

Abdominal Transpubic Perineal Urethroplasty for Complex Posterior Urethral Strictures: An Experience of 10 Years

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ABSTRACT

Objective To document the outcome of abdominal transpubic perineal urethroplasty for complex posterior urethral strictures.

Study design Descriptive case series

Place & Duration of study Surgical unit Hayatabad Medical Complex and Khyber Teaching Hospital Peshawar, from March 1999 to February 2009.

Methodology Patients with complex posterior urethral stricture were included in this study. Pre operative evaluation included history, physical examination and laboratory investigations. Antegrade/retrograde urethrograms and cystourethroscopy were performed to evaluate bladder neck, and stricture site and length. Surgery was performed in lithotomy position through lower abdominal and perineal approaches. Patients were followed for 2 years. At each visit, ascending and descending urethrograms were performed and post operative complications were recorded. Results were graded as successful and failure based on stricture free rate at the end of 2 years.

Results A total of 28 patients were managed. The age range was 14-36 year with a mean age of 27.3 + 2.4 year. Urethral stricture was associated with false passages in 17.88% cases, periurethral cavity in 10.71% and urethrocutaneous fistula in 7.14% cases. Mean operation time was 3.5 hours and mean hospital stay was 6 days. Postoperative complications were recurrent stricture (17.86%), urethrocutaneous fistula (7.14%), perineal haematoma (7.14%), impotence (10.71%) and wound infection (10.71%). During follow up 89.29% patients were stricture free at the end of 2 years.

Conclusion Abdominal transpubic perineal urethroplasty is an acceptable surgical approach in patients with complex posterior urethral stricture.

Key words Complex urethral strictures, Stricture posterior urethra, Transpubic urethroplasty.

INTRODUCTION:

Posterior urethral strictures have always been a challenge for the urologist to manage.¹ The

difficulties in the management are attributed to location behind the pubic bone and the urosexual problems when inappropriately dealt with.²⁻⁷ Disruption of posterior urethra occurs in 3.5% to 10% of patients with traumatic pelvic fractures.⁸ About 10% of cases have complex strictures on account of gap exceeding 3cm or its association with perineal fistulas, rectourethral fistulas, periurethral cavities, false passages, an open bladder neck or previous failed urethroplasty.^{9,10}

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Surgical repair of such complex posterior urethral disruptions remains one of the most challenging problems in urology. Urethral reconstruction of complex posterior urethral disruptions is accomplished by using the progressive perineal elaboration technique or the abdominal transpubic perineal approach.¹¹⁻¹³ The most appropriate surgical technique of these two approaches, however remain controversial. Although majority of the urethral defects, (up to 10cm) can be resolved through the progressive perineal elaboration technique, there are certain limitations to its use. The repair of a concomitant complication requires wider exposure of the pelvis for bladder neck repair, debridement and omentoplasty.^{14,15} Additionally the success rate of perineal elaboration technique is reportedly lower in prepubescent boys and in patients undergoing repeat urethroplasty.¹⁶ Contrary to this, abdominal transpubic perineal urethroplasty not only provides wide and excellent exposure for urethral anastomosis but also allows repair of associated complications at the same time.¹⁷ Furthermore, the transpubic route facilitates the use of an omental graft to obliterate the perianastomotic dead space, absorbs inflammatory debris and prevent fibrosis.¹⁸ Interestingly there are few reports of bowel herniation after the use of an omental graft.¹⁹

The aim of this study was to assess the outcome of abdominal transpubic perineal urethroplasty for complex posterior urethral strictures in terms of post operative morbidity and stricture free rate following 2 years follow up.

METHODOLOGY:

This descriptive case series study was conducted at Surgical unit, Hayatabad medical complex and Khyber Teaching Hospital Peshawar from March 1999 to February 2009. In this study 28 patients having pelvic fracture with distorted pelvic ring and displaced prostate, were included. Patients who did not complete follow up, were excluded. Initially all patients had undergone suprapubic cystostomy after traumatic incident. These patients were admitted through OPD. Preoperative evaluation included history, physical examination and laboratory investigations such as full blood count, blood urea and sugar, serum creatinine, electrolytes, urinalysis and urine culture and sensitivity. Chest x ray and ECG were done in selected cases as suggested by their history and chest examination, in order to assess their fitness for general anaesthesia. Antegrade and retrograde urethrograms and cystourethroscopy were performed to evaluate bladder neck and stricture site and length.

Patients were placed in lithotomy position. Through perineal incision, bulbar urethra was exposed. Prostate was exposed through lower abdominal incision by excising 3cm of symphysis pubis and corresponding inferior ramus. After excision of the scar tissue, the apex of prostate was identified. Transverse incision made on prostate to expose the urethra. No attempt made to mobilize the prostate. End to end bulboprostatic urethral anastomosis was performed after spatulation of bulbar urethra over 16 F silicon catheter, with 4/0 polyglycolic acid size 22 round body needle. Suprapubic catheter and suprapubic suction drain (22 gauge) in retroperitoneal space, were placed. At the end of procedure, patients were shifted to surgical ward and their vital signs were regularly recorded. They were orally allowed on the same day, mobilized on 3rd day and majority of them were discharged from hospital on 6th postoperative day. Suprapubic drain was removed after 3 weeks and suprapubic catheter after 2 months.

Patients were followed up in OPD for 2 years. At first visit, six weeks after surgery, urethral catheter was removed and ascending/descending urethrograms were performed. In case of any extravasation, patient was recatheterized. Further follow up visits were at 3 months, 12 months, 15 months and 2 years after surgery. At each visit ascending and descending urethrograms were performed. Abdominal and perineal wounds were examined and complications were recorded. Data was analyzed through SPSS. Results were graded as successful or failure, on the basis of stricture free rate at the end of 2 years follows up.

RESULTS:

In this study of 28 patients, the age range was 14-36 year with a mean age of 27.3 ± 2.4 year. Half (50%) of our patients were in the range of 15-30 year. Aetiological factors included road traffic accidents and fall from a height. Urethrograms and cystourethroscopy revealed post urethral strictures without any associated complications in 18 (64.28%) cases. Stricture was associated with false passages in 05 (17.88%), periurethral cavity in 03 (10.71%) and urethrocutaneous fistula in 02 (07.14%) cases. Mean operation time was 3.5 hours and mean hospital stay was 6.5 days (range 5-8 days).

Postoperative morbidity included recurrent stricture in 05 (17.86%) cases. These patients underwent internal optical urethrotomy for stricture management. Two (07.14%) patients developed urethrocutaneous fistula. They were treated conservatively and fistulae closed without intervention. Perineal haematoma was

present in 02(07.14%) cases which were evacuated under general anaesthesia. Post procedure impotence was noted in 03(10.71%) patients but they did not recover with the passage of time. Superficial wound infection of perineal wound occurred in 03(10.71%) cases. It was minor infection and managed with drainage of pus, local antiseptic dressings, and antibiotics.

Post operative ascending and descending urethrograms were performed at each follow-up visit to assess the patency of bulboprostatic anastomosis. Twenty three (89.29%) patients were stricture free at the end of 02 years follow up. Five (17.86%) patients, who needed optical urethrotomy, were considered as failure of the procedure.

DISCUSSION

Surgical intervention for complex posterior urethral disruption is intricate because of limited urethral length, surrounding fibrosis and distorted anatomy of the pelvis. Such type of strictures have been dealt by perineal elaboration technique or abdominal transpubic perineal technique.^{9,12,13} The abdominal transpubic perineal urethroplasty is now believed to be a safe procedure because complications secondary to pubic bone resection are infrequent.²⁰⁻²² Our study revealed simple stricture in 64.28% cases, stricture associated with false passages (17.88%), periurethral cavity (10.71%) and urethrocutaneous fistula (07.14%). These findings are almost similar to those with minor differences reported in various other studies.^{9,23,24}

In this series, the mean operation time (3.5 hours) and hospital stay (6.5 days) are comparable to 3.2 hour by Koraitim MM et al²⁵ and 7.6 days by Gupta NP et al²⁴ respectively. The success rate of a surgical procedure is directly related to postoperative morbidity. In our series the postoperative complication rate (53.56%) is higher than 4-30% mentioned in the literature.^{9,23-25} This high complication rate can be attributed to the preoperative condition of the patient and extensive dissection during surgery which affects the postoperative outcome of the procedure.

Stricture is an unavoidable complication of urethral repair but the skill and experience of a surgeon is of utmost importance. The successful results of urethroplasty are based on the stricture free rate at the end of a given follow up period. In our series, 17.86% patients developed recurrent stricture but this figure is in accordance to 15.79% reported by Gupta NP et al.²⁴ These patients with recurrent stricture were managed through optical urethrotomy. Postoperative urethrocutaneous fistula was picked

up in 07.14% patients which is acceptable by comparing to 05.26% reported by Gupta NP et al.²⁴ These patients responded to conservative management and fistulae closed spontaneously. Perineal haematoma was present in 07.14% cases. Gupta NP et al had also reported perineal haematoma in 5.26% cases in his study.²⁴ Post procedure impotence is a feared complication of urethroplasty. In our series 10.71% patients developed impotence after the procedure. This figure is higher than 03.13% by Koraitim MM et al,²⁵ 05.26% by Gupta NP et al²⁴ and 4% by Pratab A et al²³ but acceptable by comparing with 21.4% by Pratab A et al in another study.⁹ This complication actually represents a learning curve of the operating surgeon because such patients undergoing transpubic urethroplasty, has usually an extensive retropubic dissection with subsequent damage to the nerves. Pratab A et al has pointed out that such extensive retropubic dissection is unnecessary.⁹ No patient had delayed recovery of potency after urethroplasty as also reported by Pratab A et al in his series.⁹ Wound infection occurred in 10.71% cases. This figure is similar to 10.53% reported by Gupta NP et al.²⁴ These mild septic cases were dealt through drainage of pus, local antiseptic dressings and oral antibiotics.

Different follow up protocols have been mentioned in various studies e.g. 24 and 28 months by Pratab A et al in 2 different studies, 30 months by Gupta NP et al and 1-24 years by Koraitim MM et al.^{9,23-25} In our series the total follow-up period was 2 years. The success rate achieved in our study was 89.29% which was actually the stricture free rate at the end of 2 years follow-up. Success rate mentioned in literature include figure of 92% to 98%.^{9,23,24} Koraitim MM et al and podesta ML et al have reported a range of 70%-100% success rates in their studies.^{10,22} This difference in success rate can be attributed to the initial learning phase in the management of complex posterior urethral strictures.

CONCLUSION:

Abdominal transpubic posterior urethroplasty is a better surgical technique for complex posterior urethral stricture as it provides an excellent exposure, tension and scar free bulboprostatic urethral anastomosis with minimal postoperative complications.

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