desired patient-centered goals, though the majority of participants achieved their respective goals in both groups. In addition, there were no differences in length of time to goal achievement between the two groups. This study suggests that a hysterectomy itself may have a therapeutic effect on patient-centered outcomes irrespective of the route of surgery.

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