

Case Report

Suburethral Prolene Mesh For Stress Urinary Incontinence – Are The Needles Really Needed?

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ABSTRACT

Various surgical methods have been tried for treatment of stress urinary incontinence, with variable results. The tension free vaginal tape (TVT) gives good results but is associated with complications due to the needle used for insertion of the tape. This paper describes a modification of this technique for placement of suburethral mesh and in the process, avoid the complications associated with needle insertions.

Key Words: Suburethral Mesh, Stress Incontinence

INTRODUCTION

Leakage of urine in response to an increase in intra-abdominal pressure constitutes stress urinary incontinence (SUI). Pelvic floor exercises, duloxetine, oestrogen replacement, alpha adrenergic agonists and bladder neck support devices have all been tried with beneficial results in upto 50-67% women. The remaining may require a surgical procedure. Among the various surgical options, Burch colposuspension and sling procedures are the two most effective procedures available. The transvaginal tape (TVT) uses a knitted prolene mesh at mid urethra level inserted with special needles and has been reported to have a success rate comparable to that of colposuspension in randomized controlled trial (Demircia 2001). The transobturator approach intends to avoid bladder perforation but is associated with increased risk of obturator vessel injury. The simple technique being described here uses the principle of causing suburethral fibrosis by a prolene mesh placed beneath the midurethra without the use of needles and thus avoids the chances of bladder or obturator vessel injury.

CASE REPORT

Four women who presented with genuine stress incontinence (GSI) were investigated and admitted for surgery for the condition. An informed consent was taken after explaining the available surgical procedures for GSI.

Case 1

A 48 years old woman, para 4, was admitted with second degree uterovaginal prolapse, cystocele (++), rectocele

(++) and GSI. Her menstrual cycles were regular. Urodynamic studies confirmed GSI. She had tried pelvic floor exercises and duloxetine for 3 months but to no avail. A vaginal hysterectomy along with anterior colporrhaphy, a TVT procedure and posterior colpoperineorrhaphy was planned. A vaginal hysterectomy was performed under spinal anaesthesia. However, timely unavailability of the suburethral prolene tape at surgery led the operating team to consider the use of a 4 cm x 0.8 cm sized prolene mesh which was anchored on either side of the midurethra in the paraurethral tissues under the level of the ischiopubic ramus by vicryl 3-0 suture. The tension was tested by asking the woman to cough before anchoring it finally to the opposite side. This was followed by anterior colporrhaphy and posterior colpoperineorrhaphy. A Foley's catheter that was put in during the procedure was removed after 48 hours. Follow up visits upto 1 year confirmed cure.

Case 2

A 28 years old, para 2 woman who had two term vaginal deliveries in the past was admitted with urodynamically proven GSI. She was a labourer by occupation.

Case 3

A 35 years old, para 3 woman presented with history of stress incontinence which was later proved by urodynamic studies.

Case 4

A 32 years old, para 2 woman was admitted with a diagnosis of GSI. Cases 2-4 did not have any evidence of

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urinary tract infection, genital prolapse or previous surgical attempts for stress incontinence. All had expressed their inability to procure the commercially available TVT, although they preferred the suburethral sling over Bursch colposuspension. An informed consent for use of suburethral prolene mesh which would be anchored on either side was taken.

At surgery each woman was placed in lithotomy position. Local anaesthesia (1% lignocaine) was used to infiltrate the suburethral and paraurethral tissues upto the level of ischiopubic ramus on either side. A vertical 2 cm long incision was given beneath the midurethra and the vaginal mucosa was dissected from the underlying fascia on either side upto the ischiopubic ramus. A 4 cm x 0.8 cm long tape was fashioned out of a prolene mesh and placed by push fit technique into the tunnel created on either side in all cases except the first one. The mesh in case 1 was anchored at its lateral ends into the indeterminate tissue beneath the ischiopubic rami. The vaginal mucosa was closed by a continuous chromic catgut suture. Each procedure took 12-15 minutes. In case 1, cystocele repair was combined with this procedure.

Postoperatively, all women had an uneventful course. Case 1 had a self retaining urinary catheter in for 48 hours after removal of which she voided normally. In the remaining women, no catheterization of the bladder was required. There was no voiding difficulty or bleeding from the operative site. Case 1 was discharged on the 3rd postoperative day while cases 2-4 went home after a day of surgery. All were advised to avoid heavy weight lifting and coital activity. All except one woman were relieved of their urinary symptom at 6 weeks, 3 months, 6 months and 1 year follow up. The woman described in case 3 reported 70% improvement in her symptoms at the end of one year.

DISCUSSION

Various surgical treatment options for genuine stress incontinence (GSI) vary from retropubic procedures, the slings (pubourethral sling, tension-free tapes), anterior colporrhaphy, needle suspension procedures to paraurethral collagen injections and artificial sphincters.

Burch colposuspension among the retropubic procedures and tensionfree vaginal tape (TVT) among the suburethral slings have been shown to have the best continence rates (85-90%) at 1 year and 70% at 5 years (Demircia 2001, Yang 2007). The Burch procedure, an abdominal option carried out either laparoscopically or by laparotomy, elevates the paravaginal tissue to the ipsilateral ileopectineal ligament but has increased risk of

failure in patients with low urethral resistance. Denovo detrusor instability and voiding dysfunction may follow in 8-27% and 2-27% women, respectively, besides the 14% risk of enterocele and/or rectocele formation after 5 years, due to the elevation of the anterior vaginal wall causing the abdominal pressure to be transmitted directly to the posterior wall (Demircia, 2001).

The sling procedures on the other hand aim to increase urethral pressure and hence would be particularly suitable in cases of intrinsic sphincter deficiency. The TVT uses a prolene mesh tape placed at midurethra under local or regional anaesthesia. Although it gives an 86% objective cure rate at 3 years, it is associated with 8% risk of bladder injury by the needles during insertion (Yang 2007, Kuiva 2002). This makes a cystoscopic examination of the bladder essential at the end of the procedure. The other complications of the procedure include a denovo detrusor instability in 3-15% and short term voiding dysfunction in about 4% women, apart from intraoperative bleeding and erosion of sling as a long term event (Yang 2007, Kuiva 2002, Meschia 2001). The cost of the commercial product may be a constraint in resource poor settings, as also the limited availability across the globe.

Anterior colporrhaphy itself gives 46% cure rates for SUI at 4 years and this could have contributed to the success in case 1 (Harris, 1995). However, due to its comparatively low success rates than with Bursch and TVT, its use alone for treatment of SUI is not recommended. For this reason it was combined with the suburethral mesh in the first case. The unavailability of the TVT at the time of surgery also highlights the limitations of this commercial version of the tape. Nevertheless, the importance of the skill of the operator cannot be underestimated.

The success of the procedure used in these women suggests that it is not essential to suspend the suburethral tape towards the anterior abdominal wall or towards the obturator foramen. Since the tape acts by providing suburethral support and raising the intraurethral pressure, anchoring on the sides would not alter the dynamics in the suburethral area. Besides, fibroblasts would grow through the mesh within 48-72 hours to anchor it firmly in place, thus obviating the need for secure lateral anchorage. Although the number of women in whom it has been tried in the present study is too few to have any statistical implication, but the procedure appears to be very simple, more cost effective, less time consuming, does not require sophisticated needle equipment or cystoscope, avoids the chances of injury to the bladder or obturator vessels, and at the same time, has an efficacy comparable to that of TVT or Bursch colposuspension.

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