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Long-term outcomes of transobturator tapes (TOT) in women with stress urinary incontinence

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Abstract
Introduction: Stress urinary incontinence is the most common type of incontinence in women.
Aims and objectives: To evaluate the long term efficacy and safety of TOT procedure in women with stress urinary incontinence.
Material and methods: A retrospective study was carried out in SMGS Hospital, GMC Jammu. A total of 50 women with SUI underwent TOT procedure during the period from January 2010 to December 2017. All patients were assessed before surgery by history, clinical examination, urine analysis, abdomino-pelvic ultrasonography, and urodynamic evaluation when indicated.
Results: The mean follow-up period was 5 years, ranged from 3-7 years. Their mean age was 45.5 years (range 30-60 years). One patient develop de-novo urge. 2 patients complained of dyspareunia. 2 patients developed post-operative voiding difficulty. 44 patients were dry. Two patients reported incontinence when their bladder was full were happy with this. 46 patients were therefore satisfied with their outcome. No patient complained of worsening incontinence during the follow-up period. 4 patients remained wet.
Conclusions: Our study demonstrates that Transobturator tape procedure is safe and effective minimally invasive procedure for treatment of SUI with good long-term outcome.

Keywords: Trans obturator tape (TOT), Stress urinary incontinence, tension free vaginal tape, outcome

Introduction
Stress urinary incontinence is defined as involuntary loss of urine on effort or physical exertion or on sneezing or coughing [1]. It occurs because of weak or damaged muscles and connective tissues in the pelvic floor thus compromising urethral support or by weakness of the urethral sphincter itself [2, 3]. Main risk factors are age, pregnancy, childbirth, obesity and poor collagen turnover [4].
The first line treatment is mostly conservative and it includes pelvic floor training, electrical stimulation and biofeedback. Duloxetine has been used for treatment of stress urinary incontinence in women but its long-lasting benefit is not clear [5]. Many surgical procedures for relieving SUI have been introduced and most stabilise the bladder neck and or urethra like retropubic colposuspension, slings and urethral bulking injections [6].
Ulmsten *et al.* in 1996, developed a new surgical technique called tension-free vaginal vaginal tape for treatment of SUI [7]. Trans obturator tape approach (TOT) was developed by Delorme with the aim to reduce side-effects of retropubic sling procedure by not entering the space beyond the endopelvic fascia [8]. These slings have different mechanism of action from conventional slings that usually are placed beneath the bladder neck to elevate this area according to pressure transmission theory [9]. Using tension-free or low-tension slings, defective pub urethral ligament is replaced and the bladder neck is not displaced backwards into the abdomino-pelvic pressure zone. Furthermore, the defective connection between urethra and vagina is restored and thereby the sub-urethral hammock reinforced or restored [9].

Aims and objectives
To evaluate the long term safety and efficacy of TOT procedure in the treatment of women with SUI.

Material and methods
A retrospective study was carried out in SMGS Hospital, GMC Jammu. A total of 50 women with SUI underwent TOT procedure during the period from January 2010 to December 2017.

All patients were assessed before surgery by history, clinical examination, urine analysis, abdomino-pelvic ultrasonography, and urodynamic evaluation when indicated.

***Exclusion criteria*:** women with pelvic organ prolapse

Surgical technique

The TOT surgery was performed under spinal or general anaesthesia. The anterior vaginal wall was incised longitudinally over the urethra and periurethral space dissected sharply. A polypropylene midurethral mesh was placed by specially designed helical needle using a transobturator-to-vagina (outside-in technique) approach. The ends of the tape were cut and buried. Patients were instructed to avoid heavy lifting, exercise, and sexual intercourse for a minimum of 6 weeks postoperatively.

Patients were recruited for follow-up and subjected to the following assessment

- A detailed history to detect any possible complications and the history included symptoms of urinary incontinence, frequency, nocturia, urgency, hesitancy and weak stream in addition to the presence of vaginal pain, dyspareunia, vaginal discharge, suprapubic pain, and or thigh pain.
- Physical examination searching for the presence of discharge, vaginal erosion and chronic retention in addition to cough stress test.

Treatment outcome

The outcome of the procedure was evaluated depending on history and objective criteria from physical examination. Treatment outcome was categorised into:

- **Cured:** Patient reported no leakage with stress. On examination, there was no leakage with cough test.
- **Improved:** Patient reported leakage only with severe exertion and she feels that she is improved. On examination, there was no SUI.
- **Failed:** Patient reported no improvement and on examination, SUI was present.

Results

A total of 50 patients with symptomatic SUI underwent a TOT procedure at the SMGS Hospital, GMC Jammu between January 2010 and December 2017. The mean follow-up period was 5 years, ranged from 3-7 years. Their mean age was 45.5 years (range 30-60 years). 28(56%) of patients were para 4 and more and only 3(6%) were para 1. Most of the patients had vaginal delivery (76%) and only 12(24%) had LSCS (table 1).

Table 1: Baseline characteristics of patients

Parameters	No. (%)
Age (years)	
30-40	8(16)
41-50	16(32)
51-60	26(52)
Parity	
P1	3(6)
P2	6(12)
P3	13(26)
P4 and more	28(56)
Mode of delivery	
-vaginal	38(76)
-LSCS	12(24)

Table 2 shows the post-operative complications. One patient develops de-novo urge. 2 patients complained of dyspareunia. 2 patients developed post-operative voiding difficulty. No cases recorded with vaginal erosion. No cases recorded with post-operative urinary retention.

Table 2: Post-operative complications

Complications	No. (%)
De-novo urge	1(2)
Dyspareunia	2(4)
Residual urine	2(4)
Vaginal erosion	0

Table 3 shows the outcome of TOT procedure. Patients were considered dry (cured) if they reported complete correction of stress incontinence after TOT. 44 patients were dry. Two patients reported incontinence when their bladder was full were happy with this. 46 patients were therefore satisfied with their outcome. No patient complained of worsening incontinence during the follow-up period. 4 patients remained wet.

Table 3: Outcome post-TOT by continence status

Outcome	No. (%)
Cured	44(88)
Improved	2(4)
Failed	4(8)

Discussion

Treatment options for SUI include periurethral bulking agents, synthetic mid-urethral slings (either retro-pubic or trans obturator), autologous slings and artificial urinary sphincters. Pharmacological agents are now rarely used [10]. Bulking agents have been found to have poor long-term success [11]. As the initial use of autologous slings showed excellent continence improvement, but the operative morbidity and complications like harvest site pain and infection leads to increase usage of synthetic slings [12, 13].

The main goal of the surgical treatment of SUI is to restore a perfect continence with minimal morbidity. Although it is effective and easy to perform, the retropubic placement of sub-urethral TVT has been associated with a number of peri and post-opertaive complications including bowel, vascular, and bladder injury but also dysuria, urinary retention and de-novo urge symptoms. Most complications appear to be related to the blind upward vaginal passage of the trocars in the retropubic space. The perineal approach reproduces the natural support of the urethra while preserving an intact retropubic space [14].

Delorme *et al.* described the trans obturator approach to place the tape suburethrally between the two obturator foramens from outside to inside, and it is an excellent alternative to the retropubic approach that reduces complications [15].

In our study, 50 women with stress incontinence underwent the TOT procedure by out-in technique. The mean follow-up period was 5 years ranged from 3-7 years. Follow-up of the studied patients revealed that 44(88%) patients had been cured, 2(4%) improved and 4(8%) considered a failure after follow-up. Several studies have results comparable to our study. In a study by Losco GS *et al.* [16] on 27 women with SUI treated with TOT, 22 patients (81.5%) had been cured, 1(3.7%) patient improved and 4(14.8%) failed with mean follow-up period of 5.2 years.

Furthermore, in a study by Groutz *et al.* [17] on 61 women with SUI treated with TOT, 45 patients (74%) had been cured, 5(8%) improved and 11(18%) failure with 5 years mean follw-up period. In another study done by Frohme *et al.* [18], they compared the outcome of TOT procedure in women with different BMI, the overall cure rate in 291 women of normal weight was 81.2%.

In the present study, no patient developed postoperative urinary retention. Similar results were found in study by Losco GS *et al.* [16], no patient developed urinary retention in their study. While in a study by Frohme *et al.* [18], urinary retention was reported by 2 patients. Morey *et al.* [19], stated that the position of the transobturator sling replaces the damaged pubourethral ligament with a permanent mesh tape that provides the support needed to prevent leakage. The angle of the TOT sling is much less acute than TVT, therefore not only is this more anatomic and natural, it also makes sense that there are fewer problems with urinary dysfunction such as urinary obstruction [19].

In our study, *de novo* urgency occurred in 1 patient (2%). In a study by GS Losco *et al.*, 2 patients developed *de novo* urgency. It is difficult to determine why these patients develop postoperative urgency; it is thought that the symptoms are due to irritative symptoms due to the presence of the sling. Theoretically, TOT should carry little if any risk of producing urgency as it is expected to provide a tension free support and thus minimize the chance of producing any obstruction [20]. Recent reports on de novo urgency after TOT suggests that de novo urgency develops in 2.5-8% of patients [21].

Conclusions

In our study, 50 women with stress incontinence underwent the TOT procedure by out-in technique. The mean follow-up period was 5 years ranged from 3-7 years. Follow-up of the studied patients revealed that 44(88%) patients had been cured, 2(4%) improved and 4(8%) considered a failure after follow-up. Our study demonstrates that Trans obturator tape procedure is safe and effective minimally invasive procedure for treatment of SUI with good long-term outcome. Studies on a larger series of patients are required to confirm the results obtained from our study.

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References

1. Haylen BT, de Ridder D, Freeman RM, Swift SE, Berghmans B, Lee J, Monga A, Petri E, Rizk DE, Sand PK, Schaer GN: International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. Int Urogynecol J. 2010; 21:5-26.
2. Peyrat L, Haillot O, Bruyere F, Boutin JM, Bertrand P, Lanson Y: Prevalence and risk factors of urinary incontinence in young and middle-aged women. British J Urol Int. 2002; 89:61-66.
3. Parazzini F, Chiaffarino F, Lavezzari M, Giambanco V: Risk factors for stress, urge or mixed urinary incontinence in Italy. Br J Obstet Gynaecol. 2003; 110:927-933.
4. Edwall L, Carlstrom K, Jonasson AF. Markers of collagen synthesis and degradation in urogenital tissue from women with and without stress urinary incontinence. Neurourol Urodyn. 2005; 24:319-324.
5. Freeman R. Initial management of stress urinary incontinence: pelvic floor muscle training and duloxetine. Br J Obstet Gynaecol. 2006; 113(Suppl):10-16.

6. Umoh UE, Arya LA: Surgery in urogynecology. Minerva Med. 2012; 103:23-36.
7. Ulmstem UI, Henriksson L, Johnson P, Varhos G. An ambulatory surgical procedure under local anaesthesia for treatment of female urinary incontinence. Int Urogynecol j Pelvic Dysfunct. 1996; 7:81-5.
8. Delorme E. Transobturator urethral suspension: Mini-invasive procedure in the treatment of stress urinary incontinence in women. Prog Urol. 2001; 11:1306-13.
9. Boustead GB. The tension-free vaginal tape for treating female stress incontinence. BJu Int. 2002; 89:687-93.
10. Basu M, Duckett JR. Update on duloxetine for the management of stress urinary incontinence. Clin Interv Aging. 2009; 4:25-30.
11. Kiilholma P, Makinen J. Disappointing effect of endoscopic Teflon injection for female stress incontinence. Eur Urol. 1991; 20:197-199.
12. Ghoneim GM, Shaaban A. Sub-urethral slings for the treatment of stress urinary incontinence. Int Urogynecol J 1994; 5:228-233.
13. Haab F, Trockman BA, Zimmern PE, Leach GE. Results of pubovaginal slings for the treatment of intrinsic sphincteric deficiency determined by questionnaire analysis. J Urol. 1997; 158:1738-1741.
14. Roumeguere T, Quackels T, Bollens R, de Groote A, Zlotta A, Bossche MV *et al.* Trans-obturator vaginal tape (TOT) for female stress incontinence: one year follow-up in 120 patients. Eur Urol. 2005; 48:805-9.
15. Delorme E, Droupy S, de Tayrac R, Delmas V. Transobturator tape (uratape): A new minimally invasive procedure to treat female urinary incontinence. Eur Urol. 2004; 45:203-7.
16. Losco GS, Burki JR, Omar YAI, Shah PJR, Hamid R. Long term outcome of TOT for treatment of stress urinary incontinence in females with neuropathic bladders. Spinal cord. 2015; 53:544-46.
17. Groutz A, Rosen G, Gold R, Lessing JB, Gordon D. Long-term outcome of transobturator tension free vaginal tape: Efficacy and risk factors for surgical failure. J Women Health (Larchmit). 2011; 20:1525-8.
18. Frohme C, Ludt F, Varga Z, Olbert PJ, Hofmann R, Hegle A. TOT approach in stress urinary incontinence (SUI)-outcome in obese female. BMC Urol. 2014; 14:20. http://www.biomedcentral.com/1471-2490/14/20
19. Morey AF, Medendrop AR, Noller MW, Mora RV, Shandera KC, Foley JP. Transobturator versus transabdominal mid urethral slings: A multi-institutional comparison of obstructive voiding complications. J Urol. 2006; 175:1014-7.
20. Levin I, Groutz A, Gold R, Pauzner D, Lessing JB, Gordon D. Surgical complications and medium-term outcome results of tension-free vaginal tape: A prospective study of 313 consecutive patients. Neurolurol Urodyn. 2004; 23:7-9.
21. Schnaz PJ, Arriola R, Dalenz S, Fernanadez T. Trans-obturator-tape (TOT) for the surgical repair of stress urinary incontinence: our experience. Arch Esp Urol. 2006; 59:225-32.