



Comparison of Retropubic Colposuspension, TVT and TOT in Management of Stress Urinary Incontinence: A Tertiary Care Centre Experience

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ABSTRACT

Background: Stress Urinary incontinence (SUI) is a condition that affects mainly females. Initially, SUI is managed conservatively and surgical approach is reserved for patients who fail conservative treatment. Surgery for SUI has evolved over years with inclination towards less invasive procedures. This is a retrospective study done at tertiary care centre in South India over a period of 3 years which compares long term outcomes of retropubic colposuspension, TVT and TOT surgeries for SUI.

Result- Total of 37 patients were operated by these three surgeries. Outcomes from all the three groups were comparable.

Keywords- Stress urinary incontinence, mid urethral slings, transobturator taping, tension free vaginal tape, Burch colposuspension.

INTRODUCTION

Stress urinary incontinence (SUI) is best defined by the International Continence Society as “involuntary leakage of urine on exertion, effort, coughing, or sneezing”^[1]. SUI is a common health problem with major impact on Quality of Life (QOL); prevalence rate ranges from 12.8% to 46.0%^[1]. SUI is the most common type of urinary incontinence in premenopausal women (which is seen in almost 50% of patients)^[2]. 30% patients may have mixed incontinence. SUI may lead to restriction of physical and social activity, self-imposed social isolation^[3,4], and sexual dysfunction^[5]. Initially, SUI should be managed conservatively including pelvic floor muscle training (PFMT), electrical

stimulation or pharmacotherapy^[6]. There is continuous evolution of surgical techniques. All the surgical procedures aim to achieve less postoperative pain and shorter hospital stay with quicker recovery period^[6]. Various surgical procedures include Transobturator taping (TOT), standard mid-urethral slings (SMUS), tension-free vaginal tapes (TVT) and colposuspension^{[7]-[10]}. This is a retrospective study about the surgeries for stress urinary incontinence carried out in last 2 years at a tertiary care centre in South India.

MATERIAL AND METHODS

Study design- Retrospective study (a case series)

Study period- 3 years

Sample size- Total of 37 patients underwent surgeries for stress urinary incontinence at our institution from June 2013 to May 2016.

Aim

To compare the long term outcomes of Burch colposuspension, TVT and TOT surgeries for female SUI.

Inclusion Criteria

1. All patients who underwent surgery for SUI.
2. All operated patients who were under follow up for at least 1 year.

Exclusion criteria

1. Patients of SUI who had been previously operated.
2. Patients who lost to follow up.
3. Patients who intended to further have children.
4. Incontinence due to bladder over activity.

All the female patients with complains of incontinence were evaluated. Patients having only SUI were further evaluated in detail including histories about previous surgeries, delivery, impact on quality of life, and severity of incontinence. Conservative management was first given to all the patients (behavioural therapy and PFMT). Total of 37 patients did not improved with conservative therapy and were taken for surgical correction.

TOT was done in 26, TVT in 3 and Burch colposuspension in 8 patients. 3 patients lost to follow up (1 of TOT group and 2 of Burch colposuspension surgery). Outcomes were compared from all the three patients in terms of correction of SUI, postoperative pain, hospital stay, need of redo surgery and complications such as wound infection, mesh erosion, and urinary retention.

RESULTS

Total 37 patients were enrolled in the study and 3 lost to follow up. Perurethral catheter was removed on next postoperative day in all the patients. All 8 patients of Burch colposuspension voided without SUI. In TOT group, 22/26 voided without SUI after catheter removal, 3 underwent acute urinary

retention and 1 patient had no improvement. 3 patients of retention were catheterized and trial voiding after 7 days was successful in all the patients. 3/26 patients of TOT had mesh erosion and infection; were managed by removal of mesh. There was no complication in TVT group. Outcomes regarding voiding function, incontinence and sexual satisfaction were measured at the end of 1,3, 6 and 12 months. All the three group of patients had comparable outcome.

DISCUSSION

Female stress urinary incontinence is defined as any involuntary leakage of urine during physical activity, sneezing, or coughing. It is diagnosed in more than 1 in 4 adult women and approximately half of all women suffering from urinary incontinence. Minassian *et al* (2003) found a wide range in the prevalence of incontinence with median prevalence as 27.6% (range: 4.8-58.4%)^[11]. In a large pan European study by O'Donnell *et al*, it appeared that despite the bothersome nature of their symptoms and the obvious effect on quality of life, the majority of women did not seek medical intervention perhaps in the belief that treatment will not be successful or that surgery for their condition is perceived as unacceptable. SUI is often diagnosed by UDS. Blaivas suggested a classification of SUI depending on urethral mobility and intrinsic sphincter deficiency. Type 0 includes no leakage although vesical neck and proximal urethra open on stress, types 1 and 2 include urethral hypermobility, type 3 includes sphincter deficiency^[12].

Various surgeries for correction of SUI have evolved over the past several years. All corrective procedures aim for re-positioning the bladder neck and proximal urethra in a high intrapelvic position allowing equal pressure transmission to the bladder and proximal urethra, resulting in stress continence^[13]. Retropubic suspension procedures are used mainly for the treatment of types 1 and 2 in the Blaivas classification (SUI secondary to urethral hypermobility). The most widely used technique is the Burch colposuspension^[14]. Long-term follow up suggests a durable outcome with cure rates of 82%

after 5 years and 69% after 12 years. Complications include wound problems, extended hospital stay, urinary retention, dysuria, *de novo* detrussor overactivity, urge incontinence, and recurrent UTI's. Sling surgery is considered the gold standard for the treatment of SUI as its placement is technically easy, with shorter operative time, less complications and high cure rates (70%-90%) [15,16]. However, various studies have proved that no single best surgery exists. Many factors should be considered while choosing the appropriate operation for SUI in an individual patient for ensuring a favourable outcome or minimizing the risk of a poor outcome or associated complications. Sling and tape procedures are used mainly for type 1 and 3 SUI. Pubovaginal sling (PVS) is positioned at the bladder neck to provide urethral compression without obstruction during times of increased intra-abdominal pressure. Overall results are very good with success rate of over 80% [17]. At present PVS is performed in patients with refractory SUI. Complications like urinary retention, detrussor overactivity, perforation and erosion have been reported.

In 1996, Ulmsten [18] described a new minimal invasive technique, a tension-free vaginal tape (TVT) for urinary incontinence treatment. This technique soon became very popular because of its quite low complication rate, good results, and possibility to perform it in the outpatient department. TVT includes placement of polypropylene tape at the level of mid urethra and fixing the proximal ends in the rectus sheath through suprapubic stab incisions. TVT demonstrated a high success rate in various studies, identical to that of Burch colposuspension. It is also associated with short hospital stay and reduced risk of prolonged catheterization [19]. Complications such as bladder and bowel perforations and life threatening vascular injuries have been reported due to blind passage of the needles through the retropubic space [20,21]. Various reports showed success rate from 80% to 95% with a longer than 5-year follow-up.

The complications observed in TVT prompted the development of the Trans Obturator Taping (TOT) by Delorme in 2001, to reduce retropubic route-

associated complications [22]. TOT involves placement of midurethral tape and anchoring it through the obturator foramen. Various studies have proved success rates of 80-90% [23,24]. Complications such as voiding dysfunction, blood loss and bladder perforation are far less than other procedures. TOT have been reported to be associated with prolonged pain referred to the groin and upper thigh, due to peripheral nerve injury and vaginal perforations due to a more horizontal trajectory of the needle passage [25]. Single vaginal incision slings requiring very limited intracorporeal dissection have been introduced which include TVT-Secur, Mini-Arc, Monarc, Ajust, Arcus-to-Arcus and Tissue Fixation Systems.

Before comparing and deciding on the most effective surgical intervention for stress urinary incontinence, a consensus is needed on how outcome should be defined. It has been suggested that surgical stabilisation at the level of the mid-urethra or bladder neck compensates for any loss of urethral support or function. The newer procedures attempt to support the urethra rather than attempt to fix it into an unnaturally high position [26].

CONCLUSION

Patients with SUI should be explained all the surgical options and success and complications related to them. The pool of literature on SUI does not favour a surgical procedure in particular over the other as all the three procedures mentioned have comparable success rate and outcomes.

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