Original Research Article

Transvaginal tape or transobturator tape - what to opt for cure of female stress urinary incontinence

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ABSTRACT

Background: Urinary incontinence is a very disturbing condition that affects quality of life. Stress urinary incontinence (SUI) is defined as the involuntary loss of urine associated with the sensation of urgency and is usually associated with exertion, sneezing or coughing. About 30-50% of women suffers from this condition and is conventionally treated with pelvic floor exercises, bladder drill, duloxetine and anticholinergic drugs with unsatisfactory results. Retro pubic and transobturator sub urethral slings such as TOT and TVT are the gold standard surgical treatment for women with USI.

Methods: This is a prospective study conducted between May 2007 to March 2010 in RLJH hospital, Kolar in department of surgery under the guidance of urologist. Patients diagnosed with stress urinary incontinence were randomized by double blind technique, to the retropubic route (TVT) or the transobturator route (TOT) group. A total of 71 patients TVT = 36 and TOT = 35 patients were posted for respective operative procedures. The institutional ethical committee approved the study, and all women gave their written and informed consent after receiving full information about the study. Inclusion criteria were patients diagnosed with stress urinary incontinence and those who had recurrence after previous anti-incontinence surgery. Patients with mixed incontinence were excluded from our study.

Results: The demographic data and pre and post-operative clinical parameters of all patients studied showed no significant differences between the two groups. Mean follow up was 30 months (24-48). Mean operative time was 36 (20-45) minutes in TVT and 20 (12-25) minutes in TOT. The post-operative urinary retention was seen in 13.8% (n = 5) in the TVT group and 2.8% (n = 1) in the TOT group. We had suprapubic haematoma 5.5% (n = 2) in the TVT group. Bladder perforation occurred in two cases of TVT. Two patients with previous failed incontinence surgery also did well in our study.

Conclusions: Transobturator tape procedure has less complication, good postoperative outcome in terms of cure of stress urinary incontinence and improved quality of life and patient's satisfaction. This technique is easy to learn and can be performed by general surgeons as day care surgery. This procedure has an advantage of easy performance in those patients who have a failed previous incontinence surgery.

Keywords: Stress urinary incontinence, SUI transobturator tension-free tape, TVT - procedure, TOT - procedure

INTRODUCTION

Urinary incontinence is a very disturbing condition that affects quality of life.¹ Stress urinary incontinence (SUI) is defined as the involuntary loss of urine associated with

the sensation of urgency and is usually associated with exertion, sneezing or coughing.² About 30-50% of women suffer from this condition and are conventionally treated with pelvic floor exercises, bladder drill, duloxetine and anticholinergic drugs with unsatisfactory

results.³ Retropubic and transobturator sub urethral slings such as trans obturator tape and trans vaginal tape are the gold standard surgical treatment for women with urinary stress incontinence.^{4,5} This is a prospective, observational study conducted in our hospital to compare the efficacy and various parameters of both the procedures.

METHODS

This is a prospective study conducted between May 2007 to March 2010 in RLJH hospital, Kolar in department of surgery under the guidance of urologist. Patients diagnosed with stress urinary incontinence were randomized by double blind technique, to the retropubic route (TVT) or the transobturator route (TOT) group. A total of 71 patients TVT = 36 and TOT = 35 patients were posted for respective operative procedures. The institutional ethical committee approved the study, and all women gave their written and informed consent after receiving full information about the study. Inclusion criteria were patients diagnosed with stress urinary incontinence and those who had recurrence after previous anti-incontinence surgery. Patients with mixed incontinence were excluded from our study. The preoperative workup included a detailed case history, a clinical, neurological, and urogynaecological and medical examination. All patients underwent cough and Valsalva stress test at physiologically maximum bladder capacity preoperatively and postoperatively. The procedures were performed under spinal anaesthesia, timed from the vaginal skin incision to the last skin suture including cystoscopy. In both procedures, a Foley catheter was left for 24 hours (Figure 1, 2, 3, 4, 5, 6, 7). Intermittent catheterization was advised if post-void residual volume was greater than 50% of the bladder volume after catheter removal. Pre, peri- and postoperative findings were compared. Postoperative voiding dysfunctions, storage symptoms, and voiding symptoms were evaluated at each follow-up visit at 3, 6, and 12 months postoperatively, and then annually.

Figure 1: Operative picture of cystoscopy being performed.

Figure 2: Operative picture of saline injected to create a plane between urethra and anterior vaginal wall.

Figure 3: Operative picture of vertical incision being made.

Figure 4: Operative picture showing tot needle inserted.

Figure 5: The prolene mesh sling.

Figure 6: Operative picture of mesh being pulled through the eye of tot needle in the retrourethral space.

Figure 7: The placement of the sling/tape with elevation/angulation of the urethra.

RESULTS

The demographic data and pre and post-operative clinical parameters of all patients studied showed no significant differences between the two groups (Table 1, Figure 8). Mean follow up was 30 months (24-48). Mean operative time was 36 (20-45) minutes in TVT and 20 (12-25) minutes in TOT (Figure 9). The post-operative urinary retention was seen in 13.8% (n = 5) in the TVT group and 2.8% (n = 1) in the TOT group. We had suprapubic haematoma 5.5% (n = 2) in the TVT group. Bladder perforation occurred in two cases of TVT. Two patients with previous failed incontinence surgery also did well in our study (Table 2, Figure 10). Most of the patients in both TVT and TOT groups were sent home on the same post-operative day (Table 3, Figure 11) at follow-up many of the patients in both groups reported being cured of their incontinence. The rates of cure (91.6% versus 91.4%) improvement in symptoms in (5.6% versus 8.6%) were almost similar for TVT and TOT groups. At 6 months follow-up no vaginal erosion occurred in either groups though we had mesh exposure one in each group not requiring removal. From 31 patients with complaint of preoperative urgency, after mean follow up of 30 months, 71% versus 78% became symptom free after TVT and TOT surgery. Based on telephone interview, patient satisfaction was as follows: very satisfied: 32 (91.4%) in TOT and 32 (88.8%) in TVT, moderately

satisfied: 2 (5.7%) in TOT and 2 (5.6%) in TVT, not very satisfied: 1 (2.9%) in TOT and 1 (2.8%) in TVT and unsatisfied: none in TOT and 1 (2.8%) in TVT group.

Table 1: Various preoperative parameters.

Parameters	TVT (n = 36)	TOT (n = 35)
Age: mean (range)	48 (35-63)	50 (26-70)
Weight (mean)	55 kg	58 kg
Parity: mean (range)	5	6
Menopause	6	7
Previous surgery for uterine prolapse	2	-
Previous surgery for SUI	2	2
Previous hysterectomy	1	-
Duration of SUI: mean(range)	5	6
Frequency (>8/day)	16	13
Nocturia (>2/night)	4	5
Urgency	16	15

Figure 8: Bar graph of various parameters studied.

Table 2: Intraoperative and postop complications.

Intra/postop complications	TOT (35 Pts)	TVT (36pts)
Duration: mean	36 min	25 min
Bladder perforation	2	-
Hemorrhage (range)	50-75 ml	100-150 ml
Retzius hematoma	-	-
Subpubic hematoma	2	-
Obturator hematoma	-	-
Urinary retention	5	1
mesh extrusion	1	1
Urinary infection	-	-

Figure 9: Bar graph of comparison of duration of the procedures.

Figure 10: Bar graph of op/post op complications.

Figure 11: Bar graph of comparison of day of discharge.

Table 3: Duration hospital stay.

Discharge	TVT	TOT
1 Day	31	34
2 Day	3	1
>3 Day	2	-

DISCUSSION

The study in two procedures showed no statistically significant differences in terms of the patient's age, duration of incontinence and/or prolapse surgery or severity of preoperative stress urinary incontinence symptoms (Table 1, Figure the literature reports 6-15% of bladder perforations in trans vaginal tape procedures in our study we had two cases of bladder perforation in trans vaginal tape group.⁷⁻⁹ Bladder perforations usually do not pose a serious complication as they heal well over a short time without difficulty. Our study had no bladder perforation in transobturator tape group and we feel is due to the improvement of the technique.

Although the main risk of transobturator tape procedure is possible urethral injury as the needle enters the space between the vagina and the urethra there was no urethral injury in either groups of our study. Literature have shown the risk of hemorrhage is particularly high in Trans Vaginal Tape procedure, with reports of suprapubic space hematoma, as well as fatal injuries of the large retroperitoneal vessels at times.^{6,10,11} We did not see such complications in our study. In transobturator tape procedure hemorrhagic complications can occur due to peri urethral bleeding from the adjacent venous plexus. In our study no hemorrhagic complication occurred in transobturator tape group, but seen in 5.5% in the trans vaginal tape group. In our study a mesh extrusion through vagina occurred in each group. But none required complete removal of the tape. According to mean follow up of 30 months, transobturator tape appears to be equally efficient as trans-vaginal tape for surgical treatment of stress urinary incontinence. Easy maneuvering in tot avoids major hemorrhage and bowel perforation. However the small numbers of cases are limitations of our study and the simplicity, safety, continence results and patient satisfaction show that the obturator approach is a better method of suburethral tape insertion for the treatment of stress urinary incontinence.

CONCLUSION

Transobturator tape procedure has less complication, good postoperative outcome in terms of cure of stress urinary incontinence and improved quality of life and patient's satisfaction. This technique is easy to learn and can be performed by general surgeons as day care surgery. This procedure has an advantage of easy performance in those patients who have failed previous incontinence surgeries. Although both procedures showed almost similar results, in view of the simplicity of the transobturator tape procedure and less complications,

good postop outcome and patient satisfaction, this technique can be performed by general surgeons as a day care surgery.

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Ethical approval: The study was approved by the institutional ethics committee

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