

Female Stress Urinary Incontinence: Our Experience with Transobturator Tape

Lynsel H Texeira¹, V Jeevan Kumar², Mariam Anjum Ifthikar³, Nischith D Souza⁴, Divyashree Bhat⁵

ABSTRACT

Introduction: Involuntary loss of urine caused by raised intraabdominal pressure during exercise, coughing, or sneezing is known as stress urinary incontinence (SUI). Urinary incontinence affects over a quarter of women between the ages of 30 and 60, with SUI accounting for roughly half of the cases. Aging, smoking, straining, obesity, and COPD are all risk factors that may result in incontinence. Conservative therapy such as lifestyle changes, pelvic floor muscle training, bladder training, and medications are used as the first line of treatment for SUI. Surgery is recommended for patients who have not improved with conservative measures. Many surgical procedures are described to correct SUI. The essential premise in the therapy of SUI is to create functional kinking of the mid-urethra during episodes of raised intra-abdominal pressure to ensure adequate suspension. Two important sling methods are developed in the last two decades. Transobturator vaginal tape (TOT) technique is anatomically accurate and has the potential to reduce obstruction and postoperative voiding dysfunction. For the surgical treatment of SUI, these mid-urethral sling techniques became the gold standard.

Aims: To study the postoperative complications, outcomes, and quality of life of patients undergoing TOT.

Subjects and methods: This study is conducted prospectively from October 2018 to August 2021 on 24 genuine SUI patients, who underwent transobturator sling surgery in the Urology Department, Yenepoya Medical College, Mangaluru. The patients underwent all baselines and special examinations, such as an urodynamic study and a cystoanendoscopy. For the first 6 months, patients were treated with conservative therapy such as lifestyle changes, bladder training, pelvic floor exercise, and medications (duloxetine, imipramine, estrogens). All the patients who had failed or were dissatisfied with conservative treatment underwent the TOT treatment.

Results: In total, 24 patients were assessed in this study. The patients ranged in age from 36 to 50 years old, with a mean age of 42.3 years. A total of 23 (95.8%) of the 24 patients were multiparous. All of the patients experienced involuntary urine leakage during straining, with 20 (83.3%) having grade II symptoms and 22 (91.6%) having symptoms for more than 3 years. Preoperatively, six (25%) of the patients had a minor cystocele, which was cleared after surgery. Diabetes mellitus/hypertension were present in four (16.6%) of the patients. ALPP ranged from 94 to 110 cm of water. All patients had maximal flow rate of more than 20 mL/second and a PVRU of less than 50 mL. The quality of life improved after surgery from a mean of 12.4 to 2.1. Urine flow rate was more than 20 mL/second in 19 patients (79.1%) after surgery, and 15–20 mL/second in 5 patients (20.8%) which improved after 3 months to more than 20 mL/second. In 20 (83.3%) patients, PVR urine was less than 50 mL, and in 4 (16.6%), it was between 50 and 100 mL. At 6-month follow-up, 22 (91.6%) patients were completely satisfied with the surgical outcome, while 2 (8.3%) patients were only moderately satisfied.

Conclusions: TOT sling is a successful surgical treatment option for SUI, with a good success rate, patient satisfaction, minimal morbidity, and a shorter hospital stay. Patients endure and accept TOT surgery well, and it provides a long-term cure for SUI patients. We advocate TOT as the therapy of choice for SUI because of its safety, ease of use, short surgical time, speedier recovery, minimum problems, and high success rates.

Keywords: Bonney's test, Quality of life, Stress urinary incontinence, Transobturator vaginal tape.

Journal of South Asian Federation of Obstetrics and Gynaecology (2022): 10.5005/jp-journals-10006-2036

INTRODUCTION

Involuntary loss of urine caused by raised intraabdominal pressure during exercise, coughing, or sneezing is known as stress SUI. There can be either lowering of the vesicourethral segment and/or hypermobility in genuine stress incontinence, but the intrinsic sphincter will be intact and normal. Urinary incontinence affects over a quarter of women between the ages of 30 and 60, with SUI accounting for roughly half of the cases. Aging, smoking, straining, obesity, and COPD are all risk factors that may result in incontinence.

Conservative therapies such as lifestyle changes, pelvic floor muscle training, bladder training, and medications are used as the first line treatment for SUI. Surgery is recommended for patients who have not improved with conservative measures. Many surgical procedures are described to correct SUI. The essential premise in the therapy of SUI is to create functional kinking of the mid-urethra during episodes of raised intra-abdominal pressure to ensure adequate suspension. Two important sling methods are developed

¹Department of Obstetrics and Gynaecology, Srinivas Institute of Medical Sciences and Research Centre, Mangaluru, Karnataka, India

^{2,4,5}Department of Urology, Yenepoya Medical College, Yenepoya University, Mangaluru, Karnataka, India

³Department of Gynaecological Oncology, Yenepoya Medical College, Yenepoya University, Mangaluru, Karnataka, India

Corresponding Author: V Jeevan Kumar, Department of Urology, Yenepoya Medical College, Yenepoya University, Mangaluru, Karnataka, India, Phone: +91 7661089158, e-mail: jvnkrm05@gmail.com

How to cite this article: Texeira LH, Kumar VJ, Ifthikar MA, et al. Female Stress Urinary Incontinence: Our Experience with Transobturator Tape. *J South Asian Feder Obst Gynae* 2022;14(3):223–226.

Source of support: Nil

Conflict of interest: None

in the last two decades. Ulmsten proposed the tension-free vaginal tape (TVT) technique in 1996 and claimed an 84% cure rate after 2 years. Although TVT is a safe and effective operation, it has been linked to serious, though uncommon, consequences such as bladder perforation, vascular, and intestinal damage.

Delorme reported a TOT technique in 2001 to address these issues, which involves placement of mesh behind the mid-urethra (Fig. 1). This method is anatomically accurate and has the potential to reduce obstruction and postoperative voiding dysfunction. For the surgical treatment of SUI, these mid-urethral sling techniques became the gold standard.

MATERIALS AND METHODS

This study is conducted prospectively from October 2018 to August 2021 on 24 genuine SUI patients, who underwent transobturator sling surgery in the Urology Department, Yenepoya Medical College, Mangaluru. All patients with SUI are subjected to full history-taking, physical, and local examination using Bonney's test in the urology OPD.

The patients underwent all baseline and special examinations, such as an urodynamic study and a cysto-panendoscopy. The International Continence Society suggested in 2002 that SUI be diagnosed based on typical subjective symptoms as well as objective findings from cough stress test and other clinical tests like Q-tip test and/or UDS.

Patients with urge incontinence, recurrent UTIs, or mixed incontinence, pelvic organ prolapsed (POP) or other gynecological problems, PVRU of more than 150 mL, reduced bladder capacity (<100 mL), previously failed corrective surgery for SUI, and physical or mental impairment, pregnancy were excluded.

All patients were informed regarding their condition and the available nonsurgical and surgical treatment choices. For the first 6 months, patients were treated with conservative therapies such as lifestyle changes, bladder training, pelvic floor exercise, and medications (duloxetine, imipramine, estrogens). All the patients who had failed or were dissatisfied with conservative treatment underwent the TOT treatment.

Surgical Technique

The AMS Monarc TOT sling was introduced using the outside-in approach. Patient is placed in lithotomy position under spinal

anesthesia, and Foley catheter is placed. About 1 cm proximal to external urethral meatus a 1.5 cm incision is made in the anterior vaginal wall. On both sides the anterior vaginal wall is elevated laterally up to the ischiopubic rami, protecting the urethra and bladder.

On the horizontal line that goes across the clitoris, stab incisions are made where the lateral border of the ischiopubic bone is projected on both sides. Using the finger as a guide the TOT needle is inserted through a skin incision and the tip is pulled out through a vaginal wall incision. TOT tape is fixed to the tip of the needle and the needle is removed along the same path, dragging one end of the tape into the groin incision.

On the other side, the same technique is followed. The sling is positioned beneath the urethra, tension-free, and at the level of the skin incisions the two ends are sectioned followed by closure of the vaginal incision. Urinary catheter is retained for 1–2 days postoperatively and discharged on second POD.

Assessment

During follow-up visits at 1-week, 1-month, and 6-month, the postoperative pain, time to return to regular activity, infection, LUTS, and voiding issue were all assessed. Cough stress test with full bladder, urinary flow rate, PVRU, long-term problems, patient satisfaction along with QOL index were all assessed at the 6-month follow-up visit.

QOL assessment is based on the number of pads used (I—none, II—1–3/week, III—>3/week, IV—1–3/day, V—>3/day), the impact of leakage of urine on day to day activity and how frequently activities are avoided due to fear of leak and the lack of toilets (I—never, II—seldom, III—sometimes, IV—often, V—always), and the influence of urinary leak on family and social life, vacation and sleep.

The surgery outcome is assessed in three categories: Cured, improved, and failed.

- Cured if they had a high level of satisfaction, no urine leak, a good quality of life, a negative cough stress test, without postop complications, a good flow rate, and a PVRU of less than 50 mL.
- Improved if patient is satisfied with satisfactory quality of life, had urine leakage only occasionally, and did not interfere with daily routine or necessitate further treatment, no leakage on cough stress test, minimal complications, satisfactory flow rate, and a PVRU of 50–100 mL.
- If the patient was not satisfied, had a bad quality of life, had a persistent leak of urine, a positive cough test, postop complications, inadequate rate of urine flow, or a PVRU of >100 mL, the treatment was declared a failure.

RESULTS

In total, 24 patients were assessed in this study. The patients ranged in age from 36 to 50 years old, with a mean age of 42.3 years. A total of 23 (95.8%) of the 24 patients were multiparous. All of the patients experienced involuntary urine leakage during straining, with 20 (83.3%) having grade II symptoms and 22 (91.6%) having symptoms for more than 3 years. Preoperatively, six (25%) of the patients had a minor cystocele, which was cleared after surgery. Diabetes mellitus/hypertension were present in four (16.6%) of the patients. ALPP ranged from 94 to 110 cm of water. All patients had a maximal flow rate of more than 20 mL/second and a PVRU of less than 50 mL.

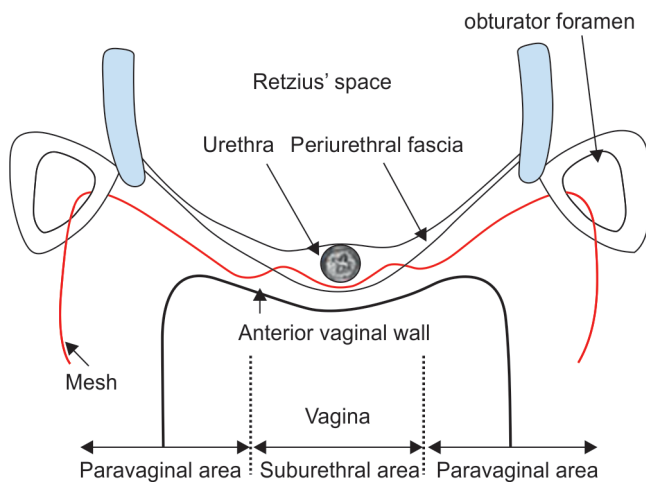


Fig. 1: Diagrammatic representation of final position of the mesh

The procedure took 25–30 minutes and resulted in a blood loss of 50 ± 20 mL, which is determined using pre- and postweighed swabs. There were no serious problems intraoperatively, such as bladder damage. The catheter removal was done on second POD, and the hospital stay was 2–3 days. Twenty-three patients (95.8%) emptied satisfactorily; however, one patient (4.1%) failed to void following removal of catheter, necessitating re-catheterization which is removed on fifth POD, after which the patient voided satisfactorily.

Table 1 summarizes the various postoperative problems, which gradually diminished over a few days.

Twenty-two (91.6%) of the 24 patients were asymptomatic after surgery, whereas 2 (8.3%) experienced infrequent urine leaks that did not interfere with daily routine or necessitate additional treatments and no urinary leak on cough stress test. Patients returned to regular activities in 4–7 days in 23 (96%) cases and 7–10 days in one (4%) case.

The quality of life improved after surgery from a mean of 12.4 to 2.1. Urine flow rate was more than 20 mL/second in 19 patients (79.1%) after surgery, and 15–20 mL/second in 5 patients (20.8%) which improved after 3 months to more than 20 mL/second.

In 20 (83.3%) patients, PVR urine was less than 50 mL, and in 4 (16.6%), it was between 50 and 100 mL. At 6-month follow-up, 22 (91.6%) patients were completely satisfied with the surgical outcome, while 2 (8.3%) patients were only moderately satisfied.

The surgical outcome of patients at follow-up is shown in Table 2.

DISCUSSION

The goal of surgery for SUI is to restore continence with the least amount of morbidity as possible. The urethrovesical junction is lifted and supported during surgical procedures for stress incontinence. However, in recent years, the emphasis has shifted to mid-urethral suburethral support. TVT and TOT are two methods for suburethral support. The TOT procedure, described by Delorme¹ in 2001, entailed the insertion of a polypropylene tape under the mid-urethra in a tension-free manner using a “outside-in” technique, as an alternative to the retropubic approach to reduce its related complications. TOT can be performed in two ways: “outside-in”

Table 1: Postoperative complications following TOT

Postoperative complications	Number of patients	%
Pain	4	16.6
Infection	1	4.1
UTI	1	4.1
LUTS—Urgency, dysuria	1	4.1
Hematoma, hematuria	0	0
Urinary retention	1	4.1
Mild obstructive voiding	4	16.6
Vaginal erosion, dyspareunia	0	0

UTI, urinary tract infection; LUTS, lower urinary tract symptoms

Table 2: Outcomes following TOT

Surgical outcome	Number of patients	%
Cured	22	91.6
Improved	2	8.3
Failed	0	0

(Delorme) and “insideout” (de Leval).² Trocars were inserted using Delorme’s outside-in approach in our cases. The absence of incontinence during a cough stress test is usually considered subjective cure. The average surgical time in this study was 25–30 minutes, with a blood loss of 50 ± 20 mL.

Moore et al.³ reported a mean duration of 12.4 minutes surgical time and a mean loss of 36 mL of blood in their study, but Taweel and Rabah⁴ reported an average duration of 18 minutes and a mean intraoperative loss of 57 mL of blood. In this study, 24 patients spent an average of 2.1 days in the hospital. The average hospitalization was 2.2 days, according to Isabelle et al., Purnichescu et al.⁵ from France found that the average length of stay was 1.25 days.

There were no serious intraoperative complications in our cohort of 24 patients, such as urethral, bladder, neurological, or vascular injury. One patient (4.2%) in our trial failed to void within 24 hours of catheter removal, most likely due to urethral discomfort, but emptied properly after 3 days. Sander et al.⁶ discovered that the tape reduced urine flow and increased urethral resistance, resulting in retention. A similar rate of urine retention and voiding dysfunction was observed by Kim et al.,⁶ which responded to conservative therapy.

Time to return to daily routine was 4–7 days for 23 (95.8%) individuals in our study, and 7–10 days for 1 (4.2%) patients. When compared to the TVT, Barry et al.⁷ found that TOT surgery resulted in a speedier return to activity due to a shorter surgical time, minimal dissection, and natural suburethral suspension. Taweel and Rabah,⁴ Schanz et al.,⁸ and Latthe et al.⁹ all reported low postoperative complications after TOT surgery, ranging from 3 to 8%, which is consistent to our findings. In our study, 91.6% of patients were satisfied with the surgical outcome after 6 months, whereas 8.3% were moderately satisfied. Other studies reported similar satisfaction rates; however, the subjective satisfaction rate observed in our investigation is higher than in others. The current study’s findings back up previous short-term studies that found the best results in stress incontinence.

CONCLUSION

TOT sling is a successful surgical treatment option for SUI, with a good success rate, patient satisfaction, minimal morbidity, and a shorter hospital stay. Patients endure and accept TOT surgery well, and it provides a long-term cure for SUI patients. We advocate TOT as the therapy of choice for SUI because of its safety, ease of use, short surgical time, speedier recovery, minimum problems, and high success rates.

ORCID

Lynsel H Texeira  <https://orcid.org/0000-0002-3633-0242>

Mariam Anjum Ifthikar  <https://orcid.org/0000-0002-3435-1701>

REFERENCES

1. Delorme E. Transobturator urethral suspension: miniinvasive procedure in the treatment of stress urinary incontinence in women. *Prog Urol* 2001;11(6):1306–1313. PMID: 11859672.
2. de Leval J. Novel surgical technique for the treatment of female stress urinary incontinence: transobturator vaginal tape inside-out. *Eur Urol* 2003;44(6):724–730. DOI: 10.1016/j.eururo.2003.09.003.
3. Moore RD, Miklos JR, Cervigni M, et al. Transobturator sling: combined analysis of 1 year follow-up in 9 countries with 266 patients: XV Congress of the International Society for Gynecologic Endoscopy. April 1. Argentina: Buenos Aires; 2006. p. 101–104.

4. Taweel WA, Rabah DM. Transobturator tape for female stress incontinence: follow-up after 24 months. *Can Urol Assoc J* 2010;4(1):33–36. DOI: 10.5489/cuaj.08118.
5. Purnichescu V, Cheret-Benoist A, Eboué C, et al. Surgical treatment for female stress urinary incontinence by transobturator tape (outside in). Study of 70 cases. *J Gynecol Obstet Biol Reprod (Paris)* 2007;36(5):451–458. DOI: 10.1016/j.jgyn.2007.04.001.
6. Kim S, Bae J, Cho M, et al. Effect of preoperative flow rate on postoperative retention and voiding difficulty after transobturator tape operation. *Korean J Urol* 2014;55:190–195.
7. Barry C, Lim YN, Muller R, et al. A multi-centre, randomised clinical control trial comparing the retropubic (RP) approach versus the transobturator approach (TO) for tension-free, suburethral sling treatment of urodynamic stress incontinence: the TORP study. *Int Urogynecol J Pelvic Floor Dysfunct* 2008;19(2):171–178. DOI: 10.1007/s00192-007-0412-y.
8. Schanz JP, Arriola PR, Fernández XT, et al. Transobturator tape (TOT) for female stress incontinence. Experience with three years follow-up in 200 patients. *Actas Urol Esp* 2007;31(10):1141–1147. DOI: 10.1016/s0210-4806(07)73777-4.
9. Latthe PM, Patodi M, Constantine G. Transobturator tape procedure in stress urinary incontinence: UK experience of a district general hospital. *J Obstet Gynaecol* 2007;27(2):177–180. DOI: 10.1080/01443610601124471.