Female sexual function and urinary incontinence

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Chapter 3

Sexual function improvement following surgery for stress incontinence: the relevance of coital incontinence.

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Introduction

Urinary incontinence (UI) is a common condition among women which is estimated to affect 25 to 45% of the female population (1). UI poses a tremendous economic burden on the health care system and impairs work productivity (2). Also UI has been shown to have a detrimental effect on the quality of life in terms of psychological, socio-economical as sexual issues (3). The incidence of female sexual dysfunction (FSD) in women with UI is as high as 26-47%. Over half of sexually active women with UI have FSD because of their urinary symptoms and 25% are incontinent during sexual intercourse (4). Stress urinary incontinence (SUI) is the involuntary leakage of urine on effort of exertion, or on sneezing or coughing and is due to urethral hypermobility and sphincter weakness. Because it is both embarrassing as unpredictable, SUI causes an inactive lifestyle, loss of self esteem and psychosexual problems (5;6).

Within a decade, the tensionfree vaginal tape (TVT), the tensionfree vaginal tape obturator (TVT-O) and the transobturator suburethral tape (TOT) became by far the most popular surgical treatments for SUI, with more than one million women treated (7). Despite the numerous studies on objective and subjective outcomes of this minimal invasive procedure, very few studies have addressed the impact of vaginal sling procedures on sexuality. Small series evaluating the sexual well being before and after the TVT and/or TVT-O procedures show conflicting results. Of these studies, some suggest deterioration (5;8;9) of sexual function, some improvement (10-16), whereas others were equivocal (17-21). These studies suggest that a negative effect of incontinence surgery is related to the implanted material, tissue damage or damage of vascular and/or neural structures whereas a positive effect can be related to disappearance of preoperatively existing coital incontinence.

Aims

With this study we attempt to clarify the impact of surgery for stress urinary incontinence on female sexual function. We hypothesize that the sexual function of women with coital incontinence will be ameliorated by the effect of surgery. To test this hypothesis within a large study group, data from two previous TVT, TVT-O and TOT studies were used (11;22).

Materials and methods

We used data collected from two previous retrospective studies evaluating sexual function after the TVT procedure and after the TVT-O and TOT procedure (11;22). From January 1999 to November 2002 a TVT procedure was performed in 69 women for treatment of SUI. From January 2005 to December 2005 a TOT or TVT-O procedure was performed in 78 women for treatment of SUI. Of these 147 women, 136 were sexually active before and after surgery and completed

the questionnaires. Genuine SUI was confirmed objectively by urodynamic assessment preoperatively in all patients. Exclusion criteria were detrusor overactivity, pelvic organ prolapse and pathological findings in the urethra and/or bladder on cystoscopy To evaluate sexual function, we used a non-validated sexual questionnaire developed by Lemack, in Dutch (23). This questionnaire, as well as a letter of introduction explaining the objectives of the study, was mailed to all patients 3-12 months after the procedure, with the majority in 3-4 months after the procedure.

The study was approved by our institutional medical ethics review board. We analyzed the data using SPSS release 16 (SPSS Inc., Chicago, III). Differences in percentages were evaluated using Pearson's chi-square test and the McNemar test. P-values < 0.05 were considered statistically significant.

Main Outcome measures

Pre and postoperative results of a non-validated sexual questionnaire.

Results

A total of 136 questionnaires, completed by sexual active women, were taken from the databases. This group consisted of 61 TVT patients, 32 TVT-O patients and 43 TOT patients. The mean age of the 136 sexual active women was 52 years (range 32-79 years). The menopausal status was known in 72 women (28 were premenopausal and 44 women were postmenopausal). The other 64 women did not answer this question. Table 1 shows pre- and postoperative patient characteristics.

Table 1 Pre- and postoperative patient characteristics of 61 TVT patients, 32 TVT-O patients and 43 TOT patients.

		n=136				
		Preoperative		Postoperative		p value
Frequency of intercourse	More than twice/week	15	11%	13	9.6%	0.60
	1-2 times/week	60	44.1%	57	42.2%	
	1-3 times/month	49	36%	52	38.5%	
	Less than once/month	12	8.8%	13	9.6%	
Sexual intercourse is	Pleasurable	112	82.4%	105	77.2%	0.17
	Neither pleasurable nor painful	15	11%	18	13.2%	
	Painful	9	6.6%	13	9.6%	
	Other	0	0%	0	0%	
Do you experience urinary leakage during intercourse?	No	59	43.4%	119	87.5%	<0.001
	Yes, rarely	15	11.0%	11	8.1%	
	Yes, occasionally	40	29.4%	4	2.9%	
	Yes, frequently	12	8.8%	1	0.7%	
	Yes, always	10	7.4%	1	0.7%	

Preoperatively, most women had intercourse once or twice a week (44.1%) or one to three times a month (36%). Sexual intercourse was described as pleasurable in 82.4% of women and 9 women (6.6%) experienced painful sexual intercourse preoperatively. A total of 77 women (56.6%) experienced coital incontinency before surgery; 7.4% had urinary leakage always, 8.8% frequently, 29.4% occasionally and 11% experienced urinary loss rarely.

Postoperative data showed no significant difference in frequency and appreciation of sexual intercourse. The number of women that considered intercourse as pleasurable decreased from 112 to 105 (82.4% to 77.2%, not significant). After surgery, the number of women with dyspareunia increased from 9 to 13 (6.6% to 9.6%) ($p = 0.17$). In a comment they stated that they experienced pain during intercourse due to vaginal narrowing. Postoperatively an increased number of in total 119 women (87.5%) had no urinary incontinence during intercourse ($p<0.001$). This signifies that 60 women became continent during intercourse as they were incontinent preoperatively. Seventeen women (12.5%) still reported leakage during intercourse, of which 11 women rarely and 4 women occasionally. One patient had no benefit from surgery; pre and postoperatively she always experienced leakage during intercourse. However, this patient reported intercourse postoperatively to be better than prior to surgery. Another patient reported an increase in incontinence during intercourse after surgery, from occasionally to frequently.

We asked women to describe intercourse postoperatively compared to preoperatively (Table 2). Sexual intercourse after surgery did not differ from preoperative in 99 (72.8%) women. Eight women (5.9%) described intercourse postoperatively as worse than prior to surgery. This was explained by a decrease in vaginal lubrication and pain because of vaginal dryness. Of these eight women, five were postmenopausal. Postoperative sexual intercourse was reported as improved by 29 women (21.3%). Of these women, 25 (86.2%) were incontinent during intercourse prior to surgery. There was a significant higher rate of preoperative coital incontinence in the group of women who reported better postoperative intercourse. ($p=0.01$) In women with initial coital incontinence 32.5% reported improvement of intercourse postoperatively, in women without initial coital incontinence 6.8% reported improved intercourse.

Table 2 Appraisal of intercourse postoperatively compared to preoperatively in women with and without preoperative coital incontinence.

		Urine loss during intercourse prior to surgery?						p value
		Yes (n=77)		No (n=59)		Total (n=136)		
Overall, how would you describe intercourse postoperatively?	Better than prior to surgery	25	32.5%	4	6.8%	29	21.3%	0.01
	Worse than prior to surgery	5	6.5%	3	5.1%	8	5.9%	
	No difference from prior to surgery	47	61.0%	52	88.1%	99	72.8%	

Discussion

Our findings suggest that incontinence surgery (TVT/TOT/TVT-O) for SUI significantly improves coital incontinence in women and thereby their sexual function.

Few studies have focused on the impact of surgical procedures for SUI on female sexual function and conclusions are conflicting. Murphy et al. analyzed sexual function in women after TVT and TOT using validated questionnaires (the Pelvic Organ Prolapse/Incontinence Sexual Questionnaire-12) (15). In both groups an improvement in sexual function was found but a relationship between improvement of sexual function and disappearance of coital incontinence was not studied. Berthier et al. compared different studies concerning sexual function after incontinence surgery and found sexual improvement in 1.8 to 33% of women (10). This is consistent with an improvement in 21.3% in this study.

However, surgical treatment for SUI may also have a negative effect on sexual function. Vaginal innervation, concentrated on the anterior and distal aspects of the anterior vaginal wall, plays an important role in sexual arousal and may be damaged by surgery for SUI (24). Sexual arousal results in congestion and vaginal wall thickening, tenting and lubrication, as well as production of mucous secretion (25). These functions may be disturbed as a result of anti-incontinence surgery because of narrowing, scarring, tape erosion or a too tight tape. Also, women, as well partners, may experience dyspareunia as a result of vaginal narrowing or because of the presence of the tape and/or stitches during intercourse. In the present study, an increase of number of women experienced pain (6.6% to 9.6%) due to vaginal narrowing. Yeni et al. observed an overall negative influence of TVT on sexual function (n=57) in a prospective study using the Female Sexual Function Index (FSFI) before and after the procedure compared to a control group (9). However, these authors also observed SUI to have a similar negative impact on sexual function. Mazouni et al. performed a retrospective study using a mailed questionnaire in 55 women and observed a deterioration of sexual function in 25.6% of women after TVT, including dyspareunia in 14.5% and loss of libido in 5.4% (8). This is in contrast to our findings of 5.9% worsening of intercourse due to vaginal lubrication problems. Decreased lubrication is a symptom in postmenopausal women and therefore can not to entirely be attributable to the surgery.

In this study the lack of sexual complaints at the baseline raises doubts on the population selection as sexual dysfunctions are highly prevalent in the general population. However, by asking for a change in sexual intercourse, we gained important information about a women's subjective experience on sexuality postoperatively compared to preoperative. Basically, assessing sexual function pre- and postoperatively and calculating a difference would not have provided us this information.

In the present study, an improvement in intercourse was found in 21.3% of women after incontinence surgery. When we elaborated our results on sexual intercourse in women in relation to coital incontinence, an improvement was found in 32.5% and this is significantly higher compared to women without coital incontinence preoperatively. This was anticipated considering that intercourse may, as an stress factor, mechanically provoke the loss of urine, and urinary dysfunction can lead to a decreased quality of sexual life (9). Intercourse causes pressure exerted on the vaginal wall which has a close anatomic proximity to the bladder and urethra, with risk of sexual difficulties as coital incontinence in women with SUI. Not only SUI but also overactive bladder symptoms (urgency with or without urinary incontinence), have a detrimental effect in female sexual health (26-28). As in this study, successful treatment of overactive bladder symptoms improves sexual function (29). Incontinence at penetration is thought to be associated with SUI and leakage at orgasm with complaints of an overactive bladder (29;30). In this study, the population exists only of women with genuine stress incontinence, which has been confirmed objectively by preoperative urodynamic assessment. Therefore, no further investigation has been made to details of the coital incontinence. Perhaps leakage at orgasm arose in those who remained dissatisfied after surgery as we know sling procedures can cause urgency and urge incontinence. Unfortunately, this has not been investigated.

In addition, 23%-56% of incontinent women experience coital incontinence, leading to a decrease in the frequency of sexual intercourse in 11% and a complete arrest in 45% of these women (6;31). Therefore, as reported by Iosif and by Berthier et al. as in this study, improvement in coital incontinence resulted in improvement of sexual function (10;32). We conclude that coital incontinence is a prognostic factor in the success of incontinence surgery. This is an important finding which a clinician should keep in mind in treatment of women with SUI. Every woman with SUI should be asked for coital incontinence and this item should play an important role in considering incontinence surgery. In our study we did not analyze sexual inactive women but it is possible that coital incontinence is the reason for their sexual inactivity. Therefore, it is of utmost importance for a clinician to ask women with SUI about their sexual activity. If sexual activity has ceased because of (fear of) coital incontinence, successful surgery may also improve a woman's sexual life dramatically.

The main limitation of our study is that it was performed retrospectively. In a prospective study by Pace and Vincentini, an improved sexual function after incontinence surgery was found, particularly in relation to the solution of urinary leakage during intercourse, improving self-confidence and sexual interest (16). Pace used the FSFI to measure sexual function before and after surgery. Two other prospective studies, both by Jha et al., were performed using validated questionnaires (13;14). One study was performed in a group of patients after TVT, the other in a group after TVT and TVT-O. In both studies a significant improvement of sexual function was found with a reduction of coital incontinence. Ghezzi et al. also performed a prospective study

in a small group of 53 patients and 34% reported an improvement of sexual function after TVT of which 94% were cured from coital incontinence (12).

Another limitation of the present study is that we did not use a validated disease-specific sexual function questionnaire that would have provided more in depth information on different aspects of sexual life. We did not look into parameters related to improvement of incontinence which could have amplified our hypothesis. The message of this study is strengthened by the size of the study group.

With this study we confirmed our hypothesis; successful treatment of coital incontinence plays an important role in improvement of sexual function. However, as female sexual function is a complex multidimensional experience, with several biological, emotional, relational and social aspects, we are aware of the possible influence of other factors. SUI is significantly associated with sexual complaints such as loss of libido, regardless of the presence and magnitude of coital incontinence (33;34). However, women who complain of coital incontinence should be informed on the likelihood of improvement of sexual function when they undergo anti-incontinence procedures.

Conclusion

With this study we better defined the impact of incontinence surgery on a woman's sexual function. We demonstrated an improvement in intercourse in 21.3% of all the women and a worsening in 5.9%. There was a significant higher rate of preoperative coital incontinence (86.2%) in women with improved intercourse. These results suggest that coital incontinence is a prognostic factor for sexual function improvement after incontinence surgery. Future research should be performed to confirm this suggestion and try to further explore the role of coital incontinence in sexual function after incontinence surgery.

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