African Journal of Urology
1110-5704

Vol. 17, No. 2, 2011
43-47

Original article

Rectus Fascia Sling for the Treatment of Total Urethral Incontinence in Males

M. Shoukry, M. Hassouna, A. Abd El-Kerim and S. El-Salmy

Department of Urology, Faculty of Medicine, Alexandria University, Alexandria, Egypt

ABSTRACT

Objectives: Urinary incontinence in patients with neurological disease is a major health problem. A modified rectus fascial sling has been assessed in incontinent male patients.
Patients and Methods: Fourteen adult male patients with total incontinence due to neurogenic or post-traumatic and etiology were included in this study. A rectangular rectus sheath flap was harvested and defatted.The flap was placed around the bulbar urethra and sutures were passed both in front of and behindthe pubic bone. Both sutures on each side were tied to each other over the pubic bone.
Results: Of the 14 patients, 9 (64.3%) were completely dry, 3 (21.4%) reported improved continence, while 2 (14.3 %) were a failure. In total, 71.4% of the patients showed significant improvement using the Incontinence Quality of Life (IQoL) questionnaire. A significant decrease in the number of pads used per day of 61.3 % (p <0.05) was found and the mean abdominal leak point pressure significantly improved by 43.7 cm H_2O (p <0.05).
Conclusion: The technique is simple, safe and effective. It allows compression of the urethra against a bony structure, thus causing adequate and maintained closure of the bulbar urethra. It offers a comparable success rate to other sling techniques.

Key Words: Incontinence, male, sling

Corresponding Author: Dr. Mohamed E. Hassouna, Department of Urology, Faculty of Medicine, Alexandria University, Alexandria, Egypt, Email: mhassouna@hotmail.com

Article Info: Date received: 31 August 2010 Date accepted (after revision): 15 May 2011

INTRODUCTION

In patients with incontinence secondary to neurogenic bladder, the primary cause of incontinence is detrusor hyperreflexia or loss of bladder compliance resulting in urine leakage. Treatment options for managing neurogenic incontinence include pharmacological therapy, an indwelling catheter, reflex voiding into acondom catheter or intermittent catheterization. Besides, high intravesical storage pressures, patients with lesions involving thethoracolumbar outflow can have loss of urethral sphincter tone. In these patients, bladder augmentation alone would appropriately lower intravesical pressures that would be of no impact on the outflow resistance, resulting in continued postoperative incontinence with Valsalva related activity.

In most cases, severe urinary incontinence requires invasive treatment such as periurethral injection of bulking agents, Artificial Urinary Sphincter (AUS) implantation or, more recently, suburethral sling implantation. AUS is the best long term surgical treatment for total urinary incontinence with high patient satisfaction rates (75–94%) and it currently represents the gold standard by which other surgical management must be compared[1, 2]. However, being a complex mechanical device and the risk of future mechanical malfunction, together with high revision rates have spurred interest in alternative surgical procedures. The reported success rates with the AUS have varied widely from 64% to 93%, with long term complete con tinence rate of

20%[3]. Additionally, a review has shown that in 36% of patients at least one revision was necessary and on average, these patients required 2.25 revisions in 5 years[4]. Injection of bulking agents to increase urethral resistance was first proposed by Kaufman[5]. The rates of success are highly variable with cure rates of 0 to 53% and failure rates of 15 to 80% after a mean follow up of 6 to 38 months. About 30% of patients require new injections after 18 to 24 months[6]. Periurethral bulking agents, while minimally invasive, have generally proven to be ineffective[7]. However, because of its long follow-up data the AUS remains the reference standard for comparisons with other surgical treatments for urinary incontinence.

Recently, several techniques have been described for performing a bulbourethral sling operation[8-10]. Of which, a sling suspension of the bladder neck is a treatment option for men with intrinsic sphincteric deficiency due to neurogenic dysfunction. This operation has changed significantly in the last 5 years.

Rectus sheath fascial sling has been successfully used in females for years in the treatment of Stress Urinary Incontinence (SUI). In 1997, Jorion reported performing a rectus fascial sling suspension of the vesicourethral anastomosis at the time of retropubic prostatectomy to enhance postoperative continence[11]. Modified fascial sling technique was assessed in adult male patients with neurogenic incontinence. Modification aimed at better compression of the bulbar urethra against the inferior pubic rami.

PATIENTS AND METHODS

Fourteen adult male patients with total urinary incontinence due to neurogenic or posttraumatic etiology were included in this study. Patient evaluation included medical history, physical examination, routine laboratory tests, cystourethroscopy in order to exclude urethral stricture and/or bladder neck contracture, multichannel urodynamic measurement of filling and voiding pressures. Water medium fill cystometry was performed using a transurethral double lumen fluid filled 8 FR catheter with evaluation of abdominal leak point pressure. Patients completed an Incontinence QoL (IQoL) questionnaire[12] with the help of a health care provider; the physician and questioner had no knowledge of each other. Preoperatively, the degree of incontinence was categorized as mild, requiring 1-2 Pads Per Day (PPD), moderate (3-5 PPD) or severe (more than 5 PPD).

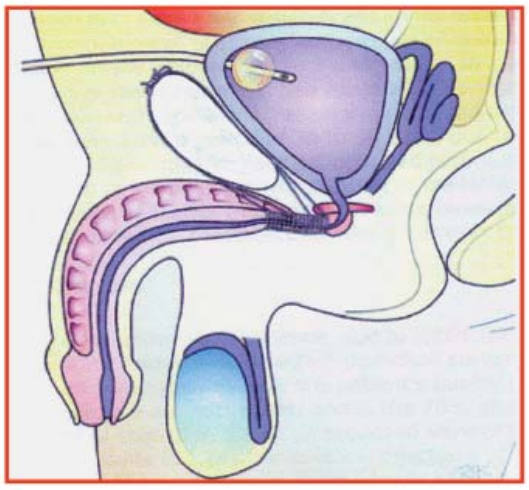

Fig. 1: Both sutures on each side were tied to each other over the pubic bone.

Surgical Technique

The patient was placed in the dorsal lithotomy position under general or spinal anesthesia. A 16 FR Foley urethral catheter was inserted. A rectangular rectus sheath flap was harvested and defatted. A 4cm perineal incision was made along the median raphe overlying the bulbar urethra, which was dissected out, preserving the periurethral bulbocavernosus muscles. The flap was placed around the bulbar urethra under the pubic bone. Four corner 0 prolene sutures were placed in the flap. Through the perineal access an angled needle with one suture was introduced paraurethrally and brought up retropubically, lateral to the bladder neck. Two sutures were passed in front of the pubic bone and two behind it. Both sutures on each side were tied to each other over the pubic bone (Fig. 1). A transurethral catheter was connected to a cystometry channel.

Sling tension was adjusted by tightening the sutures[13] based on retrograde perfusion pressure, resulting in a sling tension between 50 and 60 cm/water. Patients were discharged on the first postoperative morning when the post void residual urine was less than 50 ml.

Postoperative evaluation

Postoperative follow up included an initial visit 30 days after surgery. Further visits were scheduled at 6 and 12 months, then every year thereafter. During the visit, all patients underwent physical examination (stress test), urodynamic measurements and then filled in the IQoL questionnaire. Cure was defined as completely dry or the use of 1 PPD. Improvement was defined as more than 50% reduction in the number of pads used per day. Failure was defined as less than 50% reduction in the number of pads used per day. For statistical evaluation, the procedure was classified as successful in patients who were “dry” or “improved”.

RESULTS

Patient age ranged from 21 to 62 years (mean 43.2). Among the patients, 9 had myelomeningocele and 5 had spinal cord injury ranging from T10 to L3. In four patients, the procedure was accompanied by augmentation ileocystoplasty. Of the 14 patients, 10 were diagnosed with high intravesical storage pressures (greater than 40 cm H_2O). Before surgery, all 14 patients reported severe incontinence with a mean use of 8 PPD. All patients demonstrated urethral incompetence with an average Abdominal leak Point Pressure (ALPP) of 43.6±12.9cm H_2O. Clinical follow up was performed a median of 26 months postoperatively No major intraoperative or postoperative complications occurred. All patients had primary wound healing postoperatively. Of the 14 patients, 9 (64.3%) were completely dry or use 0-1 PPD, 3 (21.4%) reported improved continence, while 2 (14.3 %) were a failure. In total, 71.4% of the patients showed significant improvement using the IQoL questionnaire. A 61.3% decrease in the number of pads used per day (from 8 to 3.1 PPD) was observed (p <0.05). The mean ALPP increased to 87.3±32.7 cm H_2O with a significant mean improvement of 43.7cm H_2O (p <0.05).

Immediately following surgery, 11 patients (78.6%) reported perineal pain that peared after 2–3 months. Three patients (21.4%) developed postoperative detrusor overactivity and were treated successfully with anticholinergic drugs. In 6 other patients, anticolinergic drugs were added to avoid any deterioration of the upper urinary tract.

DISCUSSION

While searching for minimizing surgical invasiveness and improving complication rates, the perineal bone anchored male sling has been devised for use in men with Intrinsic Sphincter Deficiency (ISD)[13-15]. The urethral male sling was initially described by Salcedo[16]. Since that time several hundred patients have been treated worldwide with many different suburethral slings. From the technical point of view, two approaches have been described the first induced a urethral support using a suspended sling with a retropubic approach. The second, using a pure perineal approach, consisted of performing bulbourethral compression through a sling attached to the pubic bone or rectus fascia. The bone anchored sling suffered from variation in its clinical outcomes as recorded from the results of several investigations.

Male sling has many advantages including the minimally invasive nature, physiologic voiding, lower expense and providing of immediate results compared with the AUS. However, the results of large series have notyet been defined[17, 18]. Bulbourethral slings have been successful in mild and moderate incontinence. The new approach of using bone anchors for the male perineal sling has transformed the operation into a minimally[14].

invasive surgical technique with excellentresults. With this approach, the sling compresses the bulbar urethra and is anchored to the inferior pubic rami. The operation hasbeen described in the literature by various authors since 2001[19, 20]. The sling always compresses only the dorsal half of the urethra. Our modification allows the compression of the urethra by the sling against a bony structure. This would allow a better and efficient compression. Bone anchors are avoided in our technique to exclude possible osseous complications and to reduce cost. Bone anchored slings are efficient, but may also lead to such complications as pain and infection, sometimes needing explantation[21]. The synthetic nature of the implanted device implies a septic risk. In addition, there is a potential risk of pubicosteitis, given the fact that the screws are attached to the bone[22]. We hypothesize that our sling technique compresses and elevates the urethra efficiently and as a consequence, increases the chance of cure. Our results are comparable with those previously published for male slings. Long term results may likely show a decrease in efficacy with time. Collectively, this technique provides encouraging results for men with sphincteric incontinence. Failure was generally observed immediately after removal of the urinary catheter and postoperatively in the first month. After this period, all the patients who were dry or who had improved remained stable, regardless of the length of the postoperative period. Bulbourethral sling is also cost effective when compared to other techniques, especially when cost is a major drawback and especially in developing countries.

The cost effectiveness of the procedure is a major advantage of this procedure. Both composite sling and artificial sphincter couldgive excellent results but are associated with significantly higher cost. The aim of this study was to evaluate, after 26 months of mean follow up (range 12 to 34), the objective and subjective parameters in 14 patients who underwent suburethral sling implantation for severe incontinence.

Objective data were derived by physical examination and number of pads used per day, subjective data were derived from a specific IQoL questionnaire. On the basis of physical examination and pad tests, we had a successrate of 85.7% (cured and improved patients).

These data match comparatively well with the long term results reported in literature for the use of the AUS. The literature demonstrates a cure rate for suburethral slings ranging between 45% and 75% and a total success rate (patients cured or improved) ranging between 76% and 100%[23, 24]. Because of the heterogeneity of the sling materials used even within a single study, it is unknown whether the type of material used influences the efficacy of the sling procedure. Bulbourethral sling offers a less invasive, simpler approach than the AUS and allows for more physiological micturition without the need for manual dexterity. Furthermore, if the sling is ventrally placed, the neurovascular structures dorsal and lateral to the urethra are preserved, potentially decreasing the risk of urethral atrophy and erosion. Finally, in the event of suboptimal continence following sling surgery, the subsequent implantation of an AUS still remains a valid option. The procedure as a whole is a simple, safe and cost effective treatment option for total urinary incontinence. Our results are comparable with the literature for other sling techniques. Longer follow up of a larger series is necessaryto confirm the efficiency and durability of this novel procedure.

CONCLUSIONS

The The male sling procedure is an effective, simple and safe procedure for the management of total urinary incontinence. The modified rectus sheath sling offers a comparable success rate to other sling techniques. It is available without a large financial outlay. It should be regarded as an additional tool in the armamentarium for the management of male total urinary incontinence[15].

REFERENCES

1. Bosch JL, Klijn AJ, Schroder FH, Hop WC. The artificial urinary sphincter in 86 patients with intrinsic sphincter deficiency: Satisfactory actuarial adequate function rates. Eur.Urol. 2000; Aug; 38 (2): 156-60.
2. Gousse AE, Madjar S, Lambert MM, Fishman IJ. Artificial urinary sphincter for post-radical prostatectomy urinary incontinence: Long-term subjective results. J.Urol. 2001; Nov; 166 (5): 1755-8.
3. Litwiller SE, Kim KB, Fone PD, White RW, Stone AR. Post-prostatectomy incontinence and the artificial urinary sphincter: A long-term study of patient satisfaction and criteria for success. J.Urol. 1996; Dec; 156 (6): 1975-80.
4. Clemens JQ, Schuster TG, Konnak JW, McGuire EJ, Faerber GJ. Revision rate after artificial urinary sphincter implantation for incontinence after radical prostatectomy: Actuarial analysis. J.Urol. 2001; Oct; 166 (4): 1372-5.
5. Kaufman JJ. Treatment of post-prostatectomy urinary incontinence using a silicone gel prosthesis. Br.J.Urol. 1973; Dec; 45 (6): 646-53.
6. Tiguert R, Gheiler EL, Gudziak MR. Collagen injection in the management of post-radical prostatectomy intrinsic sphincteric deficiency. Neurourol.Urodyn. 1999; 18 (6): 653-8.
7. Kuznetsov DD, Kim HL, Patel RV, Steinberg GD, Bales GT. Comparison of artificial urinary sphincter and collagen for the treatment of postprostatectomy incontinence. Urology. 2000; Oct 1; 56 (4): 600-3.
8. Madjar S, Raz S, Gousse AE. Fixed and dynamic urethral compression for the treatment of post-prostatectomy urinary incontinence: Is history repeating itself? J.Urol. 2001; Aug;166 (2): 411-5.
9. Mizuo T, Tanizawa A, Yamada T, Ando M, Oshima H. Sling operation for male stress incontinence by utilizing modified Stamey technique. Urology. 1992; Mar; 39 (3): 211-4.
10. Ghoniem GM, Bryan W. Male perineal sling. Tech. Urol. 2001; Sep; 7 (3): 229-32.
11. Jorion JL. Rectus fascial sling suspension of the vesicourethral anastomosis after radical prostatectomy. J.Urol. 1997; Mar; 157 (3): 926-8.
12. Wagner TH, Patrick DL, Bavendam TG, Martin ML, Buesching DP. Quality of life of persons with urinary incontinence: Development of a new measure. Urology. 1996; Jan; 47 (1): 67, 71; discussion 71-2.
13. Comiter CV. The male sling for stress urinary incontinence: A prospective study. J.Urol. 2002; Feb; 167 (2 Pt 1): 597-601.
14. Cespedes RD, Jacoby K. Male slings for postprostatectomy incontinence. Tech.Urol. 2001; Jun; 7 (2): 176-83.
15. Jacoby K, Franco N, Westney L. Male sling: A new perineal approach. 2000.
16. Salcedo H. Surgical correction of post-prostatectomy urinary incontinence using marlex mesh: Preliminary report. J.Urol. 1972; Mar; 107 (3): 440-1.
17. Schaeffer AJ, Clemens JQ, Ferrari M, Stamey TA. The male bulbourethral sling procedure for post-radical prostatectomy incontinence. J.Urol. 1998; May; 159 (5): 1510-5.
18. Migliari R, Pistolesi D, De Angelis M. Polypropilene sling of the bulbar urethra for post-radical prostatectomy incontinence. Eur.Urol. 2003; Feb; 43 (2):152-7.
19. Onur R, Rajpurkar A, Singla A. New perineal bone-anchored male sling: Lessons learned. Urology. 2004; Jul; 64 (1): 58-61.
20. Giberti C, Gallo F, Schenone M, Cortese P. The bone-anchor sub-urethral sling for the treatment of iatrogenic male incontinence: Subjective and objective assessment after 41 months of mean follow-up. World J.Urol. 2008; 26 (2): 173-8.
21. Cornu JN, Sèbe P, Ciofu C, Peyrat L, Beley S, Tligui M, et al. The adVance transobturator male sling for postprostatectomy incontinence: Clinical results of a prospective evaluation after a minimum follow-up of 6 months. Eur.Urol. 2009; 56 (6): 923-7.
22. Fassi-Fehri H, Badet L, Cherass A, Murat FJ, Colombel M, Martin X, et al. Efficacy of the inVance™ male sling in men with stress urinary incontinence. Eur.Urol. 2007; 51 (2): 498-503.
23. Rajpurkar AD, Onur R, Singla A. Patient satisfaction and clinical efficacy of the new perineal bone-anchored male sling. Eur.Urol. 2005; Feb;47 (2): 237, 42; discussion 242.
24. Madjar S, Jacoby K, Giberti C, Wald M, Halachmi S, Issaq E, et al. Bone anchored sling for the treatment of post-prostatectomy incontinence. J.Urol. 2001; Jan; 165 (1): 72-6.