Trans-Symphyseal Urethroplasty in Children

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Post traumatic posterior urethral strictures were managed by trans-symphyseal urethroplasty in 11 male patients of paediatric age group. The aim of the study was to evaluate the results of the technique in patients who underwent multiple unsuccessful procedures in the past. Two(18.2%) patients were 3-5 years old, 3 (27.3%) were between 6 and 8 years, 1 (9.1%)was 10 years old whereas 5(45.5%) were 12-14 years of age. The length of the strictures varied from 1-3cm. Repair was performed after excising the stricture and anastomosing the spatulated urethral ends with interrupted sutures of 5/0 vicryl over a Foley's catheter. Post operative follow up showed incontinence in 1(9.1%) case and prolonged urinary tract infection in 4(36.4%) cases. Postoperative stricture was not noted in only one of them at I year follow up. The authors recommend that trans-symphyseal urethroplasty is a satisfactory procedure for the treatment of posterior urethral strictures in children as it provides excellent approach and visualization with minimal post operative complications.

Key Words: Urethroplasty, Stricture.

Posterior urethral injuries is a common paediatric surgical problem. It is usually caused by pelvic fracture. Incidence varies from 5-25% of all pelvic injuries[1]. Intial management may be either suprapubic diversion of urine, primary repair or urethal alignment over catheter along with suprapubic cystostomy[2]. Strictures usually develop in 25-100% cases of urethral injuries irrespective of the initial treatment[3,4]. Majority of these strictures are resistant to repeated dilatation[5]. Trans-symphyseal posterior urethral repair was attempted to evaluate the results of this technique in children.

Patients and methods:

It was a retrospective study. Eleven male children with the diagnosis of post traumatic posterior urethral stricture were operated upon over a period of 5 years i.e; from June 1994 to May1999. Seven of these cases were dealt with in the department of Paediatric Surgery, Mayo Hospital, Lahore and 4 were treated at Services Hospital, Lahore by the same surgeon. Age ranged from 3-14 years. The causes of injury were road traffic accident (81.8%) and fall on an object (18.2%). Nine (81.8%) were associated with fracture of pelvis. Initial treatment consisted of suprapubic cystostomy with urethral realignment in 8(72.7%) and suprapubic cystostomy alone in 3(27.3%) patients. Repeated urethral dilatations were attempted in them which were eventually unsuccessful. Time interval between initial management and trans-symphyseal urethroplasty ranged from 3-12 months. In addition to routine laboratory investigations (like blood, urine analysis, urine culture, etc.) antegrade cystourethrography and retrograde urethrography were performed in all cases to assess the length of the stricture. Pre operative urethroscopy was also performed. Time period lapsing between the urethral injury and repair ranged from 3-12 months.

Length of the strictures ranged from 1-3 cm. Results were labeled as Good if the stream was almost normal with no difficulty in micturition, Satisfactory when the patient voided with some difficulty or having a relatively thin stream and poor if the patient was unable to void.

Surgical Technique:

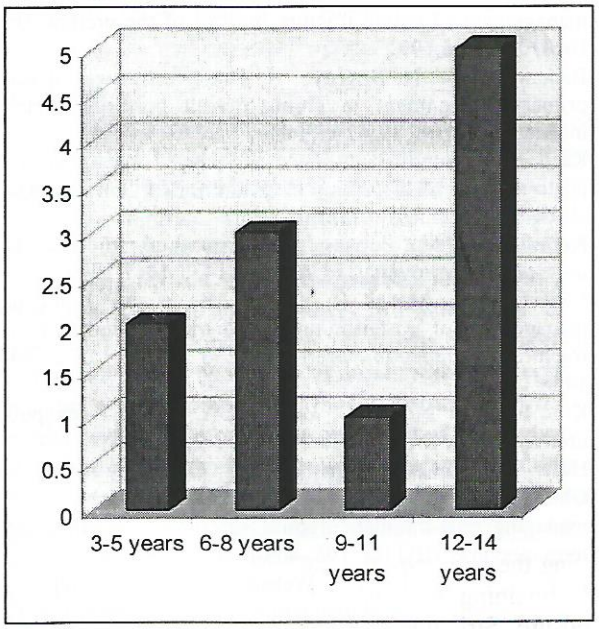
Low transverse muscle cutting incision was made. Perivesical space entered, Symphysiotomy performed by cutting the inter symphysial ligament with electro cautery. Self retaining retractor was used to achieve maximum exposure. Stricture was localized by passing sound from above and below. Normal urethra was incised on either side on the tips of the sounds. Intervening fibrous tissue was excised until normal mucosa was reached. Distal urethral cut end was adequately mobilized to achieve a tension free anastomosis. Minimal dissection was performed near bladder neck. Both urethral ends were spatulated and urethal repair performed with interrupted stitches of 5/0 polyglactin over a Foley's catheter. After obtaining satisfactory haemostasis drain was left in the retropubic space. Pubic symphysis was repaired with two mattress stitches of no. 2 polypropylene. A suprapubic catheter was left in the bladder. Urethral catheter was removed after 3 weeks and suprapubic diversion was removed after confirming the integrity of anastomosis. Postoperatively 2-3 urethral dilatations were performed, each at an interval of 2 weeks. Postoperative follow up included monthly visits for first 3 months after last urethral dilatation, then at 6 months and I year.

Results:

Age of the patients ranged from 3-14 years (Fig-1). Road traffic accident was the cause of urethal injury in majority of the patients (81.8%). All had the history of railroad catheterization and subsequent multiple urethral dilatations. All were having suprapubic catheters at the time of admission for the definitive repair. The result was good in 8(72.7%) patients with a strong stream, satisfactory in 2(18.2%) who had relatively thin stream and

needed monthly dilatation until I year after the repair. One patient had poor result with incontinence of urine. This patient had excessive tissue loss and scarring in the region of bladder neck. Other postoperative complications include wound infection in 2 (18.2%) cases and chest infection in 3 (27.3%) cases.

Fig. 1: Age range



Discussion:

Traumatic posterior urethral disruptions in children differ anatomically from those of adults. Posterior urethra in children is not supported by prostate and may be injured at any level[6]. In adults, due to the presence of mature prostate repair. It is also appropriate for strictures of above 3 cm length[8]. Due to high elasticity of the pelvis and sacroiliac ligaments in paediatric age wider exposure can be obtained safely and effectively through this approach by using a self retaining retractor.[10] The gold triad for successful repair is complete excision of devitalized tissue , identification of healthy urethral mucosa which may need adequate incision of the anterior surface of prostate and a tension free anastomosis.[11] Bladder neck reconstruction is not performed at the time of repair as it may further injure the continence mechanism that has survived the original accident. Early repair through trans-symphyseal approach has the advantage of placing the catheters for shorter duration thus minimizing the complications of prolonged catheterization[6]. In early repair dissection through the pelvic haematoma is difficult. It may lead to loss of temponade effect[6]. This may cause excessive bleeding in cases undergoing early primary urethral repair. However, dense pelvic fibrosis seen in delayed repairs is not encountered in cases undergoing early repair.[12] Chances of urethral stricture formation in patients of early repair are less than those undergoing delayed repair[13].

A suprapubic cystostomy is necessary for drainage of urine postoperatively and it must be removed after confirming the integrity of urethral anastomosis by voiding cystourethrogram which is performed after removal of urethral catheter in 3 weeks time.

Some workers use omental flap to pack the retropubic space with the idea of bringing viable blood supply to the area and thus will prevent scar from forming directly around the anastomosis[14].

The critreria for successful management are near normal urinary stream, absence of urinary tract infection and presence of urinary continence and sexual potency.

has been reported to occur in those patients where extensive tissue dissection was performed at the time of repair. Since we do not have the data regarding pre operative status of erectile function, it was not possible to evaluate this aspect in the present study. Failure to have good results in few series are mainly due to incomplete excision of scar, anastomotic tension, inability to identify normal urethral mucosa and unnecessary dissection in the region of bladder neck[21,22].

Conclusion:

Trans-symphyseal urethoplasty is a satisfactory technique for the repair of posttraumatic posterior urethral injuries in children. It provides improved visualization of the posterior urethra and bladder neck which is ideal for optimal urethral reconstruction in children.

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