

# Sexual function in women after vaginal surgery with synthetic mesh material

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## Summary

**Objective:** To prospectively assess the impact of surgery for stress urinary incontinence (SUI) and pelvic organ prolapse (POP) with vaginal synthetic mesh on female sexual function and satisfaction. **Materials and Methods:** Forty-four women treated by vaginal surgery for SUI and POP between October 2009 and October 2011 were asked to fill in questionnaires at baseline and at six months after surgery to determine the impact on their sexual function and satisfaction. The questionnaires used for assessment were the 19-item Female Sexual Function Index (FSFI) and the Dutch Seksueel Functioneren Algemeen (General sexual function) or SFA-questionnaire. **Results:** The questionnaire was completed by 27 patients (61.4%) at baseline; Nineteen reported being sexually active and eight were not. At six months follow-up, the questionnaire was returned by eight patients. In the studied population, an overall improvement of sexual function at six months follow-up was found. All six FSFI-domains: desire, arousal, lubrication, orgasm, satisfaction, and pain seemed to slightly improve. **Conclusion:** The authors found that there was an overall improvement of sexual function after vaginal surgery with synthetic mesh for POP and SUI.

**Key words:** Vaginal surgery; Pelvic organ prolapse; Stress urinary incontinence; Sexual function; Questionnaire; Tension-free vaginal tape; Vaginal mesh.

## Introduction

Women's sexual health is determined by different factors: anatomical, physiological, medical, psychological, and social. Numerous problems concerning these factors can attribute to sexual dysfunction. Sexual dysfunction is a frequent problem occurring in 50% of the population [1-3].

Both pelvic organ prolapse (POP) and stress urinary incontinence (SUI) are common in women. The mean prevalence of POP is 19.7% and prevalence rates for SUI are 16-36% in women aged 40-59 [4, 5]. Different types of surgery using incisions in the vaginal wall have proven to be safe and efficient for treatment of both conditions. Because of this vaginal incision questions may arise regarding its impact on sexual satisfaction and function.

POP and SUI due to weakness of the pelvic floor are known to negatively affect sexual function and satisfaction of women [6]. Therefore treatment may also improve sexual function.

Over the last few years several studies addressing the impact of the surgical treatment for pelvic floor weakness and POP on sexual function have been published. Both improvement and deterioration were reported. When improvement was found, this often seemed to be caused by the disappearing of coital incontinence. Dyspareunia seemed to be the main reason for deterioration of sexual function. The mean prevalence of de novo dyspareunia after the procedures was 20% [7-11].

The objective of this study was to prospectively assess the impact of surgery for SUI and POP on female sexual

function and satisfaction. To be eligible for this study, patients had to be scheduled for anterior or posterior prolapse repair or surgery for SUI.

## Materials and Methods

This prospective study was conducted at the University Hospital of Antwerp in Belgium, Department of Gynecology and Obstetrics. The study was approved by the Ethics Committee of the University Hospital of Antwerp. Written informed consent was obtained from all subjects prior to surgery.

Women who underwent surgery for POP and/or SUI at the University Hospital of Antwerp between October 1, 2009 and October 1, 2011 were asked to fill in a questionnaire prior to and six months after surgery. Twenty-seven women, with age varying from 33 to 81 years (mean age  $58.08 \pm 12.66$  years) were eventually enrolled in this study. Exclusion criteria were patients who underwent a concurrent hysterectomy as hysterectomy by itself has been proven to influence sexual function [12] and patients who were to undergo an abdominal approach for the repair of prolapse like the Burch colposuspension technique.

All operative procedures were conducted by a vaginal approach. Surgery for SUI included the tension-free-vaginal method (TVT, TVT-O, TVT-S) and transobturator or TOT procedure (for prolapse repair the method of choice was the prolift posterior and/or anterior procedure).

For the evaluation of sexual function the authors used a validated Dutch translation of the Female Sexual Function Index (FSFI) (<http://www.seksueledisfuncties.nl/lijsten/FSFI.PDF>). The FSFI, developed by Rosen in 2000, is a 19-item questionnaire that evaluates six domains of sexual function: sexual desire, arousal, lubrication, orgasm, satisfaction, and pain during sexual intercourse. All items were scored from 0-5, with 0 meaning sexually inactivity.

In addition of the questions of the FSFI questionnaire, patients were asked to fill in a non-validated Dutch questionnaire: Seksueel Functioneren Algemeen (general sexual function) or SFA

Revised manuscript accepted for publication May 31, 2013

questionnaire. With the SFA sexual active patients were asked additional questions about the presence of dyspareunia, coital incontinence, and penile pain during intercourse.

Data concerning postoperative complications and adverse effects were collected from the hospital file.

Statistical analysis was performed with SPSS version 19.0. For comparison of pre- and postoperative FSFI-scores a paired t-test was used. A  $p < 0.05$  was considered to be statistically significant.

Three questions of the SFA were categorical and were analyzed with a McNemar-Bowker test. Four questions of the SFA were based on an ordinal scale and were analyzed with a Wilcoxon signed ranks test. Again,  $p < 0.05$  was considered to be statistically significant.

## Results

Forty-six patients were asked to participate in the present study of which 19 refused to enrol. Reasons given by the women for refusal varied from old age ( $n = 11$ ) to lack of comprehension of the Dutch language ( $n = 8$ ). Finally 27 patients were included. The sample consisted of 19 (66%) preoperatively sexually active women and eight (44%) preoperatively sexually inactive women, age ranging from 33 to 81 years (mean age  $58.08 \pm 12.66$ ), parity from 0-6 (mean  $2.53 \pm 1.55$ ) and BMI from 17.4 - 35.4 (mean  $26.48 \pm 4.78$ ). Reasons stated for sexual inactivity were old age and partner-related problems.

Eleven (40.7%) and 12 (44.4%) patients were undergoing surgery for SUI and POP respectively. Four (14.8%) were undergoing surgery for POP and SUI simultaneously.

Nine patients did not complete the questionnaire six months after the surgical procedure and were lost to follow-up.

Several patients had comorbid conditions; four suffered from hypertension and two patients were previously diagnosed with irritable bowel syndrome. Four patients had a positive history of depression and were taking antidepressants. Eight patients (29.6%) had undergone a previous hysterectomy. Four of the included patients were regular smokers. Two women were on hormone-replacement therapy. The clinical and demographic characteristics of the women included in this study are shown in Table 1.

There was a significant improvement of urinary symptoms after surgery. At six months follow-up only one patient had developed de novo urge incontinence and one experienced difficulty in voiding. There was one case of mesh-erosion for which the patient had to undergo surgical repair.

Among women who reported they were sexually active at both time points ( $n = 7$ ) the mean total FSFI-score increased from 15.47 (sd = 11.13) at baseline to 24.33 (sd = 9.58) at follow-up. This improvement was found to be statistically significant.

The FSFI-scores for sexual desire ( $p = 0.099$ ), arousal ( $p = 0.018$ ), lubrication ( $p = 0.050$ ), orgasm ( $p = 0.101$ ), satisfaction ( $p = 0.095$ ) and pain ( $p = 0.069$ ) all improved. Only arousal and lubrication improved statistically significant. One sexually active patient complained of de novo dyspareunia after surgery. One patient who was not sexually active

Table 1. — Patient characteristics.<sup>a</sup>

	Study population (n = 27)
Age, years	$58.08 \pm 12.66$ (33 - 81)
Sexually active (preoperative)	19 (66)
Menopause	2 (7)
Parity	$2.53 \pm 1.55$ (0 - 5)
BMI, (kg/m <sup>2</sup> )	$26.48 \pm 4.78$ (17.4 - 35.4)
Previous hysterectomy	8 (28)
Previous vaginal surgery	7 (2)
Depression	3 (10)
Smoking	4 (14)

<sup>a</sup> Values are given as mean  $\pm$  SD (range) or number (percentage).

Table 2. — FSFI scores before and after surgery.<sup>a</sup>

Domain	Preoperative score	Postoperative score	$p$ value <sup>b</sup>
Desire	$2.74 \pm 1.29$	$3.56 \pm 1.28$	0.099
Arousal	$2.49 \pm 1.77$	$3.81 \pm 1.83$	0.018
Lubrication	$2.36 \pm 2.43$	$4.16 \pm 2.14$	0.050
Orgasm	$2.17 \pm 2.42$	$3.54 \pm 2.50$	0.101
Satisfaction	$2.97 \pm 1.97$	$4.29 \pm 2.04$	0.095
Pain	$2.74 \pm 2.78$	$4.97 \pm 1.63$	0.069
Total	$15.47 \pm 11.13$	$24.33 \pm 9.58$	0.012

<sup>a</sup> = Values are given as mean  $\pm$  SD.

<sup>b</sup> = t-test.

at baseline but was at follow-up complained of dyspareunia. One patient complained of narrowing of the vagina after surgery. She said not to be disturbed by this narrowing.

When analyzing the SFA, an improvement was found in the occurrence of coital incontinence, but this was not of statistical significance ( $p = 0.317$ ). Two patients suffered from coital incontinence preoperatively. Only one of these two patients was cured from coital incontinence.

No significant ( $p = 0.392$ ) improvement was found in the occurrence of pain during intercourse; this resembled the results of the FSFI (Table 2).

The SFA revealed two cases of narrowing of the vagina, interfering with intercourse. However this increase did not seem to be of statistical significance, with  $p = 0.088$ .

Before surgery two patients stated to be inhibited in their sexual activity by fear of urine loss, after surgery they no longer had this fear. The inhibition or reduction of sexual activity due to fear of urine loss did not change statistical significantly ( $p = 0.180$ ).

Four patients were avoiding intercourse because of a feeling of swelling in the vagina or bulging of the vagina before surgery. After surgery they did not avoid intercourse because of this reason. The avoidance of intercourse because of a bulging feeling did not change statistical significantly ( $p = 0.414$ ).

There was no change in negative thoughts or feelings such as fear, disgust, shame or guilt associated with sexual activity before and after surgery.

In the SFA there were two questions that were partner-re-

lated. No difference was found in influence of erectile dysfunction or premature ejaculation before and after surgery.

## Discussion

There is a significant improvement of urinary and pelvic symptoms after vaginal surgery.

In the studied population the authors found an overall improvement of sexual function at six months follow-up. All six FSFI-domains: desire, arousal, lubrication, orgasm, satisfaction, and pain seemed to slightly improve.

Literature shows that when deterioration of SF was found, this was caused by dyspareunia. Azar *et al* [13] studied SF in women after surgery for pelvic organ. They found an improvement of general SF and a deterioration in pain-free intercourse. The present authors also found an improvement of general SF. They did not find a deterioration of pain-free intercourse. Instead they found an improvement, however it was not significant.

The present study showed an improvement of coital incontinence after surgery. Jha *et al* studied sexual function following surgery for SUI they also found an improvement of SF and a reduction of coital incontinence [14]. Similar results were found by Glavind *et al* [15] and Bekker *et al* [16].

There are several limitations to the present study. Firstly sexual function is affected by multiple factors including anatomy, physiology, and psychology. In addition to the FSFI the SFA questionnaire addresses some of these factors, but still gives only a glimpse of all the possible problems related to women's sexual health.

The authors also found that recruitment of patients in their centre was often particularly difficult, due to patients refusing participation when asked directly about sexual health. This limits the present data very much due to the very small sample size.

The lack of cooperation the authors encountered raised questions about the experience of gynecologists and urologists, regarding the influence of vaginal surgery on women's sexual function. They therefore created another questionnaire-based study to objectively evaluate the way the physicians of gynecology and urology of Antwerp look upon the impact of vaginal surgery on women's sexual function. For this evaluation the authors used a self-administered nine-item questionnaire. All gynecologists and urologists ( $n = 235$ ) of the Antwerp region were sent a questionnaire. Response rate was very low ( $n = 48$ , 20.4%). The physicians that returned the questionnaire had very different opinions about influence of vaginal surgery for SUI or POP on sexual function. One-third believes there is a positive influence, one-third believes there is no influence, and one-third believes there is a negative influence. Most physicians believe there is no influence whether or not a mesh is used. The physicians that returned the questionnaire stated that they often receive questions of patients regarding sexual function after vaginal surgery. However they believe there is still a taboo concerning this topic.

## What this study adds

In conclusion, the results of the present study indicate that vaginal surgery for women with symptomatic SUI or POP positively affects women's general sexual function. Both patients and physicians show little interest in the subject of sexual function after vaginal surgery for SUI and POP.

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