EFFICACY OF PUBOVAGINAL SLING USING FASCIA LATA FOR TREATMENT OF URODYNAMIC STRESS INCONTINENCE IN FEMALES

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ABSRTACT

Objective: To evaluate results of pubovaginal sling surgery for the treatment of urodynamic stress incontinence in females.

Study Design: Descriptive study.

Place and Duration of Study: This study was carried out in Pakistan Naval Services Shifa, Karachi & Armed Forces Institute of Urology, Rawalpindi from February 1997 to February 2004.

Patients and Methods: Thirty two Pubovaginal sling operations using fascia lata were performed at Pakistan Naval Ship Shifa, Karachi and Armed Forces Institute of Urology, Rawalpindi in females having severe urodynamic stress incontinence. The inclusion criteria was women with stable bladder, having post void residual urine (PVRU) <100 ml and P det 720 cm of water. Patients with detrusor overactivity, impaired detrusor function and marked cystocele were excluded from the study. The procedure involves placing a band of sling material using fascia lata directly under the bladder neck, which acts as a physical support to prevent bladder neck and urethral descent during physical activity.

All patients were evaluated postoperatively by clinical examination, PVRU, Peak flow rate on uroflowmetry and urodynamic assessment.

Results: Mean patients age was 46.5 years (range 27-68) and mean parity was 6 (range 0-10). Follow up was completed in all 32 patients over a mean follow-up period of 26 months (range 3-38). Overall success rate (completely cured and partially cured) was 84%. De. novo detrusor over activity was observed in 25% patients, while 2 patients underwent undo operation for urinary obstruction.

Conclusion: Pubovaginal sling surgery is the first line surgical treatment for all types of urodynamic stress incontinence.

Keywords: Pubovaginal Sling, PVRU, Urodynamic Stress Incontinence, Fascia Lata

INTRODUCTION

It has been estimated that urinary incontinence (involuntary loss of urine per urethra) affects 10-35% of adult females [1]. It is a disorder that affects both young and elderly individuals. Of this incontinent female population more than half is accounted for by stress incontinence.

The condition of urodynamic stress incontinence is a cystometric diagnosis defined as involuntary loss of urine that occurs when, in the absence of a detrusor contraction, the intravesical pressure exceeds the maximal urethral pressure [2].

Female stress urinary incontinence (SUI) may be broadly categorized into: -

Type I SUI is urine loss occurring where descent of vesical neck is less than 2cm.

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Received: 09 April 2008; Accepted: 07 July 2008

Type II SUI is due to urethral hypermobility. It is usually associated with cystocele.

Type III SUI is due to intrinsic sphincter deficiency. Type III urethras are typically fixed with low urethral closure pressure.

Surgery is usually the most effective way of curing urodynamic stress incontinence. Numerous operations such as colpo suspension, retropubic tape procedures and urethral bulking agents have been described. Pubovaginal slings are becoming increasingly popular for the treatment of all types of female urodynamic stress incontinence [3].

The objective of the study is to report our experience of pubovaginal slings using fascia lata for the treatment of urodynamic stress incontinence in females

PATIENTS AND METHODS

The study was conducted at Pakistan Naval Ship Shifa, Karachi and Armed Forces Institute of Urology, Rawalpindi from Feb 1997 to Feb 2004.

Pubovaginal sling surgery using fascia lata was performed in 32 patients. Mean patient age was 46.5 years (range 27-68) and mean parity was 6 (range 0-10).

All cases were pre-operatively assessed by detailed history, including voiding diary and number of pads used, abdominal and vaginal examination and urodynamic assessment. The parameters evaluated were post void residual urine PVRU, detrusor behaviour during filling phase, detrusor pressure P det during voiding and valsalva leak point pressure VLPP. All patients with stable bladder, PVRU 50-100 ml and detrusor pressure during voiding 720 cm of H_2O were included in the study.

Patients who had marked cystocele, unstable detrusor contractions during filling phase, P det during voiding <20 cm of H_2O and PVRU >100 ml were excluded from the study.

In majority of patients (19 out of 32), the surgery was performed under spinal anaesthesia. In 12 out of 32 patients spinal anaesthesia was contra indicated due to patient reasons and hence general anaesthesia was administered.

Patient was placed in supine position. About 20-25 cm long and 1.5-2.0 cm wide strip of fascia lata was harvested from lateral side of thigh. Thigh wound was closed. Then the patient was put in lithotomy or modified Lloyed Davies position. Preliminary cystoscopy was done to rule out other bladder pathology and 16 F Foley placed to keep the bladder empty.

A transverse incision midway between external urethral meatus and bladder neck was made. Vaginal mucosa was dissected to create lateral recesses in vaginal wound. Two 1 cm size incisions were made in suprapubic region about 3.0 cm from midline. Blunt dissection of anterior abdominal wall fat was done and anterior rectus sheath incised. Stamey needle was passed from the abdominal wound and guided with the finger placed in the recess of vaginal wound. Cystoscopy was done after each needle pass to rule out bladder perforation. Same procedure was repeated on the other side so that the harvested fascia was finally placed beneath bladder neck and proximal urethra to act as a suburethral hammock. Both ends of fascia lata were brought out from abdominal incisions.

In order to assess optimum tension required to maintain continence, patient was asked to perform a series of cough maintaining traction on both ends. If done under general anaesthesia (GA), manual suprapubic pressure was applied to judge the optimum degree of tension. Having established the right degree of tension, both ends of fascia lata were secured to anterior rectus sheath with prolene 1-0 suture.

Vaginal wound was closed with vicryl 2.0-pyodin gauze was placed in vagina. Suprapubic catheter was placed from a separate stab wound. Baldder was catheterized per urethra as well.

Mean hospital stay was 2 days. Vaginal packing was removed after 24 hours, urethral catheter was removed after 72 hours. Suprapubic catheter was clamped after 10th post operative day and trial of voiding given, when PVRU was <100 ml. Suprapubic catheter was also removed as well.

Follow Up

Follow up was completed in 32 patients (100%). Mean follow up period was 26 months. Patients were assessed clinically and objectively by urodynamic assessment post operatively.

The variables noted in patients for post operative outcome were completely dry (cured), partially continent (decreased number of pads soaked), incontinent and those who suffered from complications.

Data Analysis

Data has been entered in SPSS version 10.0. Description statistics i.e Mean +SD for numerical variables and frequency with percentages for categorical variables were used to describe the results.

RESULTS

Most of the patients were young females in the fifth decade of their life. The mean age

of the studied group was 46.5 years (range 27-68 years). Mean parity was 6 (range 0-10).

Mean operation time was 124.28 + 31.23 minutes (range 90 to 210 min). Two patients needed bladder repair per operatively, whereas one patient was transfused one unit of blood.

Eight patients who developed de.novo detrusor overactivity responded to detrusitol (anti cholinergic) for 3-6 months.

Five patients had urinary retention (15%) and required 2-4 weeks of clean intermittent self catheterization. Voiding dysfunction settled spontaneously in 3 patients. Two had urinary retention for more than 6 weeks which settled with undo operation i,e urethrolysis (division of posterior margin of pubovaginal sling under GA) (Table 1&2).

No case of sling erosion or infection was noted in follow up. There was no case of recurrent SUI over a mean follow up period of 26 months (range 3-38 months).

Table-1: Outcome of surgery (n=32)

Outcome	No of Patients	Percentage
Completely dry	17	53%
Partially continent	10	31%
Incontinent	3	10%

Table-2: Postoperative complications (n=32).

Complications	No of Patients	Percentage
De. novo detrusor overactivity	8	25%
Voiding dysfunction (spontaneously corrected)	3	10%
Urethral obstruction (which required urethrolysis)	2	6%

DISCUSSION

Over the past decade suburethral slings have emerged as the procedure of choice for the surgical correction of most types of female urodynamic stress incontinence. Sling procedures have proved to be less morbid than retropubic urethropexy. Burch colposuspension first done in 1961 has a limited scope because it is only suitable for VLPP > 90 cm of H_2O, urethral closure pressure > 25 cm of H_2O and urethral hypermobility. It is contra indicated in intrinsic sphincter deficiency or fixed urethra [3]. Success rates are comparable in both short and long term [4]. Pubovaginal sling surgery is also effective for scarred / fixed urethra and previous failed surgery [5].

Morgan et al reported a series of 235 patients who underwent urethral slings [6]. The continence rate was 88%. Amongst those partially / completely cured, 25% suffered from detrusor overactivity (DO) in the immediate post operative period. These patients responded to anticholinergics given for a duration of 3-6 months.

Cross et al reported a 19% incidence of de. novo detrusor overactivity in 150 women with a 22 months follow up [7].

There is current concept that suburethral slings are more obstructive than other techniques. The incidence of voiding dysfunction in international data is 2-12% [8]. However, in our study the incidence of post operative urinary retention was 15%. Two patients (6%) required undo operation for prolonged urinary retention. Cross, et al reported on 150 patients, (2.8%) required surgery for prolonged urinary retention [7].

Currently performed sling techniques, tension free vaginal and sparc use polypropylene mesh under local anesthesia and allow for fine adjustment of tension [9]. In most cases suprapubic drainage is not required.

Bladder perforation is the most common complication reported (9%) [10]. The mesh is costly with similar success rate (85%) as compared with pubovaginal fascial slings.

CONCLUSION

Pubovaginal fascial sling surgery using fascia lata has the advantage of easily available long graft that is unscarred and of uniform thickness. The graft is autologous and hence biocompatible.

The disadvantages include additional operative time which is about one hour and

additional scar. The success rate is 84% with low complication rate.

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