

An evaluation of the sling surgical method of the bulbar urethra in the treatment of men's stress urinary incontinence at Shohadaye Ashayer Teaching Hospital in 2008

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Abstract

Objective: To evaluate the utility and efficacy of bulbar urethra sling in the management of sphincter insufficiency that usually occurs after prostate surgery or posterior urethral injuries and may lead to moderate to severe stress incontinence.

Methods: A total of 30 patients underwent sling surgery with rectus fascia in a four-year period at the Shohadaye Ashayer Teaching Hospital in Iran. Urinary incontinence occurred in 8 patients after open prostatectomy, in 12 patients after prostatectomy through urethra, in 8 patients after radical prostatectomy. For the purpose of the study, 2 patients in whom incontinence occurred after pelvic fracture were excluded. The 28 patients were followed up for a one-year period after the operation. All patients had incontinence from one to six years. After hospitalisation, an 18 gauge Foley's catheter was introduced in the urethra in every patient. The perineum was incised longitudinally, and the bulbar urethra was freed and a 2x7 cm span of rectus fascia was separated and placed under the bulbar urethra. Treatment was defined as use of one or no pad per day and recovery, as a reduction of at least 50% in the number of the used pads after sling operation.

Results: After operation, all patients suffering from moderate to severe stress incontinence were treated with 0-1 pad per day. Four patients were unable to urinate; in 2 patients the sling was modified and loosened, and in two others dilatation resolved their problems.

Conclusion: Bulbar urethra sling can be carried out in moderate to severe urinary incontinence treatment in any hospital at a modest cost with satisfactory results.

Keywords: Bulbar urethra sling, Male stress urinary incontinence, Sphincter insufficiency, Prostatectomy. (JPMA 62: 1191; 2012)

Introduction

After prostatectomy, and radical prostatectomy in particular or prostatectomy through transurethral resection of the prostate (TURP), there is a possibility for partial or complete urinary incontinence. The internal injury to the smooth muscle of the sphincter is involved in this complication.¹

Less than 1% of these patients require surgical correction. The prevalence of urinary incontinence after radical prostatectomy is between 5-60%. The mild degrees of urethral incompetence could be managed or improved by exercise or medical treatment. Nonetheless, in more serious disorders, more invasive measures are required, and in some cases for moderate to severe stress incontinence, surgical intervention is needed.²

The surgical techniques after stress incontinence include collagen injection. Though simple, these are expensive and the outcomes are not satisfactory or sufficient even in patients after several treatments.^{3,4}

Urethral artificial sphincter has been successful, but correction and repair due to erosion and mechanical problems may be required. In this method, a surgeon's skill is essential and physiologic urination does not occur.

Owing to the complexity of the surgical techniques, need for repair and the high cost, there is a requirement for a simple and efficient method.⁵

Sling method has been used for many years in gynaecological treatments for women with internal sphincter disorders. This is the first choice in the treatment of urinary incontinence in women,⁶ whereas this method is rarely used in men.

The sling is formed by removing part of the abdominal tissue or by using artificial substances. The formed sling for men presses on the urethral sphincter and prevents urinary leakage in movements with stress. In women these methods require a short surgical cut in the abdomen or vagina. Sling surgical operation on urethra for the treatment of moderate to severe urinary incontinence can be carried out in any hospital at a low cost and with an acceptable results rate, in comparison to the artificial sphincter.⁷⁻⁹ This method allows for physiologic urination, and, in view of costs, it is cheaper than artificial urethral sphincter. In our study, the patients were followed up for a year after the catheter was removed, to see the outcome.

On the basis of the sling method being successful in women, we used a similar method in men who were part of our study.

Patients and Methods

Our study was a case-series experimental study and

included all men who had been referred with stress incontinence to the specialist urology clinic at Shohadaye Ashayer Teaching Hospital from December 2003 until February 2008.

The sampling method was convenience sampling with no need to calculate the number of samples. A total of 30 patients suffered urinary incontinence after prostatectomy — either open,⁸ TURP¹² or radical⁸ variety. Two patients who suffered incontinence owing to pelvic fracture were excluded from the study. The male patients with moderate to severe stress incontinence had the condition for a minimum duration of one year after diagnosis, with unsuccessful medical treatment. They had been referred to the specialist urology clinic at the Shohadaye Ashayer Teaching Hospital; Lorestan University of Medical Sciences. Neuropathic diseases such as diabetes were ruled out in the selected patients.

In patients with signs of urinary irritation such as frequency or urgency, urodynamic studies were performed. Cystoscopy was carried out in all of these patients to assess the tonicity of the urethral sphincter, membranous urethra, bladder neck and bladder. The patients, who had a minimum bladder capacity of 200cc, had urinalysis and urine culture done to exclude urinary infection before the sling surgical operation on bulbar urethra was carried out on. Before the operation, cephalothin was injected intravenously, and all patients were induced with spinal anaesthesia in lithotomy position. After inserting a Foley's catheter in the middle rapheal region in the perineum, a four-centimetre longitudinal cut on the urethra was made. After releasing bulbomembranous urethra and opening endopelvic fascia, the bladder was accessed on its internal surface. After that, from the top and with a transverse cut on the supra pubic area, a 2x7 centimetre area of the rectal fascia was removed and by opening the fascia from the two external borders of the rectus muscle by guiding the fingers down, directed along inner surface of the pubic bone parallel to the periosteum and towards the perineum. Fascia was positioned under the bulbomembranous urethra and was sutured in a belt-like manner by using vicryl-0 suture. Afterwards, the bladder was filled with 200 cc of water and the internal urethral pressure was measured to be at 60cm Hg in a retrograde manner. Foley's catheter cuff was inflated in the penile urethra to measure retrograde urethral closure pressure. A bag of normal saline was connected to the catheter with the drip chamber located 60 cm above the pubic symphysis. Sling tension was increased until the infusion stopped dripping and then the catheter was removed. The patient was asked to cough and after ensuring no urinary incontinence, both the sutures were tied loosely. The cases were studied 10 days, 6 months, and one year respectively after the operation. The most important

complication was found to be urinary retention. In addition, the number of pads used before and after the sling surgical operation were compared in order to assess the rate of improvement. After collecting the data, the results were analysed by descriptive statistics through Wilcoxon rank-sum and chi-square tests by using SPSS version 11.

Results

The study had 28 patients in the age range of 64-85 years with an average use of five pads a day. The use of pads was reduced down to 0.57 ± 1.08 , and in 10 days, 6 months, and one year after the operation, the reduction in the use of pads were 0.14 ± 0.36 , 0.14 ± 0.36 , and 0.28 ± 0.46 respectively. The median of the number of used pads was zero in the aforesaid periods. Considering $P < 0.001$, the difference was significant.

Of the total, 16 patients were in the age range of 64-74 years. The number of pads used by them before the operation was 5.57 ± 1.83 which was reduced to the average of 0.62 ± 1.06 and the median of zero. In the age range of 75-85, there were some 12 patients, and the number of pads used before the operation was on average 5.33 ± 2.06 with a median of 4 that was reduced to the average of 0.50 ± 1.22 and a median of zero. Considering the $P = 0.05$ in both the above groups, the difference was significant. According to the duration of the incontinence, the patients were divided into two groups of 1-3 years and 4-6 years of incontinence. Sixteen patients were in the first group and the number of pads used, with the average of 5.62 ± 2.13 and a median of 5, was reduced to 0.87 ± 1.35 and a median of zero. The other group had 12 patients and the number of pads used,

with the average of 5.50 ± 1.64 and a median of 5, was reduced to 0.16 ± 0.40 and a median of zero. With $P < 0.05$, the difference was significant.

According to the cause of the urinary incontinence, the patients were divided into three groups: open prostatectomy, radical prostatectomy and TURP. The first group had eight patients, with 2.25 ± 1.50 average pads used and a median of 5 before the operation. The number of pads was reduced to 0.25 ± 0.50 and a median of zero after the sling surgical operation. The second group also had eight patients, with 5.00 ± 2.00 average pads used and a median of 4 before the operation. The number of pads was reduced to 1.50 ± 1.73 and a median of 1.5 post-operatively. In the last group twelve patients, with 6.16 ± 2.13 average pads used and a median of 6.5. After the operation, the number of pads was reduced to 0.16 ± 0.40 and a median of zero.

Of the 28 patients, four were found to have urinary retention in the first two weeks of follow-up. Both were in the age range of 75-85 years. In one of them, the sling was modified and loosened, while in the other, dilatation was performed to resolve the problem. In either case, no pad was used in a one-year follow-up period. Considering $P > 0.05$, no significant difference was observed between urinary retention on the one hand, and the age groups on the other.

The rate of urinary retention in the group of patients who had been suffering from incontinence for a period of 1-3 years was two patients (14.3%), while in the group suffering for a period of 4-6 years was zero. With $P > 0.05$, no significant relationship was found between urinary retention and incontinence. The rate of urinary retention was one case each for open prostatectomy and TURP (7.1%

Table-1: A comparison between the number of pads used before the operation on one hand, and 10 days, 6 months, and one year post-operation on the other.

Number of pads used	Number of patients	Range	Average \pm SD	Median
Before the operation	28	3-8	5.57 ± 1.86	5
10 days after the operation	28	0-1	0.14 ± 0.36	0
6 months after the operation	28	0-1	0.14 ± 0.36	0
One year after the operation	28	0-1	0.28 ± 0.46	0
The total number of pads used after the operation	28	0-3	0.57 ± 1.08	0

$PV < 0.001$.

Table-2: A comparison between the average and the median of the pads used, before and after the sling surgical operation, classified according to the causes of urinary incontinence.

The cause of urinary incontinence	The number of patients	The number of pads used	Range	Average \pm SD	Median
Open prostatectomy	8	The number of pads before the operation	4-7	5.25 ± 1.50	5
		The total number of pads after the operation	0-1	0.25 ± 1.50	0
Radical prostatectomy	8	The number of pads before the operation	4-8	5.00 ± 2.00	4
		The total number of pads after the operation	0-3	1.50 ± 1.73	1.5
Prostatectomy through urethra	12	The number of pads before the operation	3-8	6.16 ± 2.13	6.5
		The total number of pads after the operation	0-1	0.16 ± 0.40	0

each), while there was no case reported in cases of radical prostatectomy. Considering $P > 0.05$, no significant relationship was reported between incontinence and urinary retention.

Discussion

Sling operation surgery is a new method of treatment for moderate to severe stress incontinence in males. Considering its low cost and fewer complications compared to an artificial sphincter together with better and more satisfactory treatment outcome, the procedure can be conducted in any hospital. The most important complication of the method is urinary retention that recurs if the sling is removed or modified.

In this study, there was a significant difference between the average pads used per day in men suffering from incontinence, before and after the sling surgery, based on age, duration and the cause of the incontinence.

In this study, no erosion or infection was observed. The results were compatible with those produced by Migliari.¹⁰

In our study, the patients complained of mild pain in the first few days after the surgery. It was resolved in all patients. The result was compatible with those presented by Migliari¹⁰ and Montague.¹¹ The one-year outcome of all cases in the current study was satisfactory and also no treatment failure was reported. Considering the use of rectal fascia, it points to the fact that the general results of the sling surgery were equal or near the results of some previous researches, and in comparison with a number of them, the results were superior to the outcomes reported by Schaal,¹² and Castle.¹³

In this study, patients suffering from moderate to severe incontinence who had undergone no surgical treatment for the condition previously were treated by using

0 to 1 pad. This outcome was comparable with Castle¹³ and Migliari,¹⁰ as well as close to Comiter.¹⁴

Conclusions

Bulbar urethra sling can be carried out in moderate to severe urinary incontinence treatment among males in any hospital at a modest cost with satisfactory results.

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