# CASE SERIES
# TENSION-FREE VAGINAL TAPE AND FEMALE STRESS URINARY INCONTINENCE. OUR INITIAL EXPERIENCE IN PAKISTAN

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## INTRODUCTION

Stress Urinary Incontinence (SUI) is the most common form of urinary incontinence in women. Prevalence of urinary incontinence in women in UK and France is 32%[1]. Whereas SUI contributes about 13.1% in Asian population, whereas, its prevalence in Pakistan is about 11% (Reported by Asian Society for Female Urology ASFU).

In order to rectify the negative impact of SUI on an individual's quality of life, many modes of treatment have been devised. These include both medical therapy (non pharmacological and pharmacological) and surgical procedures. Surgical treatment offers the highest cure rate (85-90%) when compared to medical options. Surgical treatments include three retropubic procedures: Marshall-Marchetti-Kruntz vesicourethral suspension, Burch colposuspension and laparoscopic retropubic repair. One of the newer and less invasive technique is tension free vaginal tape (TVT), introduced for the first time by Ulmsten et al in Europe[2]. It is a variation of the traditional sling operation that is best suited for SUI patients that have urethral hyper mobility in addition to sphincter insufficiency. Tension free vaginal tape has become increasingly popular with both gynecologists and urologists across Europe. This gold standard technique has been recently introduced in Pakistan. We present a case series of six of our patients of SUI that were successfully treated with TVT at Combined Military Hospital Peshawar.

## CASE I--III

Three patients of age range 37-41 years, presented with a history of stress urinary incontinence. Cough test and pad test were positive. On clinical examination there was a degree of urethrovaginal descent on straining.Urodynamic testing with cystometry and uroflowmetry revealed a stable bladder. TVT was performed under spinal anesthesia. Check cystoscopy was performed to rule out any bladder perforation during trocar insertion. The procedure was completed in 45 minutes and an indwelling Foley's catheter was retained for 24 hours .All the three patients were discharged on 2nd postoperative day. Patients were subsequently followed at 1, 3 and 6 monthly interval for 1 ½ year.

Continence was assessed according to the improvement in the urinary symptoms postoperatively i.e. Amount of urine leakage on straining, pads used, urinary retention and postoperative dysuria.

## CASE IV, V

Two patients aged 48 & 50 years, postmenopausal, presented with symptoms of urinary leakage on coughing and straining. There was also 1st degree cystocele in one of the patient. Urodynamic assessment revealed a stable bladder. Both patients underwent concomitant TVT and anterior colporrhaphy under spinal anesthesia. In one patient the trocar penetrated the bladder wall that was readjusted on check cystoscopy. Both patients were discharged on 3rd post operative day. Foley's catheter was retained for 5 days in the patient that had bladder perforated by the trocar, while it was removed after 48 hrs in the other patient. Patients were followed for 01 year.

## CASE VI

A 70 years old lady with diabetes mellitus and neuropathic bladder had severe symptoms of stress urinary incontinence to an extent that she was using an indwelling Foley's catheter for the last 3 years. Clinical examination revealed urethrovaginal junction hyper mobility with a stable bladder on urodynamic testing. TVT was performed after counseling the patient to cause a degree of obstruction. Postoperatively the patient started using clean intermittent self catheterization.

## RESULTS

6 patients with mean age of 46.6 yrs underwent TVT procedure under spinal anesthesia. One patient had a cystocele repaired along with TVT. Mean operating time for TVT (excluding the time for anterior colporrhaphy in one patient) was 46.6 minutes. One patient had intra-operative bladder perforation on right side by the trocar connected to the mesh. It was detected fluid flowing along the mesh and by check cystoscopy. The trocar was readjusted and the position was reaffirmed by cystoscopy.The catheter was retained for 5 days in this case with no long term complication.

Mean hospital stay was 2.5 days. After a mean follow up of 1 year 4 months, 3 patients were totally dry, while 2 patients were significantly

improved with occasion leak on straining. One patient with neuropathic bladder was dry with self intermittent catheterization. There was no long term rejection of the tape or infection.

## DISCUSSION

With the advent of urodynamics studies, a lot of ambiguities about the pathophysiology of stress urinary incontinence have been clarified in last 10 years. On the basis of this, several operations have been abandoned and are replaced with new exciting procedures. One of the most fascinating and innovative procedure is tension-free vaginal tape that is rapidly replacing the gold standard surgical procedure for stress urinary incontinence i.e. Burch's colposuspension. Since its first introduction in 1996 by Ulmsten U [2], several reports about its midterm and long term results in international literature have shown promising results.

The principle of TVT is to place a synthetic mesh in the mid urethra for support and to create a dynamic urethral resistance, thus increasing the urethral out flow pressure[3]. The procedure is performed under local or spinal anesthesia with very few patients undergoing general anesthesia. It is accomplished in a mean operating time of 22-30 minutes and discharge from the hospital on same day or day after surgery [2,4]. Usually the patient do not require indwelling catheter for more then 3 days[4,5]. A three year follow up of TVT for female stress urinary incontinence conducted by Ulmsten et al revealed that 86% of the women being completely cured and another 11% significantly improved with 3% failure rate[6]. Similar observation was made by Villet R et al when they presented their mid term results of 124 cases in 2002.88.7% patients were totally continent, 8% were improved and 3.3% was the failure rate [7].

Similarly the long-term results of tension free vaginal tape as reported by many authors are also encouraging. Following figure represent some long term results of few important studies

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**Table-1:**

| Author | Follow-up mean | No. dry | No. improved | No. failed | No. minor complication |
|---|---|---|---|---|---|
| Nilsson[8] | 5 year | (85) 84.7% | (9) 10.6% | (4) 4.7% | (13) 16% |
| Ulmsten[9] | 4 years | (28) 82% | (3) 9% | (3) 9% | 0 |
| Rezapour[10] | 4 years | (34) 74% | (6) 12% | (7) 14% | (1) 3% |
| Olsson[11] | 3 years | (46) 90% | (3) 6% | (2) 4% | (5) 10% |

Operative technique of TVT is simple and is associated with low morbidity even in less experienced hands[12], but Chonel R in his recent analysis of safety of TVT during the learning period have recommended a learning phase of approximately 20 operation performed in a standard manner by one surgeon for good results[13]. The most common complication seen with TVT is bladder perforation by the trocar that is reported to be about 6% in most of the studies. Significant bleeding in retropubic area requiring surgery occurs in less than 1% of the cases. Voiding difficulties are faced in about 7.6% of the patient [14]. Persistent post TVT voiding dysfunctions are over come by release of tape in the vagina [15]. The mesh may also erode into the vagina, necessitating its partial removal in a few patients[16]. Few studies have compared TVT with other modes of surgeries for stress incontinence.Chang MK in 2002 and Valpas A et al in 2003 found TVT and laparoscopic Burch Colposuspension to be equally effective and with similar rate of complication [17, 18]. However they found TVT to be less invasive and require fewer hospital resourses.Whereas Manca A and Tierney JP found TVT to be a cost effective alternative to colposuspension[19, 20].

The novelty of TVT is that it can be combined with other pelvic surgeries with equally good results[21]. TVT has been successfully being used in female with neuropathic bladder[22]. We have similarly used TVT in one of our patient with satisfying results.

## CONCLUSION

Tension Free Transvaginal tape has modified the treatment of stress urinary incontinence in women. The technique has gained popularity among urogynecologists because of its simplicity, low morbidity, less invasiveness and good short and long term results. It remains the only effective ambulatory treatment of stress urinary incontinence.

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