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IUJ VIDEO

Uterus-preserving laparoscopic lateral suspension with mesh for pelvic organ prolapse: a patient-centred outcome report and video of a continuous series of 245 patients

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Abstract
Introduction and hypothesis Changes in the psychological value of reproductive organs have led to a growing interest in uterine-preserving surgery for pelvic organ prolapse (POP). Sacral hysteropexy is considered as gold standard, although dissection of the promontory may be challenging. We show a video and present a report on a series of patients operated by laparoscopic lateral suspension with mesh as an alternative.
Methods Clinical evaluation was performed using the simplified Pelvic Organ Prolapse Quantification System (POP-Q). Primary outcomes were subjective and objective cure; secondary outcomes were rates for reoperation and complications. We assessed patient's satisfaction in a telephone interview using a visual analogue scale and the Patient Global Impression of Improvement Scale (PGI-I) scale.
Results Two hundred and fifty-four patients were treated between 2004 and 2011 with a median follow-up of 7.5 years. At 1 year 82.7 % of patients were asymptomatic, and anatomic success rates were 88.2 % for the anterior, 86.1 % for the apical and 80.8 % for the posterior compartment; 1.2 % had mesh exposure, and the reoperation rate was 7.4 %. More than 80 % of patients were highly satisfied with the outcome.
Conclusions Uterine-preserving laparoscopic lateral suspension with mesh is a safe technique with promising results and low complication rates. It may be an alternative to sacral hysteropexy for high-morbidity patients.

Keywords Pelvic organ prolapse · Laparoscopic lateral suspension · Patient satisfaction

Introduction

Pelvic organ prolapse (POP) is a highly prevalent condition and can be found in up to 50 % of women in an increasingly obese Western society [1]. It has been reported to be the most common reason for gynaecological surgery in general and for hysterectomy in particular in women over the age of 50 years. In recent years, changes in attitudes toward sexuality, psychological value of reproductive organs and the desire to preserve fertility have led to a growing interest in uterine-preserving surgery for POP. Minimally invasive procedures derived from sacrocolpopexy are considered the gold standard in the treatment of apical POP [2]. However, dissection at the level of the promontory may be challenging, particularly in obese women and when an anatomical variation exists. This may be associated with rare but serious neurological or ureteral morbidity as well as life-threatening vascular injury. Laparoscopic lateral suspension with mesh (LLS) represents an alternative procedure, avoiding dissection at the promontory. We report the largest available series including outcome and complications of 245 patients operated with a uterus-preserving variation of the technique and demonstrate its different steps with a video.

This video was presented at the 40th meeting of the International Urogynaecology Association in Nice, France.

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Table 1 Characteristics of studied population (n=245)

Patient variables	Results
Age, median (range)	57 (33–81)
Parity, median (range)	2 (0–8)
Body mass index, median (range)	26 (18–39)
Hormonal status (%)	
Premenopausal	32.3 %
Postmenopausal	67.7 %
Sexually active (%)	61.7 %
Prior surgery for prolapse (%)	9.8 %
Prior surgery for stress urinary incontinence (%)	4.9 %
Operating time (min), median (range)	180 (90–300)
Concomitant surgery for posterior prolapse (%)	
Posterior vaginal native repair	18.0 %
Posterior laparoscopic mesh	31.8 %
Concomitant surgery for stress urinary incontinence (%)	
Laparoscopic colposuspension	58.2 %
Transobturator tape	2.9 %
Type of mesh used (%)	
Polyester	30.2 %
Polypropylene	58.4 %
Titanium-coated polypropylene	11.4 %

Methods

The local Ethics Committee on Clinical Studies of the Geneva University Hospitals approved the study protocol. This prospective cohort study included all women treated by uterus-preserving LLS for symptomatic apical prolapse between January 2004 and October 2011. The technique consists of a T-shaped synthetic mesh graft placed in the vesicovaginal septum and suspended bilaterally to the abdominal wall, posterior to the anterior superior iliac spine. A deep dissection of the vesicovaginal space until reaching the pelvic floor muscles enables concomitant treatment of a potential cystocele. Some patients were additionally treated with a polypropylene mesh placed in the rectovaginal septum or with standard vaginal posterior colporrhaphy. Systematic postoperative clinical examinations were performed after 4 weeks, at 6 months and at 12 months. Clinical evaluation of pelvic organ support was assessed by an equivalent of the simplified Pelvic Organ Prolapse Quantification grading system (POP-Q). The main outcome measures were subjective and objective cure and patient satisfaction. Anatomic cure was defined as POP-Q sites Ba, C and Bp as less than −1 cm at any point in time during follow-up. Secondary outcomes were reoperation rate for symptomatic recurrence and mesh-related complication rate. We reported complication rates using the Clavien Dindo scale [3]. Mesh-related complications were classified using the joint International Urogynecology Association/International Continence Society (IUGA/ICS) complication classification calculator [4]. A telephone interview was conducted between 4 and 10 years after surgery to assess patient satisfaction using the Patient Global Impression of Improvement Scale (PGI-I) and the visual analogue scale (VAS) for global satisfaction [5]. Values were reported as median with range. The Wilcoxon signed-rank test was used to demonstrate change in prolapse stages pre- and postoperatively. Data analysis was performed using SPSS version 22.0.

Results

Two hundred and forty-five patients were treated between 1 January 2004 and 1 October 2011 in a tertiary referral hospital. Predominant symptoms were prolapse-related symptoms such as a feeling of heaviness in the lower abdomen or a sensation of a bulge or a lump in the vagina. All patients had significant stage 2 POP or greater in at least two out of the three compartments. Demographic and procedure-related characteristics are summarised in Table 1: 59.6 % of patients had concomitant surgery for stress urinary incontinence (SUI), either by suburethral transobturator tape (TOT) insertion (2.9 %) or by laparoscopic Burch colposuspension (56.7 %). The posterior compartment was treated in 49.8 % of patients; 31.8 % had a posterior mesh whereas 18 % had vaginal native repair. Operating time varied between 90 and 300 min, which was dependant on the number of surgical steps.

Six patients were lost to clinical follow-up after 3 months and 13 additional patients after 1 year, which was partially due a highly migratory population. At 1 year, the overall satisfaction rate was 92.3 %, and 82.7 % of patients were

Table 2 Anatomic outcome of patients treated with uterus-preserving laparoscopic lateral suspension with mesh

	Preoperatively n, (%)	Postoperatively n, (%) (1–3 months)	Postoperatively n, (%) (12 months)	
Number of patients	245 (100)	239 (100)	226 (100)	
POP-Q point Ba≥−1	237 (96.7)	10 (6.5)	10 (11.8)	p <0.0001*
POP-Q point C≥−1	226 (92.2)	15 (8.6)	15 (13.9)	p <0.0001*
POP-Q point Bp≥−1	243 (81.4)	21(8.8)	28 (19.2)	p <0.0001*

POP-Q Pelvic Organ Prolapse Quantification System (simplified)

*Wilcoxon signed-rank test

Table 3 Results of the telephone interview (n=152)

Response (n) (%)	
Patients interviewed	152 (62.1 %)
Not reachable after at least 3 attempts	56 (22.8 %)
Lost to follow-up	25 (10.2 %)
Refused to participate	12 (4.9 %)
Visual analogue scale for overall satisfaction with the outcome, median (range)	9 (2–10)
Patient Global Impression of Improvement n (%)	
Much better	94 (61.8 %)
Better	32 (21.1 %)
Unchanged	10 (6.6 %)
A little worse	6 (3.9 %)
Worse	6 (3.9 %)
Much worse	4 (2.6 %)
Recommendation to a relative or friend n (%)	124 (81.8 %)

asymptomatic for prolapse. Anatomic success rates at 1 year were 88.2 % for the anterior, 86.1 % for the apical and 80.8 % for the posterior compartment. In patients who had a posterior repair or a posterior mesh, the anatomic success rate was 83.6 % for the relevant compartment. There was clinical and statistically significant anatomic improvement for all compartments (Table 2).

After 1 year, 2 % had de novo SUI, 2.2 % needed treatment for urinary retention, 2.2 % complained of recurrent urinary tract infections, 4.8 % of urgency and 4.7 % of sexually active patients reported de novo dyspareunia. Only 5.3 % of patients developed de novo constipation, a result superior to the rates reported in large series on sacrocolpopexy [2]. Of the women operated in our study, 9.1 % underwent minor postoperative complications rated grade 1 or 2 on the Clavien Dindo scale, three (1.3 %) had grade 3 complications requiring reintervention, including two with a hernia at a trocar site and one vaginal haematoma. A total of three patients had mesh exposure (1.2 %); two had vaginal exposure of the anterior polyester mesh (both classified 2CT4S2 with the IUGA/ICS complication classification calculator), and one had exposure of the posterior polypropylene mesh (classified as 2BT2S2 with the IUGA/ICS complication classification calculator). All exposed meshes were subsequently removed. Total reoperation rate was 7.4 % for prolapse recurrence and 2.8 % for SUI recurrence.

Results of the telephone interview are summarised in Table 3. Median overall follow-up was 7.5 years (range 4–10); 152 could be reached and were interviewed. Median VAS score for overall satisfaction was 9 out of 10, 82.9 % reported improvement of their condition at the PGI-I scale and 81.8 % would recommend the operation to a relative or a friend.

Conclusion

Uterus-preserving laparoscopic lateral suspension with mesh is a feasible and safe technique with promising long-term anatomic results, promising subjective cure rates in highly satisfied patients. Complication rates and occurrence of de novo symptoms are comparable with sacral hysteropexy. The technique is suitable for surgeons seeking an attractive alternative for women who wish to preserve their uterus in a context of high morbidity and/or with difficult access to the promontory.

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Consent Written informed consent was obtained from the patient for publication of this video article and any accompanying images.

Compliance with ethical standards

Conflict of interest Jean-Bernard Dubuisson is a medical advisor for pfm medical.

All other authors declare that they have no conflict of interest.

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