MANAGEMENT OF POST TRAUMATIC POSTERIOR URETHRAL STRICTURE

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ABSTRACT

Objective: The management of post traumatic posterior urethral stricture is one of the most difficult surgical problem faced by a urologist. It is an uncommon injury at an inaccessible location.

Material and Methods: We did a study on 22 patients, who had 1 stage perineal urethroplasty and were followed for more then one year. We compare the results of initial suprapubic catheterization at the time of injury and delayed urethroplasty, with patients, who had initial realignment procedure with railroading and presented to us with recurrent stricture formation.

Results: The result of primary catheterization and delayed urethroplasty is very satisfactory, it is associated with less chances of impotency and incontinence. Subsequent stricture if formed, is usually short and can easily be managed by day case opticle urethrotomy.

Conclusion: Post traumatic posterior urethral stricture should have suprapubic catheterization before definitive surgery.

Key words: Urethral stricture, suprapubic catheterisation.

INTRODUCTION

Treatment of post traumatic posterior urethral stricture is difficult and controversial. Distortion of normal lower urinary tract anatomy and function, combined with dense fibrosis involving the effected area makes the surgical repair very challenging even in the best of hands. Management involves primary alignment[1] versus delayed treatment. Methods to maintain urethral continuity include transpubic,[2] perineal and combined suprapubic and perineal approaches performed in one or two stages, with or without full thickness skin graft, skin flap or buccal mucosal graft.[3] Although various endoscopic methods[4,5] have been introduced for primary re-alignment of urethral disruption in unstable patient following trauma, the problem is the availability of expensive instrument and subsequent restricture formation. Traumatic lesion of the posterior urethra occurs in 10% of patients with pelvic fracture

injuries[6] and the resulting incontinence, impotency and urethral stricture remains a source of life long misery in most patient. Turner-Warwick described the problem accurately by stating it is the urologist who will have to share the burden of the ultimate disability with the patient , when the thoracic and abdominal and even the ortho-pedic aspect are probably long forgotten.[7] The aim of this study was to compare the result of conventional treatment by primary realignment via rail roading, with more logical and safe approach of delayed urethroplasty.

MATERIAL AND METHODS

In a period of 4 years 22 patients with post traumatic posterior urethral stricture were managed by one stage perineal urethroplasty. 14 patients (Group A) presented acutely following injury with urinary retention and were managed initially with suprapubic catherization under local anesthesia and had delayed urethral reconstruction i-e after 4 months. In (Group B) 6 patients had failed prior rail roading and urethral realignment procedure and in 2 patient prior urethral dilatation and internal urethrotomy had failed and these patient presented with suprapubic catheter. All patients had ascending urethrogram with simultaneous cystogram to assess the extent of injury and the competence of bladder neck. The mechanism of injury in majority of cases was road traffic accident (Table 1) and majority of them were below 30 yrs of age. While taking consent the patient were informed about 3-5% incidence of impotency and some degree of ventral cordee.

THE MECHANISM OF TRAUMA

Fall from Tractor Trolley	3
Hit by motor car	9
Fall from height (usually tree)	8
Motor vehicle accident (passenger)	2

TABLE – 1

Technique of Urethral Reconstruction

The patient is placed in high lithotomy position, with the sand bag under the buttock to raise the sacrum. The Bulbar urethra is exposed by midline perineal incision and dividing the bulbospongiosum muscle. The bulbar urethra is circumferentially mobilized and transected at the distal margin of the stricture. Bladder is opened via suprapubic midline incision, 30 Fr sound is passed through bladder neck and the tip palpated at the site of stricture. Scar tissue is excised completely from the obliterated membranous urethra until the dilator passes easily through the apex of prostate. The corpus spongiosum is mobilized distally up to peno - scrotal junction , thus decreasing the tension on the anastomasis. Proximal and distal urethral ends are spatulated to easily accept the dilator. Because the anterior prostate is much thinner than its posterior aspect, we spatulate anteriorly on the prostatic and posteriorly on the bulbar urethra. Direct mucosa to mucosa anastomosis performed over size 18 Fr silicon catheter by 6-8 interrupted 4/0 vicryl stitch. Proline size 1 suture tied to the tip of silicon catheter and brought out through separate needle puncture wound adjacent to suprapubic catheter

In 3-patient (13.6%) due to extensive fibrosis the resultant distance of anastomosis was more then 3cm. Full thickness skin graft in 2-patient[8] and penile skin flap in 1-patient[9,10] was used to bridge the gap over the spatulated portion of anastomosis. Patient were discharged on 4th post operative day, the suprapubic catheter removed on 10th day and patient came for 1st follow up on 6th week for removal of catheter but retaining the proline suture and assessment via ascending urethrogram and micturating cystourethrogram. If any extravasation was noted then re-catheterizated for further 2-weeks. Further follow up every 3 – months for 1 year and during each visit clinical

assessment including voiding and sexual history, urinalysis and combined retrograde and micturating cystourethrogram were done.

RESULTS

The patient were divided into two groups.

Group A = Included 14 patients who were initially managed by suprapubic catheter followed by delayed urethroplasty.

Group B = Included 8 patients who had primary realignment procedure at other institute and presented to us with restricture formation. All of them had number of prior urethral dilatation.

The result of urethroplasty in both group are shown in Table 2. Although from this table the apparent success rate of 64% in Group A is not significantly high compare to 50% in Group B, but in fact the subsequent urethral stricture in the group were very short and managed easily with one or two sessions of optical urethrotomies as day case compare to much longer and difficult recurrent stricture in Group B, which needed more sessions of opticle urethrotomies with or with out further use of self dilatation.

	Group A 14 Pt.	Group B 8 Pt.
Success rate following urethroplasty	9 (64%)	4 (50%)
Stricture formation		
0 – 3 months	0 – 0%	0 – 0%
3 – 6 months	3 – (21.4%)	3 – (37.5%)
6 – 12 months	1 – (7.1%)	1 – (12.5%)
> 12 months	1 – (7.1%)	1 – (12.5%)
Ventral chordee	1- (7.1%)	1- (12.5%)
Impotency	1 –(7.1%)	2 – (25%)
Incontinence	0 – 0 %	0 - 0%
Retrograde ejaculation	0 - 0 %	0 - 0%
Wound infection	2 - (14.2%)	3 – (37.5%)

TABLE – 2

DISCUSSION

The three main complications of pelvic fracture urethral injury are stricture formation, incontinence and impotency. These may result from original injury or from iatrogenic trauma. We believe that careful and complete excision of periurethral scar tissue is the single most important detail for achieving successful outcome. Stay sutures placed in periurethral scar tissue provide excellent control during stricture excision. In this way a precise mucosa to mucosa anastomosis may be performed. An important point is liberal distal mobilization of carpus spongiosum thus decreasing tension on suture line. Last but not the least is adequate spatulation of both urethral end for wide anastomosis. In our study the low incidence of incontinence is due to intact internal sphinc-ter mechanism, therefore prostatectomy in later life should be avoided as this will result in urinary incontinence.

Impotency can be avoided if during procedure one should adhere to midline dissection and avoid any temptation to resect and mobilize the prostatic apex which will save the ventrolateral cavernous nerves and thus decreasing the chances of impotency. In this study one patient from each group developed transient impotency that recovered with in 1 year time, while one patient in Group B has permanent impotency that was present from the time of injury. In our view delayed primary treatment is far better than primary realignment procedure, which is performed in presence of large huge pelvic heamatoma, in a critically injured patient with pelvic fracture. The procedure is associated

with unacceptable high incidence of complication.[12,13] The only indication of primary exploration is in the presence of associated injury to the bladder, bladder neck[14] or rectum. The primary treatment may also convert a partial urethral tear into complete if the diagnosis has been missed. If primary realignment is at all attempted then it should be done after 2-3 weeks when patient condition is much stabilized. One should always avoid suture anastamosis which is very difficult in presence of haematoma and the amount of dissection needed will result in high incidence of complication.[15]

In our study the incidence of posturethroplasty stricture formation was more in Group B patients who had initial primary realignment procedures and subsequent number of dilatations. It is clear from Table – 3 that contrary to belief the displacement of prostate in Group A was not significantly high. Recurrent procedure in Group B and subsequent infection might be responsible for lot of scarring , which is the single important reason for increase incidence of restricture formation. The restricture in Group A were short i.e. <1cm, three patients (21.4%) needed only single opticalurethrotomy while the remaining two patients (14.2%) needed two opticalurethrotomies as a day case with 2 - months interval. In Group B one patient (12.5%) was cured with single opticalurethrotomy, one with twice urethrotomy and the remaining two patients (25%) needed thrice urethrotomy followed by 4 – month of clean intermittent self catherization.

THE DISTANCE BETWEEN APEX OF PROSTATE AND BULBAR URETHRA AFTER EXCISION OF SCAR

Length of scar tissue	Group A No. of pt - %	Group B No. of pt - %
< 1 cmm	4 – 28.5%	2 – 25 %
1 – 2 cmm	5 – 35.7%	1 – 12.5%
2 – 3 cmm	4 – 28.5%	3 – 37.5%
> 3 cmm	1 – 7.1 %	2 – 25 %

TABLE – 3

All patients undergoing subsequent urethrotomies[16] had impaired urethral continuity and not total anastomotic obliteration. Usually a soft mucosal weblike narrowing is found, which explains the excellent long-term success with opticalurethrotomy. Also with urethroplasty the surrounding dense fibrosis is already excised which adds to the better prognosis

CONCLUSION

Although controversy exist in the timing and management of post traumatic posterior urethral injury. In our experience the best option is to pass supra pubic catheter in every patient with suspected urethral injury and do control retrograde urethrography when patient condition stabilizes. If extravasation found then definitive treatment by urethroplasty after 4 months may be under taken.

Although this results in stricture formation in almost 100% patients which can usually be managed by 1 stage anastomotic urethroplasty. By doing so less chances of impotency and urinary incontinence are there. Rarely one encounters a urethral defect of more than 3cms which requires a substitution skin flap or graft. There is significant chances of restricture formation, that can easily be dealt with by day case optical urethrotomy.

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