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# RISK OF UNANTICIPATED ABNORMAL GYNECOLOGIC PATHOLOGY AT THE TIME OF SURGERY FOR UTEROVAGINAL PROLAPSE

Hypothesis / aims of study
While operative procedures for advanced uterovaginal prolapse have historically involved hysterectomy, multiple surgical alternatives exist for women who desire uterine conservation. These include LeFort colpocleisis, sacrospinous hysteropexy, sacrohysteropexy, uterosacral ligament uterine suspension, and mesh-assisted variations. Despite data supporting the safety and efficacy of these procedures, many providers are reluctant to leave the uterus in situ for fear that the patient may currently harbour or later develop lesions that necessitate uterine evaluation and/or hysterectomy. LeFort colpocleisis completely eliminates access to the cervix and uterus, while sacrohysteropexy, sacrospinous hysteropexy, uterosacral ligament uterine suspension and associated mesh procedures have the potential to alter the uterine axis making it difficult to sample cervical or endometrial tissue. These procedures may also complicate a hysterectomy if it becomes necessary at a later date. Our study aims to assess the risk of unanticipated abnormal uterine, cervical, and ovarian pathology at the time of surgery for uterovaginal prolapse, in order to better understand the risks of uterine conservation in the surgical treatment of pelvic organ prolapse.

Study design, materials and methods
All surgeries for uterovaginal prolapse that included hysterectomy and were performed by members of the Section of Urogynecology and Reconstructive Pelvic Surgery at a U.S. tertiary care medical center between January 1, 2005 and August 14, 2008 were reviewed via the electronic medical record. Demographic characteristics and symptoms were collected from clinic notes, while operative and pathology reports were reviewed for information on the procedure performed, as well as the intraoperative and pathology findings. Cases where malignant or pre-malignant uterine or cervical cytology were known or suspected prior to surgery, as well as patients with known adnexal masses preoperatively were excluded from this analysis. Frequencies, confidence intervals and t-tests were calculated using JMP software (Version 7.0; SAS Institute, Cary, NC).

Results
A total of 681 patients underwent hysterectomy and associated reconstructive surgery for uterovaginal prolapse during the study period. 5.4% had known gynecologic pathology preoperatively and were excluded from this analysis. Screening and pre-operative pelvic ultrasounds or endometrial biopsies are not routinely done in our center. 644 patients had no known gynecologic pathology preoperatively and are the subjects of this report. Their mean age was 59.7+/-12.0 years. 72.3% were postmenopausal. Of the hysterectomies performed in study subjects, 569 (88.2%) were vaginal, 39 (6.0%) were abdominal, 32 (5.0%) were laparoscopic and 5 (0.8%) were robotic. 570 (88.5%) cases involved a vaginal vault suspension, 520 (80.6%) anterior and/or posterior colporrhaphy, and 401 (62.2%) an anti-incontinence procedure.
The mean uterine weight was 86 +/-80 g (range 6-1170 g). 17 patients had unanticipated pre-malignant or malignant uterine pathology (2.6%, 95%CI=1.7-4.2%). There were five cases of simple hyperplasia (0.8%, 95%CI=0.3-1.8%), three cases of complex hyperplasia (0.5%, 95%CI=0.2-1.4%), and seven patients with complex atypical hyperplasia (1.1%, 95%CI=0.5-2.2%). Two patients (0.3%, 95%CI=0.09-1.1%) were found on pathology to have endometrial carcinoma.
All patients with unanticipated endometrial pathology were postmenopausal. Among the 466 postmenopausal women in our study, 6 of 45 (13.3%) with postmenopausal bleeding had a negative diagnostic evaluation including biopsy (n=5) or ultrasound (n=1), then were found to have endometrial hyperplasia (n=5) or carcinoma (n=1) at the time of hysterectomy. 11 of 421 (2.6%) postmenopausal women who did not report vaginal bleeding were diagnosed with endometrial hyperplasia (n=10) or carcinoma (n=1) at the time of hysterectomy. Notably, none of the premenopausal women were found to have abnormal endometrial pathology at the time of hysterectomy, including 63 with a negative evaluation for abnormal uterine bleeding.
In further analyses, women with pre-malignant or malignant uterine pathology were found to be older than women with benign pathology (mean age 59.5+/-12.0 versus 67.0+/-10.7 years, respectively, P=.01) and were more likely to be postmenopausal (100% versus 71.6%, P=.01). The groups had similar body mass indices (27.7+/-5.2 versus 27.9+/-4.8, P=.89) and rates of hormone replacement therapy use (17.7% versus 6.2%, P=.09). Women with polyps were more likely to have pre-malignant or malignant uterine pathology than those without polyps (1.9% versus 5.6%, P=.03).
308 (47.8%) uterine specimens were noted to have fibroids, 258 (40.0%) showed adenomyosis, and 125 (19.4%) had at least one polyp. 167 cases (25.9%) involved unilateral or bilateral oophorectomy at the time of the uterovaginal prolapse operation, either as a planned part of the procedure or secondary to an abnormal ovarian appearance noted intraoperatively. 51 (7.9%, 95%CI=6.1-10.2%) had benign cysts under 4 cm while seven (1.1%, 95%CI=0.5-2.2%) had benign cysts over 4 cm. There were no neoplastic ovarian lesions. On cervical pathology, 2 patients (0.3%, 95%CI=0.3-0.08) had CIN 1. Neither patient had a history of cervical dysplasia.
Interpretation of results
Our findings indicate the rates of unanticipated pre-malignant and malignant uterine, cervical and adnexal pathology at the time of uterovaginal prolapse surgery are relatively low, and thus support application of uterine conservation procedures in the treatment of uterovaginal prolapse, particularly in premenopausal women in whom the rate of unanticipated malignant or pre-malignant uterine pathology was 0% in our series. However, endometrial hyperplasia and carcinoma were diagnosed at a rate of 2.6% in postmenopausal women without any history of bleeding at the time of hysterectomy and reconstructive surgery. More worrisome is that among women with postmenopausal bleeding who had a negative endometrial evaluation preoperatively, the rate of unanticipated malignant or pre-malignant increased to 13.3%.
Concluding message
The rate of unanticipated pre-malignant or malignant gynecologic pathology at the time of surgery for uterovaginal prolapse is low (2.6%). As such, uterine conservation at the time of pelvic reconstructive surgery incurs a low risk for retention or development of malignant gynecologic pathology. Premenopausal women with normal bleeding patterns or with a thorough negative evaluation for abnormal uterine bleeding are good candidates for uterine conservation procedures and have a minimal risk of retained abnormal gynecologic pathology. In post-menopausal women without bleeding, the risk of unanticipated uterine pathology is 2.6% and may

be reduced by preoperative endometrial evaluation. However, in women with a history of postmenopausal bleeding, we do not recommend uterine preservation at the time of prolapse surgery, even with a negative preoperative endometrial evaluation.


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| ***Was the Declaration of Helsinki followed?*** | **Yes** |
| ***Was informed consent obtained from the patients?*** | **No** |