

A study of transobturator tape in stress urinary incontinence

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Abstract

Background: Stress urinary incontinence (SUI) is commonly encountered in gynecological practice. Nowadays, midurethral sling surgeries in the form of transobturator tape (TOT) surgery are recommended in its treatment.

Aims and Objectives: To assess the outcome and patient satisfaction of TOT surgery in the treatment of SUI.

Materials and Methods: A prospective study was undertaken for patients of SUI who underwent TOT surgery by the outside in method and followed up for 5 years. The patients were assessed clinically and by the Patient Global Impression of Improvement (PGI-I) preoperatively and at postoperative day 3, discharge and 3 months follow-up.

Results: Successful surgical treatment with TOT was seen in all patients at the time of discharge. There was no recurrence of SUI seen up to 1 year, but at 5-year follow-up two patients had a recurrence of SUI on examination though they did not complain of SUI. Urinary retention, tape extrusion, and groin stitch infection were the commonly seen complications following surgery. On subjective assessment, 61 patients were completely satisfied at day 3, and all patients were completely satisfied at discharge and 3 months follow-up as per the PGI-I score.

Conclusion: TOT gives an excellent outcome in the treatment of SUI.

Key Words: Assessment, follow-up studies, midurethral sling, patient outcome, patient satisfaction, stress, urinary incontinence

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INTRODUCTION

Stress urinary incontinence (SUI) is commonly occurring under-reported problem in women worldwide. Most women quite often do not report this condition for a variety of reasons. Although it is primarily a urological condition it is usual that women consult a gynecologist for it. In fact, most often SUI

has been detected when the patient presents with uterovaginal prolapse. Hence, surgeries for SUI in women are routinely performed by gynecologist.

Over the last decade, the surgical treatment for SUI has evolved.^[1] From the simple surgeries like Kelly's operation to

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more complex difficult surgeries by abdominal or vaginal route or abdominovaginal route such as Burch's surgery, Stamey's procedure, Raaz procedure, and Periera's have evolved probably due to unsatisfactory long-term results and recurrence of SUI following Kelly's surgery to provide a permanent solution to the problem of SUI.^[2] These surgeries are complex, some of which require meticulous dissection in the vascular venous plexus in the cave of Retzius or were dangerously close to the bladder and were prone to complications and increased morbidity.

Delorme (2001) described a mid-urethral tension-free sling by the transobturator route (transobturator tape [TOT]) which minimized the surgical risk and morbidity and supported the urethra by a tension free tape preventing the urethra from opening up in response to increased abdominal pressure thereby preventing SUI.^[3]

The study aims to assess the outcome and long-term results of midurethral sling surgery by the transobturator tape surgery for SUI up to 5 years follow-up as well as assess patient satisfaction using the Patient Global Impression of Improvement score (PGI-I).

MATERIALS AND METHODS

The study was carried out prospectively in a tertiary care teaching institute after obtaining permission from the Institutional Ethics Committee – human resources. Patients who presented to the gynecology OPD with SUI, uterovaginal prolapse with SUI were evaluated in the OPD for SUI. Patients were diagnosed as SUI on the basis demonstrable urinary leak on coughing on full bladder sensation, Bonney's test and Pad test in the absence of urinary tract and vaginal tract infections. In addition, those patients who had postvoid residual urine capacity of more than 50 ml preoperatively were excluded from this study. The severity of the SUI was graded on the basis of the grading of SUI by Ferrari *et al.*^[4]

After preoperative and preanesthetic fitness patients with demonstrable SUI were subjected to midurethral sling surgery by the TOT (outside in technique) with or without vaginal hysterectomy and pelvic floor repair. Foley catheter was kept *in situ* for three postoperative days. A standard TOT polypropylene mesh of 30 cm by 2 cm size with a pore size of 1.3 mm × 1.0 mm and 0.59 mm thickness was used in all patients. Patients were reassessed postoperatively for evidence of SUI (demonstrable passing of urine on coughing on perceived full bladder) by 3rd day, discharge, 3 months follow-up, at 1 year, and 5-year follow-up. Patients who did not complete a follow-up for 5 years were not included in the analysis. In addition, patients' subjective assessment for voiding difficulties was noted on the removal of Foley catheter. Postvoid residual

urine capacity was measured for all patients on the day 3. A postvoid residual capacity of more than 50 ml was considered significant and was considered as clinical evidence for urinary retention. PGI-I score was evaluated postoperatively on removal of catheter, at time of discharge and 3 months follow-up to determine the patient satisfaction with the procedure.^[5]

RESULTS

A total of 67 patients who had varying grades of SUI confirmed on clinical examination and test who underwent a midurethral sling by the TOT outside in method for treatment of SUI and followed up for 5 years were evaluated [Table I].

Fifty-four patients had varying degrees of uterovaginal prolapse and underwent a vaginal hysterectomy with pelvic floor repair with TOT. Seven patients underwent pelvic floor repair along with TOT. Six patients underwent TOT repair only.

The midurethral sling surgery performed by TOT done by the outside-in technique could be performed without difficulty. There were no intraoperative complications. The patients tolerated the surgery well.

On removal of the catheter on the third postoperative day, 66 (98.51%) patients did not demonstrate SUI. One patient who had Grade III SUI there was demonstrable urinary incontinence on coughing on removal of catheter which resolved after re-catheterization of bladder for additional 5 days.

Four (5.97%) patients complained of discomfort while passing urine on removal of the catheter which was successfully treated with alkalinizing the urine. Two (2.99%) patients had a sensation of incomplete evacuation and had significant postvoid residual urine suggesting incomplete evacuation and urinary retention. Both these patients were treated by wide bore no. 20 French Foley catheterization for further 5 days and subsequent bladder retraining and physiotherapy. Both patients responded well to the treatment and were satisfied with the outcome of the surgery at discharge.

Table 1: Preoperative subjective assessment of stress urinary incontinence

Grade of SUI	Symptoms	n
I	Involuntary loss of urine with sudden increase in intra-abdominal pressure such as on coughing/straining	34
II	Involuntary loss of urine with lesser degrees of stress, for example, walking or standing up	27
III	Loss of urine without any relation to physical activity or position, for example, while lying in bed	6

SUI: Stress urinary incontinence

Tape extrusion was seen in 1 (1.49%) elderly postmenopausal diabetic woman at 3 weeks follow-up. The extruded tape was cut on OPD basis; the patient did not complain of urinary incontinence after that.

Groin stitch infection was seen in 4 (5.97%) patients which was treated.

There was no recurrence of SUI seen up to 1-year follow-up but at 1 year follow-up two patients had a recurrence of SUI on examination though they did not complain of SUI. The patients were offered urodynamic testing, but they declined any further investigations and were treated with lifestyle modification, Kegel's exercise, and physiotherapy.

The PGI-I score was evaluated postoperatively on day 3, at discharge, at 3 months follow-up to assess the satisfaction perceived by the patient following TOT surgery. The score was evaluated with respect to the preoperative condition at each follow-up. Although 66 patients did not have demonstrable SUI clinically, only 61 patients were completely satisfied and felt very much better. All patients were relieved of their symptoms at the time of discharge. Six patients were not with completely satisfied results on day 3. This was due to the persistence of symptoms in one patient, voiding disturbance in two patients and burning micturition in four patients. All the patients were very much happy and satisfied about the outcome of the surgery at discharge as well as at 3 months follow up. All 67 patients felt very much better and were satisfied with the outcome [Table 2].

DISCUSSION

SUI is a common condition which is underreported as patients do not seek treatment for it. It is usually assessed by an investigating query and/or at evaluation when a patient presents with pelvic organ prolapse. As the pelvic organ supports are common, it is not quite unusual for these conditions to be associated with each other. SUI surgeries have quite often been combined with other operations for pelvic floor repairs without increasing the morbidity.^[6-8] Vaginal repair for SUI is becoming extremely popular, and midurethral slings are being advocated and are now becoming the gold standard in the treatment of SUI.^[9] Urodynamic testing is not required for confirmatory diagnosis of uncomplicated SUI.^[10]

Midurethral sling surgeries are very safe and effective way of treatment for SUI.^[11-13] Although TOT is nowadays

being offered as treatment of choice in many centers as it is an effective method of treatment of SUI, reports have indicated varying success rates for the procedure.^[14-16] In the current study, the TOT was very successful as all the patients were relieved of their symptoms and the patients did not demonstrate incontinence at follow-up. However, at 5-year follow-up two patients had Grade I urinary incontinence for which they declined any further evaluation and were offered Kegels exercises. Kegels exercise and physiotherapy have been advocated in the nonsurgical management of SUI.^[17-19]

Unsatisfactory results to midurethral sling surgery in the treatment of SUI have also been reported. Ingber *et al.* have reported that there may be an improvement in the outcomes with time.^[14] Four patients were not satisfied with the results on removal of catheter probably due to urethral irritation following bladder catheterization. They did not exhibit urinary incontinence.

Voiding disturbances are reported in midurethral sling surgeries.^[20-22] This was seen in the early part of our series and occurred probably due to a tighter placement of the tape. Similar observation was made by Romero-Nava and Gómez-Cardoso.^[23] The presence of the tape is known to decrease the urinary flow and offer increase in resistance to urethra thereby causing retention.^[24] The tape mimicks the pubourethrovessical hammock, and the fibrosis that results is as useful as the tape itself. Further, the mesh provided with a permanent static support to the midurethra because of which theoretically the chances of recurrence of SUI were negligible.

Two (2.98%) patients had significant post void residual urine in our series. A similar incidence of urinary retention was reported by Romero-Nava and Gómez-Cardoso (3%) and by Bozkurt *et al.* (3.2%).^[23,25] The retention was treated with simple catheterization for five additional days with a wide bore catheter. Kim *et al.* reported a similar incidence of retention of urine and voiding dysfunction which responded to conservative treatment.^[26] Studies have even reported that voiding disturbance is known to be transient and have been reported to resolve spontaneously as well.^[27] No *de novo* urge incontinence was reported in our series though it has been reported in literature.

Tape extrusion is another common complication seen.^[28] It has been reported to occur even up to 18 months postsurgery.^[23] Tape extrusion was seen in one (1.49%) patient in our series. The exposed tape was excised and even after removal of the tape SUI did not occur. This was probably due to the fibrosis that had already set in. Removal of the eroded tape has been met with mixed results.^[29]

Table 2: Patient Global Impression of Improvement score

Score	Report	Day 3 postoperative	Discharge	Follow up at 3 months
1	Very much better	61	67	67
2	Much better	6		

The patient satisfaction following surgery is extremely good, and patients are very much happy at the outcome of the surgery. Patient perception for relief of symptoms studied using the subjective PGI-I score indicates that midurethral sling surgery is able to achieve a high level of patient satisfaction.^[30]

CONCLUSION

The TOT surgery by the outside in is safe and easy to perform. It has relatively less complications and morbidity. In our experience, midurethral sling surgery by the TOT by the outside-in technique is strongly recommended and must be offered as the treatment of choice in cases of SUI.

It is well tolerated and accepted by the patients and provides a long-term cure for patients of SUI.

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Conflicts of interest

There are no conflicts of interest.

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