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Predictors of Successful Salpingo-Oophorectomy at the Time of Vaginal Hysterectomy

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ABSTRACT **Study Objective:** To determine prognostic factors related to successful salpingo-oophorectomy in menopausal women at the time of vaginal hysterectomy.
Design: Retrospective cohort study (Canadian Task Force Classification II-2).
Setting: Tertiary care center.
Patients: A total of 309 postmenopausal ≥60 years old with pelvic floor disorders.
Interventions: Vaginal hysterectomy with attempted prophylactic salpingo-oophorectomy.
Measurements: Factors associated with ability to achieve vaginal salpingo-oophorectomy.
Main Results: 203 (65.7%) achieved successful removal of 1 or both ovaries, and 106 (34.3%) were not amenable to removal. Younger age and shorter cervical length were predictors of salpingo-oophorectomy. Cervical elongation of ≥7 cm, exteriorized cervical/uterine prolapse, and anterior vaginal wall prolapse beyond the hymen were associated with lower likelihood of achieving salpingo-oophorectomy.
Conclusions: Patient age and cervical length are independent factors that influence the success of accomplishing salpingo-oophorectomy at the time of vaginal hysterectomy. Journal of Minimally Invasive Gynecology (2012) 19, 58–62 © 2012 AAGL. All rights reserved.

Keywords: Vaginal hysterectomy; Salpingo-oophorectomy; Pelvic reconstructive surgery

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Salpingo-ophorectomy at the time of hysterectomy is a commonly practiced yet controversial procedure with approximately 300 000 women in the United States undergoing this procedure each year [1]. Data from the Centers for Disease Control and Prevention show that in women undergoing a hysterectomy, approximately 55% will undergo a concomitant salpingo-oophorectomy [2]. Indications for prophylactic salpingo-oophorectomy at the time of hysterectomy include an overall reduction in ovarian cancer in patients of all ages and a reduction in breast cancer rates in premenopausal patients. In addition, although there is a paucity of data, it is estimated that between 3% to 8% of women undergoing hysterectomy will require a second surgery for adnexal disease that develops in the future [3].

The rate of salpingo-oophorectomy with concomitant hysterectomy is age dependent. In younger women ages 40 to 44, 50% have concurrent oophorectomy compared with 78% of women ages 45 to 64. In addition to age, route of hysterectomy affects rates of salpingo-oophorectomy, with vaginal hysterectomy having lower concomitant removal of the adnexa compared with laparoscopic assisted and abdominal hysterectomy. In a large database study of more than 450 000 women, Jacoby et al [4] showed advanced age, geography, and route of hysterectomy to be the most

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important determinants of salpingo-oophorectomy. Notably, salpingo-oophorectomy was least likely to be performed with vaginal hysterectomy and 8-fold more likely to occur in conjunction with laparoscopic assisted hysterectomy and 12-fold as likely with abdominal hysterectomy [4]. Desire for salpingo-oophorectomy may thus be a factor for deciding route for a hysterectomy.

The discrepancy in the rate of salpingo-oophorectomy and surgical approach may be explained by the technical challenges inherent to vaginal surgery, as well as heightened concerns for intraoperative complications such as ureteral injury and intraoperative bleeding with a vaginal approach [5]. Despite its procedural challenges, published data report safe and successful removal of the adnexa at the time of vaginal hysterectomy, with rates ranging between 65% to 95% [6,7]. We performed this study to identify preoperative demographic and clinical factors that impact successful salpingo-oophorectomy at the time of vaginal hysterectomy when a strictly vaginal route is planned. Our intention was to determine our rates and determinants of successful vaginal salpingo-oophorectomy to improve preoperative counseling for our patients with respect to salpingo-oophorectomy success.

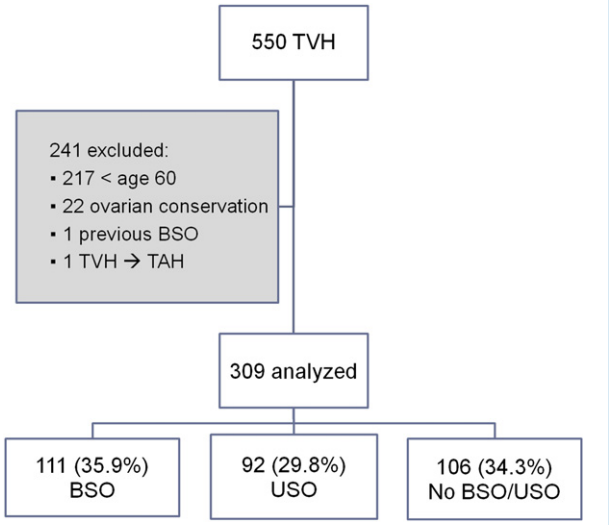
Materials and Methods

This was an institutional-review board approved retrospective cohort study of all women within the Section of Urogynecology/Pelvic Reconstructive Surgery at Cleveland Clinic Florida who underwent vaginal hysterectomy with intended prophylactic salpingo-oophorectomy. All surgeries were performed at a single institution between January 2003 to December 2010 by 2 fellowship-trained pelvic reconstructive surgeons. Our inclusion criteria were all patients undergoing vaginal hysterectomy who were postmenopausal and $\geq$60 years old who requested prophylactic salpingo-oophorectomy at the time of their surgery. Because we sought only to analyze cases in which vaginal salpingo-oophorectomy was planned, we excluded all cases in which there was documentation of a desire for ovarian conservation, laparoscopic assistance, known or suspected ovarian disease, or previous bilateral salpingo-oophorectomy.

Data were collected from our urogynecologic database, and chart review was performed to obtain patient demographics, previous surgical history, and clinical prolapse examination. Previous surgeries included gynecologic, pelvic, or intraabdominal laparoscopy or laparotomy including cesarean delivery, appendectomy, tubal or adnexal surgery, or colorectal surgery. Clinical prolapse examination was performed in all cases with the Pelvic Organ Prolapse Quantification (POP-Q) system, a standardized and validated system for the accurate quantification of pelvic organ descent with 9 specific points along the anterior, apical, and posterior vaginal walls and perineum [8]. All vaginal hysterectomy operative reports were reviewed by the primary author to determine type of anesthesia, estimated blood loss, and concomitant procedures and, if applicable, the reason for unsuccessful salpingo-oophorectomy. Cervical length was based on preoperative POP-Q examination and defined as the difference in centimeters between points D and C. Exteriorized prolapse was defined as any POP-Q point beyond the hymen (>0).

Fig. 1

Study design.



Statistical analysis was performed with both descriptive and hypothesis testing methods. Univariable analyses were performed to identify factors related to successful adnexectomy with χ^2 tests for categorical variables and Mann-Whitney rank sums tests for continuous data. A multivariable logistic regression model was then constructed for all variables significant of the level of .05 to identify independent demographic, clinical, or operative characteristics associated with salpingo-oophorectomy success.

Results

Between January 2003 and December 2010, 550 vaginal hysterectomies were performed within the Section of Urogynecology and Pelvic Reconstructive Surgery at our institution. Three hundred nine patients (56%) met inclusion criteria and were included in the analysis. Of the 241 (44%) cases not included in the analysis, 217 patients were younger than 60 years of age, 22 patients desired ovarian conservation, 1 patient had previous bilateral salpingo-oophorectomy, and 1 case was converted to laparotomy because of intraoperative hemorrhage. Two hundred three patients (65.7%) had successful removal of 1 or both ovaries, and 106 (34.3%) were not amenable to removal (Fig. 1). Of the salpingo-oophorectomy cohort, 111 (54.7%) were bilateral, and 92 (45.3%) were unilateral. Of those undergoing unilateral salpingo-oophorectomy, the right adnexa was removed in 53% (49/92) and the left in 47% (43/92). Salpingo-oophorectomy was not accomplished in 106 patients, with