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Anatomic outcomes after pelvic-organ-prolapse surgery—comparing uterine preservation with hysterectomy

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ABSTRACT

Objective: Pelvic organ prolapse (POP) is of growing importance to gynecologists, as the estimated lifetime risk of surgical interventions due to prolapse or incontinence amounts to 11–19%. Conflicting data exist regarding the effectiveness of POP surgery with and without uterine preservation. We aimed to compare anatomic outcomes in patients with and without hysterectomy at the time of POP-surgery and identify independent risk factors for symptomatic recurrent prolapses.
Study design: In this single-centre retrospective analysis we analyzed 96 patients after primary surgical treatment for POP. These patients were followed up with clinical and vaginal examination six months postoperatively. For comparison of the groups, the chi-squares test were used for categorical data and the *u*-test for metric data. A logistic regression model was calculated to identify independent risk factors for recurrent prolapse.
Results: Of 96 patients, 21 underwent uterus preserving surgery (UP), 75 vaginal hysterectomy (HE). Median operating time was significantly shorter in the UP group (55 vs. 90 min; $p = 0.000$). There was no significant difference concerning postoperative urinary incontinence or asymptomatic relapse ($p > 0.05$), whereas symptomatic recurrent prolapses were significantly more common in the UP group (23.8% vs. 6.7%; $p = 0.023$). However, in multivariate analysis, only vaginal parity and sacrospinous ligament fixation were identified as independent risk factors for recurrent prolapse after POP surgery.
Conclusion: Uterus-preservation at time of POP-surgery is a safe and effective alternative for women who wish to preserve their uterus but is associated with more recurrent symptomatic prolapses.

Introduction

Due to increasing life expectancy, pelvic organ prolapse (POP) is of growing importance to gynecologists. According to population based studies, the estimated prevalence of POP ranges between three and eight percent [1–3].

The differentiation between symptomatic and asymptomatic POP is clinically relevant, as approximately 40% of women are found to have POP stage II or greater upon routine pelvic examination [4–7]. Especially surgical treatment is only indicated in symptomatic women and the estimated lifetime risk of surgical interventions due to prolapse or incontinence amounts to 11–19% [8,9].

Hysterectomy is the most common surgical treatment to correct POP, often combined with other surgical procedures like colporrhaphy and vaginal vault fixation. More and more, this procedure has been questioned in its role as part of POP surgery [10,11]. Women have several reasons why they would wish to preserve their uterus, among them the preservation of fertility and intact body image [12].

Conflicting data exist regarding the effectiveness of POP surgery with and without uterine preservation [10,11,13–16]. Dietz et al. report that uterine preservation with concomitant vaginal sacrospinous hysteropexy is safe and effective regarding functional outcome and quality of life, but associated with more apical prolapse recurrences than vaginal hysterectomy at the time of POP-repair [10]. These results conflict with data by Maher et al. who found vaginal sacrospinous hysteropexy to be equally effective to vaginal hysterectomy combined with sacrospinous fixation in a retrospective analysis of 70 women operated for symptomatic POP. Maher et al. suggest that vaginal hysterectomy

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Table 1
Baseline patient characteristics.

	Uterine preservation ($n=21$)	Hysterectomy ($n=75$)	p-value
Age, years	47.0 (38.3–68.9)	59.6 (59.9–68.4)	0.04
Menopause, n (%)	11 (52.4)	55 (73.3)	0.07
BMI* (kg/m^2)	26.5 (22.5–27.7)	26.7 (24.1–29.0)	0.33
Number of vaginal deliveries	2 (2–3)	2 (2–3)	0.43
Assisted operative vaginal delivery, n (%)	3 (14.3)	7 (9.3)	0.46
Preoperative POP-stage	2 (2–3)	3 (2–3)	0.11
Most dependant point** (cm)	+1 (0–3.5)	+2 (0–3)	0.32

Numbers are presented as median and inter-quartile range (IQR).
* BMI (body mass index).
** Most dependant point is measured in centimeters from the hymenal ring.

might not be necessary in the surgical treatment of uterine prolapse [11].

The purpose of our study was to compare anatomic outcomes in patients with and without uterus-preserving POP-surgery and identify independent risk factors for the development of symptomatic recurrent prolapses.

Materials and methods

The present study was conducted as a single-centre retrospective analysis of patients who underwent primary surgical treatment for POP. The study was approved by the ethics committee of the Medical University of Vienna (EK 2011/677).

Between January 2004 and November 2010, 245 women underwent primary surgical treatment for POP at an academic tertiary referral centre. All patients had been offered pessary treatment and pelvic floor muscle training as a primary therapy and only women who failed this treatment or declined it were operated. Uterus preserving surgeries were performed in 25 patients on their individual request, vaginal hysterectomy combined with pelvic organ reconstructive surgery was performed in 220 patients. Six surgeons experienced in urogynecology performed all operations.

Inclusion criteria were symptomatic POP, a complete preoperative history, no previous POP-surgery, no previous hysterectomy as well as postoperative physical and vaginal examination. Patients were excluded from the study, if they had an incomplete pre- and postoperative history or missing preoperative pelvic-organ-prolapse-quantification score (POP-Q), previous surgery because of POP or hysterectomy for any cause.

Before surgery, all patients underwent comprehensive urogynecological examination including history, vaginal speculum-exam, and urinalysis. Prolapse was graded using the POP-Q-system [17]. Preoperative urodynamic evaluation was performed in women with bladder dysfunction and consisted of residual volume quantification, filling-cystometry, clinical stress-test with and without reduction of prolapse using a Sims speculum.

For statistical analysis, a p-value of <0.05 was considered significant. Values are given as mean (±standard deviation [SD]) when normally distributed or as median (inter-quartile range [IQR]) at presence of skewed distribution. For comparison of the groups, the chi-squares test were used for categorical data and the u-test for metric data. A logistic regression model was calculated to identify independent risk factors for recurrent prolapse. Statistical software SPSS 18.0 for Mac (SPSS 18.0, SPSS Inc, Chicago, IL, USA) was used for statistical analysis.

Results

Of 245 women who underwent primary surgery for POP at our centre, uterus preserving (UP) surgeries were performed in 25 patients (10.2%), vaginal hysterectomy (HE) combined with pelvic organ reconstruction in 220 patients (89.8%).

Ninety-six of 245 patients (39.2%; UP $n = 21$, HE $n = 75$) met all our inclusion criteria for statistical analysis. Of these, 75 women had undergone HE (78.1%) and in 21 patients (21.9%), the uterus had been preserved. The first follow-up visit was scheduled at six months postoperatively (IQR: 3–7). Patients in the UP-group were younger than patients who underwent vaginal hysterectomy (UP: 47 years, HE: 60 years; $p = 0.04$). There were no significant differences regarding other demographic data (see Table 1). In our study population, no patient suffered from any comorbidity relevant to POP (e.g. chronic obstructive pulmonary disease, connective tissue diseases).

All patients with uterine preservation ($n = 21$) underwent anterior and/or posterior colporrhaphy. Sacrospinous-ligament-hysteropexy was performed in 7 of 21 patients (33%). A tension-free vaginal tape (TVT) was performed in 4 of 21 patients (19%), a modified McCall-culdoplasty technique in one patient (5%).

Seventy-five had undergone vaginal hysterectomy. In 69 of 75 patients (92%) an additional anterior and/or posterior colporrhaphy was performed, in 9 patients (12%) a sacrospinous ligament fixation of the vagina was performed. Additionally, Mc-Call-culdoplasty was performed in 13 patients (17%), a TVT procedure was performed in 3 patients (4%).

The median operating time differed significantly between the two groups (55 min, IQR: 44–75 in the UP group versus 90 min, IQR: 71–105 in the HE group; $p < 0.001$) (see Table 2.) The median postoperative hospital stay did not differ significantly between the UP and the HE group and was 7 days (IQR: 6–8) and 6 days (IQR: 6–7), respectively ($p = 0.60$).

All patients were seen for a routine follow-up 6 months (IQR: 3–7) postoperatively. A total of 37 recurrent prolapses had occurred at this point in time. Nine relapses (43%) occurred in

Table 2
Peri- and postoperative results.

	Uterine preservation ($n=21$)	Hysterectomy ($n=75$)	p-value
Operating time (min)	55 (44–75)	90 (71–105)	<0.001
Hospital stay, days	7 (5.5–8)	6 (6–7)	0.60
Recurrent prolapse, n (%)	9 (42.9)	28 (37.3)	0.65
Symptomatic prolapse, n (%)	5 (23.8)	5 (6.7)	0.02

Numbers are presented as median and inter-quartile range (IQR).