



ASSESSMENT OF QUALITY OF LIFE AND SEXUAL FUNCTION AFTER TOT SURGERY

Obstetrics & Gynecology

Bhadana Priyanka	MS, Assistant Professor, Dept Of Obstetrics And Gynecology, Atal Bihari Vajpayee Institute Of Medical Sciences & Dr Ram Manohar Lohia Hospital, New Delhi.
Kiran Abha*	MS, Senior resident, Dept Of Obstetrics And Gynaecology, Atal Bihari Vajpayee Institute Of Medical Sciences & Dr Ram Manohar Lohia Hospital, New Delhi. *Corresponding Author
Mittal Pratima	MS, Professor, Dept Of Obstetrics And Gynecology, Vardhman Mahavir Medical College And Safdurjung Hospital, New Delhi.

ABSTRACT

Background: Stress urinary incontinence is a common problem of female patients. Medical methods include behavioral therapy, pelvic floor muscle training and drugs. Surgical therapy has evolved over period of time. **Objective:** This article assesses the Quality of life (QOL) and sexual function after Trans-Obturator Tape Repair (TOT) in the treatment of Stress Urinary Incontinence (SUI) for a period of two years. **Patients and methods:** 60 women were included and the TOT procedure using the outside-in technique was carried out. Patients were recruited after a detailed history, physical examination, routine blood tests, pelvic ultrasonography and urodynamic studies. Grade of SUI, QOL questionnaire, female sexual dysfunction, blood loss, hospital stay and operative complications were assessed. All patients were post-operatively analyzed at, 1 month, 12 month and at two years for incontinence symptoms, QOL and sexual function. **Outcome measurements:** The primary outcome measurements were improvement in quality of life and sexual function among preoperative and postoperative patients at time interval of 1 month, 1 year and 2 years of operation by incontinence impact questionnaire (IIQ), urogenital distress inventory (UDI), female sexual function index (FSFI). **Statistical analysis:** Statistical analysis was done using IBM SPSS statistics 17 version. **Results and limitations:** A total of 60 women underwent the procedure and their preoperative, urodynamic and post-operative data was studied. There was significant improvement in the IIQ, UDI-6, FSFI Scores post-procedure lasting for as long as up to two years. Few patients developed fever, UTI and groin pain which were managed successfully. One patient developed reaction to mesh. This study was done on small population. Study period can be extended to study long term outcome. **Conclusion:** SUI correction with TOT improved both the QOL and sexual function in females undergoing this procedure. **Clinical significance:** TOT repair improves quality of life and sexual function.

KEYWORDS

IIQ (incontinence impact questionnaire); FSFI, (Female Sexual Function Index); UDI-6, (Urogenital Distress Inventory); SUI, (Stress Urinary Incontinence); TOT, (Trans-Obturator Tape Repair).

INTRODUCTION

The International Continence Society defines stress urinary incontinence (SUI) as the complaint of involuntary leakage during effort or exertion or during coughing or sneezing. (1) SUI is observed in many women and the prevalence increases with aging. About 4% to 35% people suffer from urinary incontinence. (2) About 50% of women with incontinence have symptoms of stress incontinence. Pregnancy, childbirth, menopause, obesity, advanced age, race and ethnicity are some of the common risk factors for SUI. (3) Urinary incontinence of any type negatively impacts the sexual quality of life due to various reasons-decreased libido, recurrent dermatitis, and urinary leakage during intercourse and dyspareunia. Traditionally, surgery forms the mainstay of management to improve the quality of life in such patients.

Over the years, various modifications in the surgical technique have been introduced to maximize outcomes and minimize morbidities. Probably, surgical techniques developed for SUI are the most diverse in the field of gynecology with no other condition enjoying such surgical diversity. All the variations have some or the other advantage and disadvantage. Tension free vaginal tape was introduced by Ulmsten and Petros. It is a midurethral sling procedure done vaginally. (4)

Transobturator tape (TOT) is a midurethral sling operation was introduced as early as in 2001. (5) It is a minimally invasive procedure with acceptable complication rates and high success rate. It minimizes the side effects of retropubic sling procedure by not entering the pre-vesical space. Placing the sling in the mid-urethral position in a tension-free manner helps preventing backward displacement of bladder neck during increased abdominal pressures and simultaneously restores the defective connection between the urethra and vagina.

Such procedures are relatively effective for treatment of SUI but their role in improvement of sexual function remains controversial. Some have reported worsening of female sexual function attributed to narrowing of the vagina and dyspareunia while others have stated that by improving incontinence, it increases sexual desire. Most studies of

TOT repair have focused on UI improvement rates and very few have evaluated its effect on female sexual function. There are different questionnaire quality of life Kings Health Questionnaire (KHQ), incontinence impact questionnaire, Norwegian female urinary incontinence questionnaire for assessing quality of life.

METHODS

This is a prospective observational study to assess quality of life and sexual function in patients who underwent trans obturator tape repair for stress urinary incontinence. A total of 60 patients were followed over a period of 24 months. Demographic data of all patients was collected and for data regarding incontinence, quality of life and female sexual dysfunction standard validated questionnaires were used and filled by women with the help of an assistant. All patients were evaluated post-operatively at 1 week, 1 month, 1 year and at two years for continence rate, changes in sexual function, quality of life.

All women who were non-pregnant, non-lactating, and sexually active in the previous 6 months and with SUI confirmed on urodynamic study were included in the study. Urodynamic tests done in all patients was uroflowmetry; additional tests including cystometry, pressure flow study were performed in the presence of urge or obstructive symptoms or with post void residual urine (PVR) > 100 ml. Women with symptoms suggestive of overactive bladder; neurological disorders; uncontrolled diabetes mellitus; Urinary tract infection; other types of incontinence (Urge/Mixed proved urodynamically), Grade 3 or 4 prolapse; previous history of urinary incontinence or prolapse surgery; with partners having sexual dysfunction were excluded from the study. The study protocol was approved by the institutional ethics committee.

A detailed history, physical examination of all study subjects was undertaken after which they were subjected to pre-operative investigations which included routine blood and urine tests along with trans-vaginal sonography for post-void residual urine, urodynamic studies and their UDI-6, IIQ-7 and FSFI Scores were calculated.

The procedure was carried out using a trans obturator mid-urethral sling system under spinal or general anesthesia. The usual procedure of TOT insertion described by Delorme was followed with the out-in

technique. All surgeries were performed by teams with adequate experience in TOT repair. A urethral catheter was placed for 24 hours post-operatively. All patients were asked to avoid sexual intercourse for a period of 1 month.

Post-operatively patients were assessed at 1 week, 1 month, 1 year and at 2 years for lower urinary tract symptom (LUTS), quality of life (QOL), sexual performance, complications of surgery - tape erosion and voiding difficulties. A free uroflowmetry with post-void residual urine was also done.

Treatment outcomes were standardized and patients were considered cured if there was no leakage on cough and patient was very satisfied. Patient was improved if leakage persisted only with severe exertion, using lesser number of pads/days, and the patient herself is satisfied. If the above-mentioned criteria were not met, a failure of procedure was recognized.

Statistical analysis was done using SPSS 17 (SPSS, Chicago, IL, USA). The chi-square test was used for categorical variables, and expressed as percentages and numbers, whilst the student t test was applied onto numerical variables and stated as means with standard deviation and ranges. A p value of <0.05 was considered to indicate statistical significance.

RESULTS

The preoperative, urodynamic and postoperative data of 60 women were obtained and results were analyzed. The mean age of the women was 58±7.8 years. (Table 1)

Table1.Demographic Profile

Age (years)	58±7.8
Parity	3±2.4
Premenopausal	26
Post-menopausal	34
Instrumental delivery	4
Body mass index(kg/m ²)	28±7.9

All women were married, sexually active with 57% of them being post-menopausal. The mean age of menopause was 47.5±8.1 years and the average duration since menopause was 2.4±1.4 years. The mean parity was 3±2.4. The mean body mass index (BMI) was 28±7.9kg/m². The mean operative time was 18.4 minutes and the average postoperative stay lasted for about 36 hours. There was no need of any blood transfusion in any of the patients.

36.6% had diabetes, 15% had hypertension, 20% had hypothyroidism while only 1.6% had hyperthyroidism. (Table2)

Table2 .Medical disorders

	Number	Percentage(%)
Diabetes	22	36.6
Hypertension	9	15
Hypothyroidism	12	20
Hyperthyroidism	1	1.6
Systemic lupus erythematosus	1	1.6
Rheumatoid arthritis	2	3.3

Postoperatively 23% patients had UTIs, 3% of patients developed fever and 16.6% patients complained of groin pain which were treated with appropriate antibiotics, antipyretics and analgesics. 1.6% patients had groin hematoma. None of the patients had nerve injury, groin abscess or bladder injury. The average blood loss was less than 200 ml. 15 % patients had urgency and 3.3% patients had retention. 1.6% patients reported with mesh erosion which was managed by multidisciplinary approach. (Table3)

Table3: postoperative complications

POSTOPERATIVE COMPLICATIONS	NUMBER OF PATIENTS(PERCENTAGE)
UTI	14(23%)
Blood loss>200ml	0(0%)
Groin pain	10(16.6%)
Groin hematoma	1(1.6%)
Urinary bladder injury	0(0%)
Nerve injury	0(0%)
Mesh erosion	1(1.6%)

Tape release	2(3.3%)
Urinary retention	2(3.3%)
Urgency	9(15%)

3.3% patients had tape release.

As per the IIQ Score 90% of patients were completely dry after two years and 10% were greatly improved. (table4)

Table4. Follow up and cure rates

	First follow up(1week)	Second follow up(1 month)	Third follow up(1 year)	Fourth follow up(2 years)
Cured	51(85%)	51(85%)	54(90%)	54(90%)
Improved	9(15%)	9(15%)	6(10%)	6(10%)
Failed	0(0%)	0(0%)	0(0%)	0(0%)

This was confirmed by urodynamic testing by measuring the PVR. The IIQ Scores were improved with the median IIQ Score before procedure 67.95±2.41 and at 1 month-17.95±3.68, and the one- and two-year value being 4.65±3.15 and 2.20±1.71 respectively. The reduction in IIQ Scores was found to be highly significant (p value <0.005). (Table 5)

Table5:IIQ score in relation to mean duration from operation

MEAN DURATION FROM OPERATION	IIQ SCORE	P value
preoperative	67.95± 2.41	<0.05
3 MONTHS	17.95±3.68	<0.05
12 MONTHS	4.65±3.15	<0.05
24 MONTHS	2.20±1.71	<0.05

Similarly, the UDI-6 Scores were determined and the median value pre-operatively was found to be 53.25±2.67 and decreasing to 16.10±3.24 at 1 month and to 4.40±3.32 and 2.20±1.71 at the end of 1st and 2nd year respectively. (Table6)

Table6:UDI-6 scores in relation to mean duration from operation

MEAN DURATION FROM OPERATION	UDI -6 Scores	P value
Preoperative	53.25±2.67	<0.05
3 months	16.10±3.24	<0.05
12 months	4.40±3.32	<0.05
24 months	2.20±1.71	<0.05

FSFI scores for desire, arousal, lubrication, orgasm, satisfaction and pain were calculated preoperatively and postoperatively were calculated. (Table7)

Table7.FSFI Scores

	Preoperative	Postoperative(1year)
Desire	2.64±0.78	3.66±0.80
Arousal	1.36±0.93	4.37±0.96
Lubrication	2.01±1.20	5.00±1.33
Orgasm	2.69±0.67	4.71±0.97
Satisfaction	3.67±0.45	5.29±0.87
Pain	4.31±0.98	5.30±1.00
Total	18.25±7.67	28.8±3.32

Overall FSFI scores were 18.25±7.67 preoperative and 28.8±3.32 and 28.4±3.32 at 1 year and 2 years respectively. (Table8)

Table8:FSFI Scores in relation to mean duration from operation

MEAN DURATION FROM OPERATION	FSFI-Scores	P value
Preoperative	18.25±7.76	<0.05
12 months	28.8±3.32	<0.05
24 months	28.4±3.32	<0.05

Sexual performance rate (desire, lubrication, orgasm, arousal, pain and satisfaction) of the procedure at 2 years was 90% with good scores based on daily and effort activities, self-image, emotional and sexual activities.

DISCUSSION

The TOT repair has a definite role in management of SUI and this has been exemplified by various studies conducted worldwide, however its efficacy in female sexual dysfunction remains a topic of debate. Only a few studies till date have evaluated its role in the management of female sexual dysfunction. The present study evaluated the female sexual performance status and quality of life apart from measuring the incontinence improvement rates.

In our study, IIQ results the cure rate to be 90% and 10% of the patients

improved and none deteriorated or had no change. This is consistent with the previous reports by Dwyer et al., where they reported a success rate of 85.6% in 160 patients studied for over 2 years. (6) Study by El-Eweedy et al. reported the cure, improvement and failure rates to be 81.25%, 10.42% and 8.33% respectively at one-year follow-up in 48 women who underwent TOT repair. (7) Another study by Soliman et al., in 2017 concluded a cure rate of 84.1% and 13.1% of their patients improved. (8)

The study showed a highly significant improvement in UDI-6 Scores of all patients with the pre-operative mean value of 53.25 ± 2.67 and a mean value of 2.20 ± 1.71 at two years. This correlates with a 95.87 % reduction in UDI-6 scores. The UDI-6 is a questionnaire with six questions to assess the symptoms of urinary incontinence. It can be divided into three sub-scales each evaluating the Irritative symptoms, Stress symptoms and Voiding symptoms.

With regard to the sexual function of females undergoing this procedure, a significant improvement in all the domains of the FSFI questionnaire was found. The FSFI Score has 19 items divided into 6 sexual function domains; it evaluates the sexual functions over the past 4 weeks. The score is calculated by adding the individual score items within a domain and by multiplying with the domain factor and then lastly adding all the 6 domain scores to get the total FSFI Score. Sling surgeries impact sexual function in several ways by causing scarring, fibrosis, neuropathies, decreasing vaginal space, distortion of clitoris, etc.

Studies in the past have reported mixed effects of TOT repair. There was statistically significant difference in FSFI score postoperatively. (9) Arts-de Jong et al. concluded that 55% women had coital incontinence preoperatively which reduced to only 6.5% postoperatively. (10) They suggested that TOT had a positive impact on FSFI by decreasing urinary leakage and dyspareunia. There was improvement in both UDI-6 score and FSFI score. (8)

It has also been argued that the menopausal status itself contributed to female sexual dysfunction but the present study analyzed the preoperative and post-operative scores of pre-menopausal and post-menopausal women and found no significant difference. This has also been reported in a study by Berra et al. did not show any significant difference in sexual functions in pre- and post-menopausal women. (11) Simsek et al. also analyzed this aspect and found higher FSFI Scores among premenopausal women but was not statistically significant. (9)

In the present study, there is a significant improvement in the QOL score from the pre-operative value, a combined effect of improvement in continence and sexual function of women. Similar results were obtained by Ballester et al. (12) Schierlitz et al. included a total of 164 women and compared the efficacy of TVT ant TOT repair, and found significant improvements in QOL Scores in both the groups but no difference was noted in UDI-6, IIQ-SF Scores. (13)

The small number of subjects included in the study was one of its major limitations. Larger prospective randomized studies are needed to evaluate the efficacy of TOT in female sexual dysfunction.

CONCLUSION

The TOT procedure appears to be very effective in improving incontinence-related quality of life as well as sexual function but longer follow-up in larger population is mandatory to assess the reliability of this technique.

Clinical significance: TOT repair of stress urinary incontinence improves not only quality of life but also improves sexual quality of life.

ACKNOWLEDGMENT: None

REFERENCES

1. Abrams P, Cardozo, L., Fall M. et al. (2003) The standardization of terminology of lower urinary tract function: Report from the Standardization Subcommittee of the International Continence Society. *Urology*, 61, 37-49. [http://dx.doi.org/10.1016/S0090-4295\(02\)02243-4](http://dx.doi.org/10.1016/S0090-4295(02)02243-4)
2. Hota L.S., Hanaway K., Hacker M.R et al. (2012) TVT-secur (hammock) versus TVT-obturator: A randomized trial of suburethral sling operative procedures. *Female Pelvic Medicine and Reconstructive Surgery*, 18, 41-45. <http://dx.doi.org/10.1097/SPV.0b013e31823bdfbf>
3. Nygaard IE, Heit M, Obstet Gynecol. (2004). Stress urinary incontinence Sep;104(3):607-20. <https://doi.org/10.1097/01.AOG.0000137874.84862.94>

4. Ulmsten U, Henriksson L, Johnson P et al. An ambulatory surgical procedure under local anesthesia for treatment of female urinary incontinence. *Int Urogynecol J* 1996;7:81-86(http://scholar.google.com/scholar_lookup?title=An%20ambulatory%20surgical%20procedure%20under%20local%20anesthesia%20for%20treatment%20of%20female%20urinary%20incontinence&journal=Int%20Urogynecol%20J&volume=7&pages=81-86&publication_year=1996&author=Ulmsten%2CU&author=Henriksson%2CL&author=Johnson%2CP&author=Varhos%2CCG)
5. Transobuturator urethral suspension: mini-invasive procedure in the treatment of stress incontinence in women Delorme E. *Prog Urol*. 2001 Dec;11(6):1306-13 [urinary https://www.ncbi.nlm.nih.gov/pubmed/11859672](https://www.ncbi.nlm.nih.gov/pubmed/11859672)
6. Hassan, M; El-Tohamy, O. and Kamel M. (2014) Treatment success of trans obturator tape compared with tension free vaginal tape for stress urinary incontinence at 24 months: A randomized controlled trial. *Open Journal of Obstetrics and Gynecology*, 4, 169-175. doi: 10.4236/ojog.2014.43028.
7. Ahmed F; Abd El-Rahim; Sayed Mohamed A et al .Long-term outcome of trans obturator suburethral tape procedure for treatment of female stress urinary incontinence. *Urol Ann*. 2014 Jul-Sep; 6(3): 235-238 <https://dx.doi.org/10.4103/2F0974-7796.134281>
8. Soliman TI, Sherif HI, Fathi A et al. Impact of transobuturator vaginal tape on female stress urinary incontinence and sexual function. *Arab J Urol*. 2017 Aug 31;15(4):380-386. doi:10.1016/j.aju.2017.07.002.
9. Abdulmuttalip Simsek, Faruk Ozgor, Bahar Yuksel et al .Female sexual function after transobuturator tape in women with urodynamic stress urinary incontinence, *Springerplus*. 2014; 3: 570. <https://dx.doi.org/10.1186/2F2193-1801-3-570>
10. M. Arts-de Jong, A. M. van Altena, C. I. M. Aalders et al Improvement of sexual function after transobuturator tape procedure in women with stress urinary incontinence *Gynecol Surg*. 2011 Sep; 8(3): 315-319.
11. Berra M, De Musso F, Matteucci C. The impairment of sexual function is less distressing for menopausal than for premenopausal women. *J Sex Med*. 2010;7:1209-1215. doi: 10.1111/j.1743-6109.2009.01666.x.
12. Ballester M, Bui C, Frobert JL et al. G Four-year functional results of the suburethral sling procedure for stress urinary incontinence: A French prospective randomized multicentre study comparing the retropubic and transobuturator routes. *World J Urol*. 2012;30:117-22. [PubMed] [Google Scholar] <https://dx.doi.org/10.1007%2F10397-010-0643-7>
13. Schierlitz L, Dwyer PL, Rosamilia A et al. Effectiveness of tension-free vaginal tape compared with transobuturator tape in women with stress urinary incontinence and intrinsic sphincter deficiency: a randomized controlled trial. *Obstet Gynecol*. 2008;112:1253. doi: 10.1097/AOG.0b013e31818db391.