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## Female sexual function in urological practice

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## CHAPTER 5

# Sexual function after tensionfree vaginal tape (TVT) for stress incontinence: results of a mailed questionnaire

Based on:

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### INTRODUCTION

The tension-free vaginal tape (TVT) is a relatively new procedure to correct stress incontinence (1). Recent data indicate that its efficacy and untoward effects are similar to those of the best of other commonly performed anti-incontinence procedures, such as retropubic urethropexy (Burch) and suburethral sling procedures (2;3). Genuine stress urinary incontinence (SUI) is defined as urinary leakage due to a sudden increase in the intra-abdominal pressure through some kind of physical stress, without evidence of bladder contractions and/or an unstable urethra. Urinary incontinence during sexual intercourse is a common symptom in patients with SUI (4-11). Sutherst et al. found that sexuality was negatively affected in nearly half of women attending an incontinence clinic. Women with genuine stress incontinence had significantly fewer sexual problems than those with bladder instability (9).

Studies on the effect of vaginal surgery for benign conditions on sexual function are rare. The anatomical explanation for sexual dysfunction after vaginal surgery may be due to the relation of the female urethra and the clitoris. The clitoris consist of two corporal bodies and the glans clitoris, with a neurovascular bundle dorsally and wide urethral plate ventrally. The distribution and course of the neurovascular bundle of the clitoris is similar to that of the penis. The wide urethral plate is adherent to the corporal bodies, causing ventral chordee (12). OConnell et al. described the urethra as a pelvic and perineal conduit embedded in the anterior vaginal wall but in all other directions surrounded by the erectile tissue of the clitoris (13).

It is expected that sexuality would improve after TVT, particularly among those patients who had either dyspareunia or leakage during intercourse. However, it is also possible that TVT could be detrimental to sexual activity owing to surgical damage. This retrospective study was undertaken to assess the effect on sexual function of TVT procedures for stress urinary incontinence.

### MATERIALS AND METHODS

From January 1999 to November 2002, 128 patients had a TVT inserted for the treatment of SUI. Genuine stress incontinence was confirmed objectively by urodynamic assessment. None of the women presented with detrusor or urethral instability. On cystoscopy no pathological findings were observed in the urethra and/or bladder. Patients with a pelvic organ prolapse who needed more extensive surgical treatment were excluded. All patients had had surgery at least 3 months prior to this follow-up study, with a maximum of 1 year.

In the absence of a conventionally accepted sexual function index for women

with incontinence we evaluated our patients with the questionnaire developed by Lemack et al. (14) (see Appendix). The questionnaire, as well as an introduction letter stating the goal of the study, was mailed to all 128 patients. The McNemar test was used for statistical analysis.

### RESULTS

Of the 96 women who responded to the mailing, 69 were sexually active and 27 were not. Four sexually active patients were excluded, two had had no partner before, and another had no partner after the TVT operation. One patient sent an incomplete questionnaire. The reason for sexual inactivity in 27 patients is shown in Table 1. The mean age of the 65 sexually active women was 50.5 years (range 36–77).

Table 1 Reason for sexual inactivity

	n=27	
No partner	12	(44%)
Partner-related issues	6	(22%)
Patient-related issues	3	(11%)
Both	4	(15%)
Not specified	2	(8%)
Mean age of sexually inactive women (yrs)	63	(46–77)

Table 2 presents the surgical history of the sexually active women. Preoperative characteristics are presented in first column of Table 3. Most women had intercourse once or twice a week (51%), or one to three times per month (30%). Overall, 75% of women described intercourse before the operation as pleasurable. Only three women reported dyspareunia preoperatively (5%). Thirty-five women reported preoperative leakage at some point during intercourse (54%).

*Table 2 Abdominal or vaginal surgery before TVT in sexually active women*

	<b>n=65</b>	
No surgery	38	(58%)
Surgery	17	(26%)
Abdominal hysterectomy	7	
Vaginal hysterectomy	1	
Stamey procedure	2	
Raz procedure	1	
Burch procedure	4	
Caesarean section	5	
Colporrhaphia anterior	1	
Unknown	10	(16%)

## Female sexual function in urological practice

Table 3 Results of questionnaire on intercourse before and after TVT in sexually active women

		<b>n= 65</b>			
		<b>Preoperative</b>		<b>Postoperative</b>	
Frequency of intercourse	More than twice/week	5	(8%)	5	(8%)
	1-2 times/week	33	(51%)	32	(50%)
	1-3 times/month	20	(30%)	20	(30%)
	less than once/month	7	(11%)	8	(13%)
Sexual intercourse is	Pleasurable	49	(75%)	50	(78%)
	Neither pleasurable nor painful	13	(20%)	12	(17%)
	Painful	3	(5%)	3	(5%)
	Other	0	(0%)	0	(0%)
Do you experience leakage during intercourse?	No	30	(46%)	57	(88%)
	Yes, rarely	4	(6%)	6	(9%)
	Yes, occasionally	21	(32%)	0	(0%)
	Yes, frequently	5	(8%)	1	(1,5%)
	Yes, always	5	(8%)	1	(1,5%)

Postoperative data (Table 3) showed almost no difference in frequency or appreciation of intercourse. Dyspareunia remained in three women. One of them noticed that pain was reduced after operation. Only six women (9%) reported occasional leakage during intercourse. One patient had no benefit from the TVT operation and remained incontinent frequently during intercourse. One woman described worsening of intercourse after the operation, describing an increase in incontinence after TVT. The other women were postoperatively dry during intercourse (88%). Overall, 17 women (26%) described intercourse as being better than prior to surgery (Table 4). Seven of them stated that the absence of leakage made intercourse more pleasurable. One of them reported vaginal narrowing as the reason for better sexual intercourse.

Table 4 Overall sexual appreciation after TVT in sexually active woman

		n= 65	
Overall, how would you describe intercourse postoperatively	Better than prior to surgery	17	(26%)
	Worse than prior to surgery	1	(1%)
	No different than prior to surgery	47	(73%)
	Other	0	(0%)
Does your sexual partner postoperatively report <sup>a</sup>	Pain due to vaginal narrowing	3	(5%)
	Narrowing but no pain	2	(3%)
	Pain due to dryness or other	10	(15%)
	Both narrowing and dryness	1	(1%)
	None of the above	46	(71%)
	Unknown	3	(5%)

<sup>a</sup> Because these aspects were not well documented preoperatively, they are not compared with the preoperative situation

The questionnaire contained also questions on the discomfort of the partner postoperatively. Three women reported that their partner reported pain due to vaginal narrowing. Pain due to dryness was described in 16%. Half of them had mentioned complaints of dryness before the operation. These problems subsided after using gel. One woman reported that her partner noted both vaginal narrowing and dryness.

The McNemar test was used for statistical analysis and showed that the improvement in sexual intercourse is highly significant.

## DISCUSSION

One of the first publications on the effect of vaginal surgery for benign conditions on sexual function was made by Iosif, who interviewed 156 patients before and after colpocystourethropexy (7). Thirty-two percent of women with stress incontinence had sexual problems before surgery. This proportion decreased after surgery to 10%. Iosif had already stated that change of self-image, because of the absence of urinary leakage during intercourse after the operation, might explain

the decrease in sexual dysfunction. Lemack et al. published a nice overview of studies related to vaginal surgery and sexual function (15). In this study, 10 patients underwent a modified four-corner bladder neck suspension, or anterior vaginal wall suspension (AVWS), for the treatment of stress incontinence with or without a mild to moderate cystocele. Overall, 20% of patients described intercourse postoperatively better than prior to surgery. However, another 20% described it as worse than prior to surgery. Although the number of patients is small, it points to the potential of sexual problems related to vaginal surgery.

TVT was introduced into clinical practice in 1994–95. More than 150 000 TVT operations have been carried out so far (1). Recently, Maaita et al. published the first retrospective results of TVT in relation to sexual function. Worsening of sexual function after surgery was reported in 14% (16). In this study some patients underwent combined procedures, and it could be that these patients had more sexual problems after surgery. However, other studies showed that overall sexual satisfaction appeared to be independent of diagnosis or therapy for urinary incontinence or prolapse (17;18).

Only after specific operations, such as Burch colposuspension and posterior colporrhaphy, did Weber et al. (19) find an increased risk of dyspareunia.

In our study 26% of women described intercourse as better than prior to surgery. Because the existence of the partners discomfort was scored only postoperatively, we have no information on partners discomfort preoperatively. A relatively high percentage of partner discomfort was mentioned in our study (24%).

Only a few patients stated that narrowing and dryness were due to the operation. It is obvious that these aspects need to be addressed properly in a prospective way to obtain a clear picture of partner discomfort.

Bearing in mind the anatomical relation of the erectile tissue of the clitoris and the urethra, described by OConnell et al., operations in the vicinity of the urethra, such as AVWS, may damage erectile tissue, which may explain up to 20% of sexual dysfunction after operation (20). The clitoris was well visualized in an MRI study by Suh et al. (21). It looks as though the clitoral crus is the only part of the clitoris that can be perforated during a TVT procedure. It is unlikely that such interference occurs between the tape and the body of the clitoris, because the tape is placed paraurethrally. This could explain the absence of sexual dysfunction after TVT in this study.

Another issue in this respect might be the G-spot, a small area of erotic sensitivity in the ventral vaginal wall, previously mentioned by Maaita et al.

In a recent study on vaginal electric activity by Shafik et al., a pacemaker was postulated to exist in the upper vagina. This would seem to represent the G-spot (22). If the G-spot is localized ventrally in the upper vagina it is not expected that a TVT procedure would have any influence on it.

Interesting is the presence and tissue distribution of PDE5 in the human vagina,



recently published by DAMati et al. (23). This suggests the existence of an integrated system of nitric oxide synthase-PDE<sub>5</sub>, which may play a physiological role in female sexuality. Damage to this system could be an explanation for loss of arousal after vaginal surgery, as reported by Maaaita et al. (24).

It is clear that further investigation on the relation of AVWS or TVT to the erectile tissue of the clitoris, as well as research into the role of PDE<sub>5</sub>, is needed.

## CONCLUSION

This study highlights sexual function after TVT placement for genuine stress incontinence. The majority of women described intercourse as better than before the operation. In contrast to AVWS, no women reported intercourse to be worse postoperatively, except for one patient with increased incontinence postoperatively. Of the women 26% found intercourse better than prior to surgery. This in contrast to the study of Maaaita et al., who reported 14% sexual dysfunction after TVT. Improvement often resulted from cessation of urinary incontinence. It is clear that in studies like these, improvement in incontinence and local surgical effects as potential opposing aspects need to be addressed separately for their effects on sexual function. The potential impact of these two aspects is difficult to distinguish. Also, proper attention should be paid to the partner. Partner discomfort due to vaginal narrowing and dryness has been reported in 25%. The possible causes for vaginal narrowing and dryness require further investigation. In relation to urogynecologic surgery such as TVT, prospective studies need to be done with validated global sexual function questionnaires.

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## EDITORIAL COMMENT

The impact of urogynecologic surgery on sexual function is unclear. For those who are incontinent with intercourse, cure of incontinence may improve sexual activity at the price of potential damage to the vaginal anatomy. In this study sexual function following the TVT procedure was evaluated. The authors report that sexual frequency was overall unchanged, and many patients felt that

intercourse improved. It appears that much of this improvement is probably related to cure of the incontinence rather than any specific features of the TVT. Although the study is flawed by its retrospective design and a long interval between the procedure and the questionnaire, the results overall are reassuring.

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## APPENDIX

### QUESTIONNAIRES

The next questions refer to the situation one year before operation

1 *Were you last year sexually active?*  yes  no

If you answered this question with no please answer next question.  
If you answered yes, you can skip answer 2

2 *This question refers to the reason why you werent sexually active before operation.*  
*Was this the result of:*

- Not having a partner
- Partner related problems as, for example, illness, impotence, age
- Patient related problems as, for example illness, age
- A combination of these factors

If you would you like to give an explanation, you can write it underneath

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The reason for not being sexually active anymore was due to the next problems?

Incontinence during sexual intercourse  yes  no  
Pain during sexual intercourse  yes  no

3 The next questions refer to sexual activity before the operation

A. Frequency of sexual activity with penetration

- More than 2 times a week
- 1-2 times a week
- 1-3 times a month
- less than once a month

B. Sexual activity with penetration is?

- Enjoyable
- Neither enjoyable nor painful
- Painful

## Female sexual function in urological practice

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C. Was there a question of incontinence, loss of urine during sexual intercourse?

- No
- Yes, but rarely
- Yes, occasionally
- Yes, frequently
- Yes, always

The next questions refer to the situation after the operation

4 *Were you sexually active after operation?*  yes  no

If you answered this question with no please answer next question.

If you answered yes, you can skip answer 5

5 *This question refers to the reason why you werent sexually active after operation*

Was this the result of?

- Not having a partner
- Partner-related problems, for example illness, impotence, age
- Patient-related problems, for example illness, age
- A combination of these factors

If you would you like to give an explanation, you can write it underneath

---

The reason for not being sexually active anymore was due to the next problems?

Incontinence during sexual intercourse  yes  no  
Pain during sexual intercourse  yes  no

6 *The next questions refer to sexual activity after the operation*

A. Frequency of sexual activity with penetration

- More than 2 times a week
- 1-2 times a week
- 1-3 times a month
- less than once a month

B. Sexual activity with penetration is?

- Enjoyable
- Neither enjoyable nor painful
- Painful

C. Was there a question of incontinence, loss of urine during sexual intercourse?

- No
- Yes, but rarely
- Yes, occasionally
- Yes, frequently
- Yes, always

7. *How would you describe having sexual intercourse after the operation?*

- Better than before the operation
- Worse than before the operation
- No difference between before or after the operation

If you would you like to give an explanation, you can write underneath.

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8. *At last some questions for your partner (if applicable) concerning penetration*

Did you experience pain during sexual intercourse  
due to vaginal narrowing

yes     no

There is question of narrowing but this is not painful

yes     no

Pain because of dryness

yes     no

None of the above

yes     no

If there are other problems after the operation you can write it underneath.

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9. *Did you have other abdominal operations before this one?*

yes     no

When the answer is yes would you write down which operations you had in the past

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