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Women's quality of life and sexual function after transvaginal anterior repair with mesh insertion

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ABSTRACT

Objective: Current evidence about the impact of pelvic floor surgery on sexual function is conflicting. Only a few studies have reported with validated questionnaires on sexual function after transvaginal mesh repair, with a discrepancy in reported outcomes. The aim of this study was to prospectively explore the impact of anterior repair (AR) with mesh insertion on sexual function, quality of life and dyspareunia.
Study design: 69 women with symptomatic stage II or greater prolapse exclusively of the anterior compartment participated in a prospective study on safety and efficacy of two mesh implantation techniques for anterior vaginal wall prolapse repair between September 2007 and May 2009. They were invited to complete the validated condition-specific short form of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12) and quality of life (QoL) questionnaires (Pelvic Organ Prolapse (POP) Distress Inventory (POPDI), Urinary Distress Inventory (UDI), POP Impact Questionnaire (POPIQ), and Urinary Impact Questionnaire (UIQ)) pre-operatively and 6 months post-operatively. All data were processed and analyzed in Statistical Computing Environment R, version 2.9.1.
Results: A significant decrease of QoI scores and a significant increase of PISQ-12 scores occurred after surgery. All sexually active women resumed sexual activity postoperatively. The majority of non-sexually active women remained sexually inactive. Postoperatively the frequency of pain during intercourse increased in 31% of cases and decreased or stayed unchanged in 69% of cases. The incidence of de novo dyspareunia after mesh repair was 4% while the incidence of dyspareunia slightly increased from 25% to 29% postoperatively.
Conclusions: The results of this study suggest no deterioration in sexual function, a significant improvement in quality of life and a low incidence of de novo dyspareunia six months after AR with mesh insertion. Despite these findings, the majority of non-sexually active women remain sexually inactive postoperatively. These conclusions should be confirmed in a longer follow-up.

1. Introduction

Pelvic organ prolapse (POP) is a major health problem affecting 50% of parous women over 50 years of age [1]. In 2010 approximately 300,000 women underwent surgical procedures in the United States to repair POP: approximately one out of three POP surgeries used mesh and three out of four procedures were done transvaginally [2].

The anterior vaginal wall is the most common site of prolapse, where surgery might disturb the delicate erectile reflex and sexual response [3] and lead to deterioration of sexual function. A recent Cochrane review showed that mesh use at the time of anterior repair (AR) reduces the risk of recurrent anterior vaginal wall prolapse [4]. Mesh insertion, however, may be associated with significant and serious adverse events.

Current evidence on the impact of pelvic floor surgery on sexual function is conflicting [5]. Only a few studies have reported with validated questionnaires on sexual function and quality of life (QoL) after transvaginal mesh repair, with a discrepancy in reported outcomes [6–12]. We undertook a prospective interventional study on the safety and efficacy of two mesh implantation techniques for anterior vaginal wall prolapse repair. The aim of the present study is to evaluate the impact of mesh insertion on sexual activity, sexual function and QoL.

2. Materials and methods

Women with symptomatic stage II or greater prolapse of the anterior compartment and with no symptomatic prolapse of other compartments that might require surgical repair, referred to our tertiary urogynecological unit between September 2007 and May

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2009, were recruited to join this prospective observational study. They were assessed with a standardized interview that included questions about symptoms of urinary incontinence, POP and sexual function, and examined before and 3 and 6 months after surgery. All patients had urodynamic examination, pelvic floor ultrasound and pelvic assessment according to the International Continence Society POP-Quantification system [13]. Sexual function was assessed by inviting the patients to complete the validated condition-specific short form of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire (PISQ-12) [14] before and six months after surgery. Validated QoL questionnaires [15,16] – POP distress inventory (POPDI), Urinary Distress Inventory (UDI), POP Impact Questionnaire (POPIQ), and Urinary Impact Questionnaire (UIQ) – were completed pre-operatively and six months post-operatively. To explore the incidence of dyspareunia and de novo dyspareunia, we analyzed the results of the PISQ-12 question 5: do you feel pain during intercourse? The possible answers are: always, usually, sometimes, seldom or never. Dyspareunia was defined as responses: sometimes, usually or always.

Sixty-nine women were eligible to join this study. They were divided according to a protocol into two groups: the mesh group, treated with AR augmented by individualized mesh (Gynemesh®, Gynecare PS, Ethicon, Somerville, NJ, USA)) without lateral fixation (Mesh; $n = 33$) and the Prolift group, treated with a Prolift anterior® (Prolift anterior™, Gynecare, Ethicon, Somerville, NJ, USA) (Prolift; $n = 36$).

The Prolift procedure was performed as described by Fatton et al. [17]. For mesh insertion without lateral fixation a full thickness midline vertical incision was made 3 cm proximally to the urethral meatus toward the cervix or the vaginal cuff. The blunt dissection of the paravesical space continued laterally toward the arcus tendineus fascia pelvis (ATFP) bilaterally. The bladder was also dissected off the cervix or vaginal vault. Intra-operatively a butterfly-shape mesh was cut and inserted in a way to completely cover the cystocele and to lie flat, without folding and in a tension-free manner. Laterally the mesh edges (wings) were inserted toward the ATFP. To prevent peri- and early post-operative slipping, the mesh was attached by two 2-0 Vicryl Rapide (Ethicon, Somerville, NJ, USA) sutures at the level of the bladder neck and by two sutures at the level of the vaginal cuff or the cervix. The vaginal wall was closed by 2-0 Monocryl (Ethicon, Somerville, NJ, USA) in a running non-locked fashion. All patients received one prophylactic dose of antibiotics intra-operatively and vaginal packing was left for 24 h. Concomitant continence procedures were not allowed. All patients attended the first check-up within three months postoperatively. Those with persistent or de novo symptoms of stress urinary incontinence (SUI) were booked for urodynamic examination and after confirmation of urodynamic USI a continence procedure was performed 7–9 months post-operatively.

All data were processed and analyzed in Statistical Computing Environment R, version 2.9.1. Continuous data were summarized as mean with standard deviation (SD) and as median or quartile range (QR). For comparison of two groups *F*-test was used. Wilcoxon and Kruskal–Wallis tests were used when the assumption of normality was not met. Tests were performed at 5% level of significance. To detect a 10% difference in the PISQ-12 scores between patients with POP before and after AR and to achieve a power of 90% a minimum sample size of 32 patients was needed.

The local ethics committee NR/9216-3 approved this study and all participated patients gave a written informed consent.

3. Results

Sixty-nine women participated in this study. All women were Caucasian. Demographic data showed no statistically significant differences between the groups (Table 1). The mean age was 60.7 (SD 10.2), mean parity 2.0 (SD 0.5) and mean BMI 27.8 (SD 3.7). Sixty-four women (93%) were postmenopausal, 34 (49%) had previous hysterectomy and 15 (22%) had previous vaginal repair. Before surgery 37 women (53%) were sexually active and 32 (47%) were not. The majority of sexually inactive women were no longer interested in sexual intercourse and only four women were inactive for partner-related reasons (two for not having a partner and two for erection disability of the partner). All sexually active women resumed their sexual activity postoperatively. The majority of non-sexually active women remained sexually inactive (31 of 32).

Two women did not complete the PISQ-12 questionnaires preoperatively and QoL questionnaires of four women were missed or incomplete. Thirty-five complete PISQ-12 questionnaires and 65 POPDI, UDI, POPIQ and UIQ of the same patients pre- and post-operatively were available for analysis. Pre-operative PISQ-12 and QoL parameters were not significantly different between groups. Table 2 demonstrates a statistically significant improvement of PISQ-12. Before surgery, the incidence of dyspareunia among women with cystocele was 25% (9 of 35): four women reported dyspareunia usually or always and five experienced pain during intercourse only sometimes. After surgery 10 women (29%) reported dyspareunia: one patient with de novo dyspareunia felt pain during intercourse sometimes, as did another 6 patients, and 3 patients reported dyspareunia usually. Worsening occurred in 31%, while improvement or no impact on frequency of pain occurred in 69% of women. The incidence of de novo dyspareunia was 4% (1 out 26 women with no dyspareunia before surgery) (Table 3).

There were no surgical or post-operative complications requiring reoperation. The overall incidence of mesh exposure was 11.5% (8/69): four exposures in the group of non-sexually active women and 4 in the sexually active women. Their PISQ 12 scores were 26, 31, 29, 23 before surgery and 40, 32, 28 and 27 respectively after surgery. The frequency of pain decreased in the first patient from usually to seldom. The second woman had no dyspareunia before and after surgery. The frequency of pain increased from seldom to sometimes for the third patient. The fourth patient usually felt pain during intercourse before and after surgery. Mesh exposure occurred five times in the Prolift group (5/36) and three times in the mesh group (3/33), with $p = 0.3083$. All exposures were asymptomatic 2 or 3 Aa T2 S1. Tables 4 and 5 show the significant decrease of UIQ, POPIQ, UDI and POPDI scores that indicate an improvement of QoL after surgery.

4. Comment

Mesh repairs are increasingly used. Sexual dysfunction, de novo dyspareunia and mesh exposure after transvaginal mesh surgery

Table 1
Demographic data.

	Prolift		Mesh		ANOVA *F*-test *p*-value
	N	Mean (SD)	*N*	Mean (SD)	
Age (years)	36	60.4 (10.6)	33	61.2 (8.4)	0.7284
Weight (kg)	36	163.3 (5.9)	33	165.3 (6.4)	0.2915
Height (cm)	36	76.2 (11.0)	33	73.9 (11.7)	0.1666
BMI (kg/m^2)	36	28.6 (3.8)	33	27.0 (3.5)	0.0945
	Prolift		Mesh		Kruskal–Wallis test *p*-value
	N	Median (QR)	*N*	Median (QR)	
Parity (number)	36	2.0 (1.0)	33	2.0 (0.0)	0.6274
Gravidity (number)	36	3.0 (2.0)	33	3.0 (2.0)	0.7309

Prolift: women treated with the Prolift anterior procedure; Mesh: women treated with anterior colporrhaphy augmented by individualized mesh.