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Original Article

Transobturator Midurethral Sling With Autologous Rectus Fascia

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ABSTRACT

Background: Midurethral sling procedure is now the gold standard for treatment of stress urinary incontinence in females. However there is a significant risk of erosion associated with use of synthetic materials.

Objective: To evaluate the effectiveness of transobturator sling procedure using autlogous rectus fascia.

Methods: we studied 15 consecutive patients presented with stress urinary incontinence proved by history and clinical examination with cough test, urethral hypermobility by cotton swab test ≥30 degrees, multiple channel urodynamic study was not done unless it was necessary. Transobturator sling procedure was performed using autologous rectus fascia .Operative complication during and after surgery was recorded. Success rate of the procedure was assessed at six and 12 months after surgery. Also patients were evaluated for erosion, urgency and dysparunia.

Results: A total of 15 consecutive patients, with a mean age of 46.23 years (range 30-68) and a median parity of 4(range 4-7). Overall SUI was cured in 14 (93.3 %) and improved in 1 (6.6%).

Before sling surgery, three patients had urgency; it resolved in 2 patients (13.3%) after surgery and gets worsened in one patient. De novo urgency appeared in two patients (13.3%). There were no cases of vaginal and urethral erosion. De novo dysparunia develops in one patient.

Conclusion: Transobturator sling procedure using autologous rectus fascia is effective and low cost alternative to synthetic TOT sling sets without the risk of vaginal and urethral erosions.

KEYWORDS: Stress Urinary Incontinence, Transobturator Sling, Autologous Rectus Fascia.

INTRODUCTION

The two most common types of bladder slings are the TOT sling (transobturator tape sling) and the TVT sling (tension-free vaginal tape sling). These bladder slings are now the gold standard in the surgical treatment of stress urinary incontinence[1]. Advantages of the transobturator sling are offers short-term efficacy (1 year) similar to tension-free vaginal tape systems , reproduces natural suspension mechanism of pubocervical fascia and pubourethral ligaments, which may pose less risk for overcorrection and dysuria, offers safe needle passage by avoiding the retropubic space, may eliminate vascular, bladder, and bowel injuries, eliminates the need for cystoscopy in most patients, avoids retropubic scarring, may prove useful in cases with scar tissue impedance, may prove useful in obese patients, may prove useful in treatment failures ,Offers shortened procedure time, Increases surgeon comfort by minimizing blind perineal needle passage and Is easy to learn and teach.[2-8]

Although TOT sling is associated with high cure rate of stress urinary incontinence ,the synthetic polypropylene mesh which is used in the sets of TOT are expensive and is associated with significant risk of mesh erosion into the bladder, urethra and vagina. For this reason we evaluated the effectiveness and complication associated with use of autologous rectus fascia with TOT using reusable TOT needles.

MATERIALS &METHODS

This study included 15 patients presented with stress urinary incontinence and were treated with transobturator sling procedure using autologus rectus

fascia between August 2010 and April 2015 in al-mustansiriyah private hospital in Baghdad. Stress incontinence was diagnosed depending on history of urinary leakage associated with conditions which increase the intra-abdominal pressure, positive cough stress test; a straining Cotton swab ≥ 30◦ test was used to indicate urethral hyper mobility.

Urodynamic study was not done in all the cases since in most of the patients the history was classical and they couldn't afford urodynamic study. Exclusion criteria were recurrent and difficult-to-treat urinary tract infections, significant symptoms of urgency and urge urinary incontinence.

All patients received perioperative intravenous antibiotics (e.g. cefoxitin).

TECHNIQUE

Under spinal anaesthesia the patient was positioned in low lithotomy position with her legs in stirrups. The abdomen and perineum were sterilized with povidine iodine and draped to provide access to the vagina and lower abdomen. The bladder was drained with Foleys catheter.

8-10 cm lower abdominal incision about two fingers above the symphysis pubis was performed. The dissection was done bluntly and with electrocautery down to the rectus fascia and the fat and the subcutaneous tissue was swept clear of the rectus tissue. A fascial segment of at least 8cm in length and 1.5 cm in width was harvested. The abdominal incision then closed in layers. The fascial strap was then folded on itself to form double layer of rectus segment approximately 4 cm in length and 1.5 cm in width. The edges of the strap were sutured to polypropelene mesh about 10 cm in length and 1.5 cm in width on both sides of the rectus strap using nylon no. 0 continuous suture. Vaginal dissection was done about 1 cm from external urethral meatus, separation of the vagina from the bladder and urethra was done after infiltration with lidocain 2% mixed with 1/100000 epinephrine solution. Then the TOT sling was done with usual out in technique using reusable 3mm TOT helical needle to grasp the polypropylene mesh on both sides such a that the rectus fascial segment lies over the middle urethra with equal length on both sides of the urethra. Then we adjusted the tension of the sling by applying a hemostat and make it sit comfortably between the urethra and the rectus fascia flap then we excised the excess mesh making it flush with the skin. Cystoscopy was not done. The excess vaginal skin was removed and closed by a series of interrupted no. 1 polyglycolic acid. Additional operations were performed as required. Vaginal pack was inserted. Vaginal pack was removed 24hr. after the operation. Foley catheter was removed morning after the operation and a voiding trial was initiated 4 hours after that and measurement of voided urine volume and catheterization then was performed to assess the post voiding residual urine volume , If it was less than 50 ml the catheter was removed.All patients were asked to restrict any lifting after surgery and abstinence from sexual intercourse for 12 weeks.

Follow-up:

All patients were asked to come in for a follow-up at the outpatient department 1 week after being discharged. Postoperative outcome variables were assessed at each office visit included SUI symptoms, de novo or worsening urge incontinence, and urinary retention.

Surgical outcome in the continence status was defined at six or more months during follow-up after surgery using a questionnaire assessment reported by patients themselves when patients were interviewed. A patient was classified as cured if she was dry and without urinary complaints. If the patient still suffers from some degree of stress incontinence, she is classified as improved, and failure is registered if urinary incontinence was unchanged or worse. They were also asked about their voiding condition.

The vagina was examined thoroughly for any vaginal erosion of the sling and a cough stress test was undertaken when the patients had a full bladder.

RESULTS

A total of 15 consecutive patients, with a mean age of 46.23 years (range 30-68) and a median parity of 4(range 4-7) were included in this study. One patient had undergone prior anterior colporrhaphy. The mean body mass index was 32.24 kg/ht^2. 4 (26.6 %) patients were menopausal. The Clinical characteristics of patients and operative data are shown in Table 1.

Table 1: Patient's characteristics and Operative Data

Characteristics	
Mean Age(range)years	46.25(30-68)
Mean Parity(range)	4.75(4-7)
Mean vaginal deliveries(range)	4.75(4-7)
Mean Body mass index	32.24(24.1-41.79)
(kg/Ht2)	4
Menopausal state	0
Prior cesarean section	80 min(70-210) min.
Mean operating time	
Concomitant surgery	15
Anterior colporrhaphy	10
Colpoperineorrhaphy	4
Vaginal hysterectomy	

Overall SUI was cured in 14 (93.3 %) and improved in 1 (6.6%). Surgical outcome is shown in table 2.

Table 2: Surgical Outcome

Cured SUI no. (%)	14(93.3%)
Improved SUI no.(%)	1(6.6%)
Failure in cure SUI no. (%)	0(0%)
Patients satisfaction no. (%)	14(93.3%)

One patient developed difficulty in the initiation and maintenance of voiding following surgery. Re insertion of the Foleys catheter and voiding trial after 24 hrs was initiated and was successful.

Before sling surgery, three patients had urgency; it resolved in 2 patients (13.3%) after surgery and gets worsened in one patient. De novo urgency appeared in two patients (13.3%).

Complications

Operative complications n (%)	
Hemorrhage > 200 ml	2(13.3)
Vaginal perforation	0(0)
Bladder perforation	0(0)

Earlty postoperative complications n (%)	
Urinary retention	1(6.6)
Hematoma	1(6.6)
Section of the sling	0(0)

Late postoperative complications n (0)	
Vaginal erosion	0(0)
Re intervention	0(0)
Abscess	0(0)
De novo urgency	2(13.3)
Worsening urgency	1(6.6)
De novo dysparunia	1(6.6)
Perineal pain	1(6.6)

DISCUSSION

Stress urinary incontinence is a common condition in females and is associated with social, hygienic and religious problems (9, 10) but it is not life threatening so it is important to treat this condition successfully without create new problems, which leave the woman frustrated by problems like erosion, chronic pelvic pain and dysparunia. So we did this study to evaluate the rectus fascia flap as sling material but at this time with TOT in effort to maintain the advantages of TOT but with autologus rectus fascia. although harvesting the rectus flap is associated with abdominal incision and an increase in the operating and recovery time but on the long run we are eliminating the risk of urethral erosion and vaginal extrusion because of that the urethra and the bladder are in contact with rectus fascial flap not a synthetic mesh even if it was polypropylen monofilament type with macrospores while maintaining a high success rate of cure similar to that of synthetic mesh.

The success rate in our procedure was 93.3% which is a high and comparable to the success of the synthetic mesh use. There were no cases of vaginal or urethral erosion up to one year of follow up.

Kokanali et al found that rate of mesh erosion was 4.7% in the TOT group and 3.5% in the TVT group, and this difference was significant ($p<0.05$). Older age, diabetes mellitus, smoking, length of vaginal incision >2 cm, recurrent vaginal incision for postoperative complications, and previous vaginal surgery for pelvic organ prolapse or incontinence increased the risk of mesh erosion.[11]

Similar study done by EL-GAMAL et al[12] with the results at the end of the first year the subjective cure rate was 90.5% and the recorded complications included temporary urinary retention, dyspareunia, de novo urge incontinence and groin pain in 4.8%, 4.8%, 7.1% and 11.9% of patients, respectively and they conclude that this hybrid sling appears to have good short-term efficacy and low cost which similar to our results.

The synthetic mesh is durable while the autologus tissue might have shorter life because of the biological degredation for this reason we try to make the rectus flap double layer to increase its strength and durability.

Also we used rectus fascia and reusable TOT needle which cost 30 $ while the Gynecare TOT set in Iraq cost about 400$ .So this procedure of using autologous rectus fascia is both effective and with low cost.

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