

The effects of stress incontinence surgery on sexual function and life quality of women

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Summary *Objective: To evaluate Transobturator tape (TOT) and Burch colposuspension procedure's effects on sexual functions and life quality. Materials and Methods: A total of 81 patients who underwent TOT (n = 49) or Burch (n = 32) with stress incontinence were included in this prospective study. Preoperatively and at postoperative 6 month follow up pad and stress tests, physical examinations, Female Sexual Function Index (FSFI), International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF), Urinary Distress Inventory (UDI-6), Incontinence Impact Questionnaire (IIQ-7) questionnaires were performed. Patient Global Impression of Improvement (PGI-I) questionnaire was added postoperatively. Results: According to stress test, success rate was found to be 69% and 45%, in the TOT and Burch groups respectively. Pad test decreased in both groups ($p < 0.05$). PGI-I scores was higher in the TOT group when compared to Burch group ($p = 0.031$). ICIQ-SF scores were improved in both TOT ($p < 0.0001$) and Burch groups ($p < 0.012$). IUDI-6 and IIQ-7 scores improved only in TOT group. Total FSFI scores did not change in both groups but only in TOT group sexual desire improved. Total FSFI scores did not change in patients that were successful and unsuccessful according to the stress test in both TOT and Burch groups ($p < 0.05$). Conclusions: TOT and Burch procedures have no effect on the sexual functions. However TOT improved life quality of patients.*

KEY WORDS: Stress Urinary Incontinence; Transobturator tape (TOT); Burch colposuspension; Sexual dysfunction; Quality of Life.

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INTRODUCTION

Urinary incontinence was described by International Continence Society (ICS) as any involuntary leakage of urine (1). Stress urinary incontinence (SUI) and sexual dysfunction are problems with a high prevalence that negatively affect the quality of life. The prevalence of urinary incontinence was found to be 29% in a recent study and incontinence prevalence was indicated as 50% for stress urinary incontinence, 28% for urgency urinary incontinence and 22% for mixed urinary incontinence

based on the type (2). Sexual dysfunction of women is described as sexual desire, sexual arousal, orgasm and/or sexual pain disorders that cause personal stress (3). Sexual dysfunction is seen around 25-71% among women of different age groups (4-6).

The dramatic negative effect of urinary incontinence on the sexual life of women was proven in performed studies. So that, this condition may lead women even to abandon sexual activity completely with a high incidence (7, 8).

Mid-urethral sling procedures, are the most commonly used procedures in the surgical treatment of stress urinary incontinence in women, and they are actually preferred over traditional procedures such as Burch colposuspension (9, 10).

The initial studies performed to assess the effects of surgical procedures for SUI on the sexual function of women were retrospective studies in which small patient groups were evaluated and validated questionnaires were not used. Thereafter, many studies were performed in which validated questionnaires were used during preoperative and postoperative periods and sexually active women were included. In these studies, sexual functions were reported as improved, unchanged or worsened after SUI surgery (11-14).

The aim of this study is to evaluate the effects of Transobturator tape (TOT) and Burch colposuspension procedures performed for urodynamic stress urinary incontinence on the quality of life and sexual functions of women.

MATERIALS AND METHODS

The patients were recruited from our outpatient clinic in a nonrandomized fashion between October 2011 and January 2014. Patients who had a diagnosis of SUI following urodynamic examination and candidates to be treated surgically were included into this prospective study program. Study protocol was approved by Dr. Lutfi Kirdar Kartal Training and Research Hospital's Ethic Committee. All the steps of the study were planned and applied carefully according to Helsinki Declaration.

Patients who underwent a previous pelvic organ prolapse or incontinence surgery, who were previously diagnosed with a sexual dysfunction, had hormone replacement therapy and use of drugs that may affect sexual function

No conflict of interest declared.

such as antidepressants, antipsychotics, beta-blockers and who did not have a regular sexual life were all excluded from the study program.

From October 2011 to December 2012 all the patients underwent Burch colposuspension. Then from January 2013 to January 2014 TOT was performed in all the patients as a new procedure in our clinic. Thus, out of a total of 81 patients that were included in our study, 49 patients overall underwent TOT procedure (Group 1) and 32 underwent the Burch colposuspension (Group 2).

During the preoperative assessment, age, BMI, number of births and medical history of the patients were recorded. A detailed physical examination including 1-hour pad-test and stress test, Q-type test and pelvic organ prolapse assessments based on pelvic organ prolapse quantification (POP-Q) system (15) was performed.

All patients underwent filling cystometry and pressure flow study in accordance with the good urodynamics practice of International Continence Society (ICS) (16) and they all filled the validated version of International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF), Urinary Distress Inventory (UDI-6), Incontinence Impact Questionnaire (IIQ-7) and Female Sexual Function Index (FSFI) preoperatively (17-19).

They were re-evaluated at 6 months postoperatively by ICIQ-SF, UDI-6, IIQ-7, FSFI questionnaires, stress test and pad-test. Vaginal examination was performed in order to assess the complications. In addition to these, Patient Global Impression of Improvement (PGI-I) questionnaire was used to assess the efficiency of the surgical procedure subjectively (20). FSFI score > 22.7 was accepted as normal (4).

Data were shown as mean ± standard error. Prism 5.0 (GraphPad Software, San Diego, CA) program was used during analysis and the data were assessed by paired t, Mann Whitney-U, Wilcoxon test and McNemar tests. P < 0.05 was accepted as statistically significant.

Table 1. Demographic characteristics of the patients according to the groups.

	TOT (n: 49)	Burch colposuspension (n: 32)	P
Age (years)	48.86 ± 1.14 (32-65)	51.84 ± 1.77	0.132
Parity (n)	3.16 ± 0.21 (0-7)	3.86 ± 0.44 (1-6)	0.145
BMI (kg/m ²)	31.30 ± 0.92 (20-45.9)	30.69 ± 0.99	0.748

TOT: Transobturator tape; BMI: Body Mass Index.

RESULTS

The mean age of all evaluated patients was determined to be 49.76 ± 0.97 (32-68) years. There was no statistically significant difference between two groups in terms of demographic results such as age, number of births and BMI (body mass index). Demographic characteristics of the cases according to the groups were shown in Table 1. According to the stress test, success rate was found higher in TOT group compared to Burch group (69% vs 45%) (p = 0.417). In preoperative and postoperative pad tests of the patients, a significant decrease was detected in TOT group (p < 0.0001) as well as Burch group (p = 0.0003). Postoperative PGI-I scores that evaluate subjective success was found better in TOT group when compared to Burch group (1.75 ± 0.20 and 0.79 ± 0.39, respectively (p = 0.031). ICIQ-SF scores were significantly decreased postoperatively in both TOT group (p < 0.0001) and Burch group (p = 0.012). The mean pad tests and ICIQ-SF scores of the patients were given in Table 2.

Improvement in UDI-6 ve IIQ-7 scores during postoperative period was only seen in TOT group. There was a deterioration in UDI-6 ve IIQ-7 scores in Burch group which was not statistically significant. The mean UDI-6

Table 2. The mean values of preoperative and postoperative pad tests, ICIQ-SF of the patients.

	TOT (n: 49)			Burch colposuspension (n: 32)		
	Preoperative	Postoperative	P	Preoperative	Postoperative	P
ICIQ-SF	16.44 ± 0.60	8.51 ± 1.09	< 0.0001*	15.53 ± 1.26	11.32 ± 1.41	0.012**
Pad test	21.91 ± 3.31	5.60 ± 1.47	< 0.0001*	50.89 ± 22.69	14.00 ± 4.22	0.0003**

ICIQ-SF: International Consultation on Incontinence Questionnaire - Short Form
PGI-I: Patient Global Impression of Improvement
* paired t test, ** Wilcoxon test, ***Mann-Whitney test.

Table 3. Preoperative and postoperative UDI-6 and IIQ-7 scores of the patients according to groups.

	TOT (n: 49)			Burch colposuspension (n: 32)		
	Preoperative	Postoperative	P	Preoperative	Postoperative	P
UDI-6	9.28 ± 0.49	5.74 ± 0.61	< 0.0001*	7.05 ± 1.49	7.68 ± 0.95	0.755**
IIQ-7	10.92 ± 1.01	5.19 ± 0.80	< 0.0001*	6.95 ± 1.80	8.00 ± 1.44	0.725**

UDI-6: Urinary Distress Inventory
IIQ-7: Incontinence Impact Questionnaire
* paired t test, ** Wilcoxon test.

Table 4.
Mean total FSFI and sub-area scores for mid-urethral sling and Burch colposuspension groups.

	TOT (n: 49)			Burch colposuspension (n: 32)		
	Preoperative	Postoperative	P	Preoperative	Postoperative	P
Desire	3.11 ± 0.17	3.65 ± 0.11	0.003*	3.08 ± 0.21	3.08 ± 0.24	0.945**
Arousal	3.49 ± 0.17	3.70 ± 0.13	0.224*	3.11 ± 0.27	3.04 ± 0.28	0.898**
Lubrication	5.30 ± 0.21	5.57 ± 0.14	0.268*	4.73 ± 0.42	4.56 ± 0.47	0.791**
Orgasm	4.54 ± 0.18	4.61 ± 0.15	0.612*	4.00 ± 0.36	3.95 ± 0.36	1.000**
Satisfaction	4.11 ± 0.19	4.00 ± 0.18	0.660*	3.73 ± 0.33	3.53 ± 0.32	0.301**
Pain	4.51 ± 0.21	4.80 ± 0.25	0.365*	4.85 ± 0.36	4.66 ± 0.49	0.922**
Total FSFI	25.06 ± 0.83	26.37 ± 0.78	0.158*	23.36 ± 1.53	24.33 ± 1.31	0.583**

FSFI: Female Sexual Function Index.
* paired t test, ** Wilcoxon test.

Table 5.
Mean FSFI scores of the patients in both groups according to stress test.

	FSFI					
	TOT (n: 49)			Burch colposuspension (n: 32)		
	Preoperative	Postoperative	P	Preoperative	Postoperative	P
Stress test (-)	24.53 ± 1.16	26.52 ± 0.96	0.178	23.78 ± 3.84	22.04 ± 2.50	1.000
Stress test (+)	25.89 ± 1.13	26.15 ± 1.36	0.842	26.23 ± 3.36	24.33 ± 2.43	0.688

* Wilcoxon test.

ve IIQ-7 scores related to the quality of life were given in Table 3.

In TOT group, no change was observed in total FSFI scores and the other sub-domains except an increase in the sexual desire (p = 003) in the postoperative period. In Burch group, there was no significant postoperative change in total FSFI scores and all sub-domains (p > 0.05). The preoperative and postoperative total and subdomain scores of FSFI of the patients were given in Table 4.

The patients were evaluated according to stress test as improved and nonimproved SUI and as a result no difference was detected in postoperative total FSFI scores between them both in TOT and Burch groups (p = 0.622 and p = 0.625, respectively). The changes in total FSFI scores of the patients according to the stress test were given in Table 5.

In TOT and Burch groups respectively in preoperative period 26.5% (13/49) and 31.2% (10/32) and in postoperative period 18.3% (9/49) and 28.1% (9/32) of the patients had sexual dysfunction. There was no significant change in number of patients with sexual dysfunction before and after the operation for both TOT and Burch groups (p = 0.683 and p = 0.617, respectively). When surgically successful patients of both groups were evaluated together, again the rate of sexual dysfunction did not have a significant change (p = 0.724).

Complications developed at a rate of 8.1% (4/49) in TOT group and 4.5% (1/32) in Burch group. These were mesh erosion in 1 patient, de novo urgency in 2 patients and temporary urinary retention in 1 patient in TOT group. In Burch group overall complication was de novo urgency only in 1 patient.

DISCUSSION

The main purpose of the medical and surgical treatments performed for the urinary incontinence is to provide an improvement in the quality of life by recovering incontinence and it is thought that an improvement will also be obtained in the sexual functions as a result of this.

In our study, TOT was found more superior over Burch operation in providing SUI. Although there are some studies supporting the results of our study in the literature (21, 22), a study showed that Burch colposuspension surgery is more successful than TOT operation (23). On the other hand another meta-analysis found no difference between early and late period success rates between these two methods (24).

In a study comparing TVT and Burch colposuspension, no difference was found in terms of long-term efficiency and quality of life (25). It is difficult to make a comment since there are few comparative studies regarding quality of life. However, it was reported that among the patients who underwent TOT operation a significant improvement was seen in quality of life (26) and UDI-6 and IIQ-7 scores were significantly improved postoperatively (27). In our present study that compared TOT and Burch surgical techniques, quality of life improved after TOT surgery however but there was no improvement in Burch group.

The results of the limited number of comparative studies that assess the effect of stress incontinence surgeries on sexual functions are conflicting. In a prospective study by *Cayan et al.* comparing the effects of Burch colposuspension and vaginal sling procedures on the sexual functions of women, more reduction was detected in FSFI

scores in Burch colposuspension group compared to vaginal sling group (21).

In a multicentric and prospective study by *Filacamo et al.* evaluating the effects of mid-urethral sling operations (transobturator procedure and retropubic procedure) on the sexual functions of women and including the patients with urodynamic stress urinary incontinence and sexually inactive patients, a significant increase was observed in total FSFI and sub-area scores of all patients. It was found that the number of sexually active patients improved during the postoperative period and it was suggested that there was no difference between both surgical procedures (28). Also, in the study by *Demirkesen et al.* comparing TVT and Burch colposuspension operations, it was observed that there was a greater but non-significant negative influence on sexual functions in TVT group (29).

In our study both types of stress incontinence surgery did not show a positive or negative effect on sexual functions. However, only in TOT group, a significant increase was observed in sexual desire following surgery. The reason may probably be related to the improvement in the coital incontinence in this group in which surgical success is high.

Considering all the mechanisms, it is thought that one of the factors that improves sexuality is probably the treatment of coital incontinence with mid-urethral sling (30), which was not evaluated in our study.

According to our knowledge in the previous studies, no analysis on sexual function was carried out in relation to the success of the surgical procedure. We compared FSFI scores of the patients according to the success of the surgical procedure using stress test in order to better understand the effect of the surgical procedure on sexual functions as distinct from the others. When we compare the sexual functions between surgically successful and unsuccessful groups, we found that both had no significant change in pre and postoperative FSFI scores in TOT and Burch groups.

Furthermore, no improvement occurred in sexual function following surgery among the ones with preoperative sexual dysfunction.

Regarding the limitations of our study; non randomization of the patients could be accepted as a potential limitation but still the patient groups were identical. Another limitation was that the patients were not evaluated in terms of coital incontinence.

We believe that further prospective and randomized controlled studies including larger series of cases are certainly needed in order to evaluate the effects of SUI procedures according to surgical success on sexual function and quality of life.

CONCLUSIONS

According to our results, we can say that in TOT and Burch colposuspension procedures the sexual function of women was not affected by the type of surgical procedure and the success of the operation. However the surgical technique affected the quality of life in patients which was improved by TOT procedure when compared with Burch operation.

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