

ORIGINAL ARTICLE

OPTICAL URETHROTOMY IN STRICTURES
FOLLOWING FRACTURE PELVIS

Mohammad Islam, Farid Anwar*, Sajjad Ahmed, Azaz Ali

Department of Urology, Postgraduate Medical Institute, Lady Reading Hospital, *Rehman Medical Institute Hayatabad, Peshawar, Pakistan

Background: Management of posterior urethral injuries with pelvic fracture remains a major controversy and has always been a challenge to urologists. Objective of this study was to see the outcome of optical internal urethrotomy in treatment of urethral strictures following fracture pelvis. **Methods:** This prospective study was conducted at the Urology Department, Lady Reading Hospital, Peshawar from January 2007 to July 2008. A total of 45 male patients (20–60 years of age) and having urethral strictures following fracture pelvis were treated with internal optical urethrotomy. Follow-up ranged from 3 months to 1 year. **Results:** Fracture pelvis resulting from the road traffic accident, was the cause of urethral stricture. The good and fair results of internal optical urethrotomy were 68.56% patients who were treated with single internal optical urethrotomy. Internal optical urethrotomy was repeated in 22.86% of patients. Clean intermittent self urethral dilatation was applied as adjuvant treatment to prevent recurrence of stricture for variable period ranging from 1 to 3 months. **Conclusion:** Internal optical urethrotomy is safe and effective procedure for short yet inaccessible strictures from the perineum.

Keywords: Pelvic Fracture, Stricture urethra, Internal optical urethrotomy, outcome, dilatation

INTRODUCTION

Management of posterior urethral injuries with pelvic fracture remains a major controversy and has always been a challenge to urologists. Despite the best initial management, stricture almost always develop in these cases.¹ Periodic urethral dilatation is the oldest surgical procedure used for the dilatation of urethral stricture. But there has been risk of complications like haematuria, bacteremia, infection, false passage, periurethral abscess and fistula.²⁻⁴ Sachse performed his first internal optical urethrotomy in 1974.⁵ Prior to this surgical urethroplasty was the only method available to restore urethral continuity. Stricture excision and end to end anastomosis was regarded as the gold standard for posterior urethral strictures.⁶

Despite complications of internal optical urethrotomy like recurrent stricture formation haemorrhage, sepsis and rectal injury, an interest in minimally invasive surgery has prompted some of the investigator to attempt an endoscopic approach to this problem. The Procedure has several advantages. Minimal anaesthesia is required. It is easily repeated if the stricture recurs. This procedure is safe with a few complications.⁷

The present study was conducted to evaluate the efficacy, safety and outcome of the internal optical urethrotomy in strictures following pelvic fracture.

MATERIAL AND METHODS

This prospective study was conducted at the Department of Urology, Postgraduate Medical Institute, Government Lady Reading Hospital, Peshawar, Pakistan, from January 2007 to July 2008. Forty-five patients having

traumatic posterior urethral stricture were included in this study.

Patients who also had history of neurological deficit, diabetes mellitus, congenital or iatrogenic strictures, infective or malignant strictures and those with strictures more than 2 Cm long, were excluded from this study.

All patients were subjected to detailed preoperative clinical assessment and investigations like TLC, DLC, ESR, haemoglobin, urinalysis, blood grouping, viral screening, imaging studies, i.e., antegrade cystourethrogram and retrograde urethrogram.

The procedure was performed under general or spinal anaesthesia. Patients were placed in Lloyd Davis position and were properly draped. A 21-Fr. urethrotome with 0 degree Telescope was passed into the urethra up to the level of blind stricture, stricture was incised at 12 'O clock in a gradual manner with the help of cold knife till urethrotome reached into the urinary bladder. Thus making continuity between the anterior and posterior urethra. Urethrotome was removed and sheath retained and a guide wire passed into the urinary bladder through the sheath and a 16 Fr two way Foley's catheter slipped over the guide wire. Suprapubic catheter was also replaced and clamped after the procedure. Urethral catheter was removed after 2 weeks and retrograde urethrogram was performed. If urethrogram showed no stricture then suprapubic catheter was also removed on 3rd week. All patients were advised to visit the department at 1 month and 3 months interval for follow-up. The criteria used to assess the success of the procedure was subjective feeling of the patient regarding his urinary stream and

appearance of urethra on retrograde urethrogram. Outcome was categorised as:

Good, if

1. Patient voids as before the injury.
2. Retrograde urethrogram showing patent urethra with no evidence of narrowing at the level of stricture.

Fair, if

1. Patient voids with some difficulty, stream is thin and intermittent.
2. Retrograde urethrogram shows patent but irregular and decrease in diameter at the level of the stricture and required self-intermittent dilatation.

Poor, if

1. Patient is unable to pass urine in a proper stream.
2. Retrograde urethrogram shows definitive narrowing at the stricture site.

RESULTS

Forty-five patients with traumatic blind posterior urethral stricture were included. Thirty-five patients were available for follow-up period of 3 months and 8 patients were lost to follow-up. Thirty patients (85.71%) belonged to urban area while 5 patients (14.28%) were from rural area. Ages of the patients ranged 14–60 years.

The combined good and fair results of optical urethrotomy were 68.56% and poor results were found in 31.42% (Table-1).

Table-1: Out come of urethrotomy

Results	No. of patients	Percentage
Good	18	51.42 %
Fair	6	17.14 %
Poor	11	31.42 %

One patient had bleeding who received blood transfusion while another one had extravasation and urinary tract infection. Eight patients (22.86%) had erectile dysfunction after pelvic fracture. All patients were continent and potent before the injury except one patient who developed incontinence after the procedure.

DISCUSSION

The simplicity and easy performance of internal optical urethrotomy leads to worldwide popularity of this procedure for treatment of urethral stricture.⁸ Up to mid 20th century urethral dilatation and blind internal urethrotomy remained the treatment of choice for the posterior urethral stricture and impassable stricture. Suprapubic cystostomy was the only alternative.⁹

Modalities of treatment like urethral dilatation and rail-road technique are more or less obsolete today because of poor efficacy and inherent complications.

In 1953, Jhonson introduced his two stage urethroplasty which was later used by Turner Warrick¹⁰ and Blandy *et al.*¹¹ Urethroplasty was the only method available to restore continuity before endourological

repair by Sachse.⁵ Complications of internal optical urethrotomy are less and success rate is 56–85%.^{12,13}

In our series of 45 patients with traumatic blind posterior urethral stricture, 35 patients reported for follow-up. The peak incidence of traumatic blind posterior urethral stricture was between 20–39 years of age. While in other studies the higher incidence reported in third and fourth decades of life.¹⁴

Our patients with urethral injury presented to us from one month and to one year. Same time period was also reported by Kaleem *et al.*¹⁵ The success rate in our study is 68.56% while Aziz *et al* reported success rate from 56 to 85% which is quite comparable.¹⁶

The postoperative incontinence was seen in 2.857% patients which is similar to other studies.^{3,13,17} Recurrence of urethral stricture occurred in 22.86% patients who required repeated urethrotomy. This is comparable to another study where recurrence was 25–50%.¹⁸

The operative time of optical urethrotomy in our study was 25.5±12.5 minutes which is quite comparable to Hammad *et al.*,¹⁹ and Mark *et al.*²⁰

In our series all patients were continent and sexually potent before injury. After injury 8 (22.86%) patients developed erectile dysfunction. Many urologists suggest that incontinence and erectile dysfunction were purely traumatic rather than surgical.^{21,22} Erectile dysfunction has been reported to occur in 20–60% of patients after traumatic posterior urethral rupture.^{23,24}

The most important factor associated with impotence is severity of the initial injury. Spontaneous return of potency may occur up to 2 years after injury.²⁵ Internal optical urethrotomy carries good results, minimal trauma and is suitable for high risk patient.⁴

CONCLUSION

Intra-optical urethrotomy is effective, simple, safe, repeatable and minimally invasive procedure for patients with strictures after pelvic trauma.

REFERENCES

1. Albert P, Fichtner J, Bruhl P, Muller SC. Long term results of internal urethrotomy. *J Urol* 1996;156:611–4.
2. Bhargava, Campbell's Text Book of Urology, 9th edition Philadelphia: Saunders; 2004.p.1054.
3. Goel Mc, Mumar M, Kapoor R, Endoscopic Management of Traumatic posterior urethral stricture and follow up. *J Urol* 1997;157:95–7.
4. al-Ali M, al-Shukry MA, Endoscopic repair in 154 cases of urethral occlusion: The promise of guided optical reconstruction. *J Urol* 1997;157:129–31.
5. Sachse H. Treatment of urethral stricture: Transurethral slit in view using sharp section. *Fortschr Med* 1974;92:12–5.
6. Angermeier KW. Urethral Injury. In: Renick MI, Novick AC editors. *Urology secrets*, 1st ed. New Delhi: Jaypee Brothers; 1995. p. 229–31.
7. Tanago EA, McAninch JW (Editors). *Smith's General Urology*, 17th edition. USA: Mac Grow Hill; 2009. p. 634.
8. Ali MN. Experience with cold knife optical internal urethrotomy. *J Coll Physicians Surg Pak* 2001;11:693–5.

9. Bandhaner K, Pffenninger R, one stage urethral repair with end to end anastomosis. *Urology* 1992;31:262-6.
10. Turner-Warwick R. The use of the omental pedicle graft in urinary tract reconstruction. *Trans Am Assoc Genitourin Surg* 1975;67:126-32.
11. Blandy J. Operation on the male urethra. In: *Operative urology*, 2nd ed. Oxford: Blackwell Scientific Publication;1991. p.241-66.
12. Osterlink W. End to end anastomosis of urethra. *Ann Urol Paris* 1993;27:243-4.
13. Smith PJ, Roberts JB, Kaisary AV. Long term results of optical urethrotomy. *Br J Urol* 1983;55:698-700.
14. Husmann DA, Wilson WT, Allen TD, Boon TB, Prostatomembranous Urethral Disruption. Management by suprapubic cystostomy and delayed urethroplasty. *J Urol* 1990;144:76-8.
15. Kaleem M. Optical urethrotomy in the treatment of completely obliterated stricture urethra: *Pak Med J* 1997;20:28-33.
16. Aziz A, Tasson W, Ismail A, Wishahi M, Bilharz T. Endoscopic reconstruction of traumatic posterior urethral obliterated: Late versus early reconstruction. *Br J Urol* 1997;80:313-5.
17. Munks DG, Alli MO, Goad EH. Optical urethrotomy under local anaesthesia is a feasible option in urethral stricture disease. *Trop Doct* 2010;40:31-2.
18. Qureshi KH, Ahmed R, Ahmed Q. Role of clean intermittent self-catheterization (CISC) after internal optical urethrotomy in preventing recurrence of urethral stricture. *Pak J Med Res* 2001;40:114-6.
19. Ather MH, Zehri AA, Soomro K, Nazir I. The Safety and Efficacy of Optical Urethrotomy Using a Spongiosum Block With Sedation: A Comparative Nonrandomized Study; *J Urol* 2009;181:2134-8.
20. Mark SD, Kenone TE, Vandmark RM, Vesbter GD. Impotence following pelvic fracture urethral injury incidence, etiology and management. *Br J Urol* 1995;75:62-4.
21. Podesta ML. Use of the perineal and peri-abdominal (Transpubic) approach for delayed management of pelvic fracture, urethral obliterated stricture in children long term outcome. *J Urol* 1998;160:160-4.
22. Martinez-Pineiro JA, Carcamo P, Garcia Matres MJ, Martinez P, et al. Traumatic repair for urethral stricture disease experience with 150 cases. *Eur Urol* 1997;32:433-41.
23. Corriere JN. 1-stage delayed bulboprostatic anastomotic repair of posterior urethral Rupture, 60 patients with 1-year follow up. *J Urol* 2001;165:404-7.
24. Koraitim MM, Reda SI. Role of magnetic resonance imaging in assessment of posterior urethral distraction defects. *Urology* 2007;70:403-6.
25. Gibson GR. Impotence following fractured pelvis and ruptured urethra. *Br J Urol* 1970;42:86-8.

Address for Correspondence:

Dr. Mohammad Islam, Department of Urology PGMI, LRH, Peshawar, Pakistan. **Cell:** +92-333-9127423

Email: drislammercy@yahoo.com