

Iatrogenic Urethral Injury, Case Report

Ehab Ahmed

Abstract: *Traumatic urethral injury is challenging complication. This report presents a very challenging case after traumatic bulbar urethral injury with failed urethroplasty and development of false passage and urethrovesical fistula tract. Repair of the urethral injury and realignment of urethral lumen done successfully.*

Keywords: urethral injury

1. Introduction

The male urethra is divided into the anterior and posterior sections by the urogenital diaphragm. The posterior urethra consists of the prostatic and the membranous urethra. The anterior urethra consists of the bulbar and penile urethra. Any type of trauma may affect any part of the urethra but much the commonest is iatrogenic trauma due to catheterization, instrumentation or surgery of the urethra. Urethral trauma accounts for $\approx 4\%$ of this or $\approx 1:1125$ 000 population (Kashefi et al. 2008).

2. Case Report

2.1 Presentation

A 35 years old male patient presented with history, two years ago, of traumatic urethral injury after machine fell down on him during work in factory. Patient diagnosed with total transection of bulbar urethra. Operated with open urethroplasty and end to end anastomosis two years ago. Two months later, Foley catheter removed and patient complained of total urinary incontinence. Reinsertion of catheter done. Three months later, catheter removed and patient still complaining of urinary incontinence. Due to incontinence, catheter inserted and kept in place. Patient visited our Urology clinic for further management.

Physical examination revealed Foley catheter in place with normal penile structure.

Pericatheter ascending urethrogram showed contrast passage to the bladder with no evidence of membranous urethra. MRI done and showed false passage of the urethra and appearance of native urethra inferior to the false passage entering the bladder just above the prostate.

2.2 Initial management

Patient informed about the presence of false passage in the urethra and diagnosed as iatrogenic urethrovesical fistula. Patient planned for open urethroplasty with abdominoperineal approach and closure of false passage with realignment of urethral lumen. Informed consent was signed.

2.3 Procedure

Patient received preoperative antibiotic in form of IV Cephalosporin. General anesthesia and epidural anesthesia given. Patient positioned in lithotomy position and

preparation of the lower abdomen done together with perineal area. Urethrocystoscopy done and shoed the false passage entering the bladder Perineal incision and dissection of the urethra done. Lower midline incision done. Transvesical approach done. Flexible cystoscopy through open bladder done to identify the native urethral lumen through the prostatic urethra. Used Metal sound through the native urethra to identify the native part through the perineal incision. Separation of the false passage and reanastomosis of the urethral lumen done using 4.0 vicryl sutures. Intravesical closure of the false passage opening done in the bladder. Insertion of Foley catheter and suprapubic catheter done. Closure of the perineal incision in layers. Closure of the bladder in two layers. Abdominal closure in layers done.

2.4. Postoperative follow up

Patient continued on antibiotics. Wound dressing done. Patient discharged with both Foley catheter and suprapubic catheter on 5th day postoperative. Patient discharge home on oral antibiotic and pain management.

2.5. Two months follow up

Patient presented to our Urology clinic for Foley catheter removal. Catheter removed successfully and suprapubic catheter clamped for voiding trial. Patient voided successfully with full continent control. Instruction for bladder training given. 1 week later, patient presented and suprapubic catheter removed successfully. Full urinary continence recorded with mild urgency which treated with anticholinergic medication. Patient complain was only erectile dysfunction and started on trial of PDE5 inhibitors.

3. Discussion

Trauma to the posterior urethra, prostatic and membranous urethra, occurs in 10 percent in patients with pelvic fractures (Koraitim 1999). 90 percent of cases are due to blunt trauma from motor vehicle accidents or occupational injuries (Glass et al. 1978; Koraitim 1999). However, penetrating trauma can result in these injuries as well (Cinman et al. 2013; Glass et al. 1978). The length of the urethral defect correlate with the magnitude of the injury, ranging from minor to complete transection of the urethra. The prostatic apex injured and tears away with more severe injury, resulting in complete transection of the urethra together with the formation of scar tissue in the injured area (Koraitim 1985).

A urethral injury should be suspected in any patients with penetrating or blunt trauma to the genital area or lower abdomen, or a significant pelvic fracture, accompanied by

one or more of the clinical symptoms or signs as blood in the meatus, apparent injury to the genitalia, inability to void, and perineal hematoma. The 2016 American Urological Association Urotrauma guidelines stated that a retrograde urethrogram should be performed in the emergency department in patients with either pelvic trauma or blood at the meatus (Morey et al. 2014).

Grade of injury—The American Association for the Surgery of Trauma scale for urethral injury is (AAST)[7]:

Grade 1 injuries are contusions to the urethra only. Although there may be blood at the meatus, the RUG is normal.

Grade 2 injuries are stretch injuries without any disruption of the urethra. On RUG, there is elongation but no extravasation of contrast, and contrast fills the bladder.

Grade 3 injuries are partial disruption injuries of the urethra. On RUG, there is contrast extravasation at the injury site, but there is still some contrast entering into the bladder.

Grade 4 injuries are complete disruption of the urethra. On RUG, there is extravasation of contrast at the injury site without any contrast entering the bladder.

Grade 5 injuries are also complete transections of the urethra, but with more than 2 cm distraction defect or an extension into the prostate or vagina (Moore et al. 1995).

Management of posterior urethral injuries from high-velocity trauma should consist of suprapubic drainage, and a Foley catheter if possible. An immediate repair is not indicated, since it may cause a significant amount of bleeding, incontinence, and possible erectile dysfunction. Management of a posterior urethral injury resulting from blunt trauma depends on the presence of significant pelvic injury. Immediate repair of a posterior urethral injury with evacuation of the pelvic hematoma is indicated in cases where there are concomitant bladder neck injuries, rectal injuries, or other indications for an open laparotomy. However, the definitive repair of a urethral injury, in majority of cases, should be delayed until the patient is stable to undergo an elective procedure. The 2016 American Urological Association guidelines for urethral stricture disease state that definitive urethral reconstruction for pelvic fracture urethral injury should be planned only after major injuries stabilize (Wessells et al. 2017).

In our case report, immediate repair with open urethroplasty done. Patient history and complain together with

radiological workup reveals iatrogenic urethrovesical fistula caused by incorrect urethral repair. This leads to urinary incontinence and inability to void. Reanastomosis of the urethra together with closure of urethrovesical fistula done as described above.

4. Conclusion

Posterior urethral injuries caused by blunt trauma may require immediate suture repair when there are concomitant bladder neck injuries, rectal injuries, or other indications for an open laparotomy. The immediate open repair should not be performed in any other patients due to high rates of impotence, incontinence, and stricture recurrence.

References

- [1] Cinman NM, McAninch JW, Porten SP, Myers JB, Blaschko SD, Bagga HS, Breyer BN. 2013. Gunshot wounds to the lower urinary tract: A single-institution experience. *The journal of trauma and acute care surgery*. 74(3):725-730; discussion 730-721.
- [2] Glass RE, Flynn JT, King JB, Blandy JP. 1978. Urethral injury and fractured pelvis. *Br J Urol*. 50(7):578-582.
- [3] Kashefi C, Messer K, Barden R, Sexton C, Parsons JK. 2008. Incidence and prevention of iatrogenic urethral injuries. *J Urol*. 179(6):2254-2257; discussion 2257-2258.
- [4] Koraitim M. 1985. Experience with 170 cases of posterior urethral strictures during 7 years. *J Urol*. 133(3):408-410.
- [5] Koraitim MM. 1999. Pelvic fracture urethral injuries: The unresolved controversy. *J Urol*. 161(5):1433-1441.
- [6] Moore EE, Cogbill TH, Malangoni MA, Jurkovich GJ, Shackford SR, Champion HR, McAninch JW. 1995. Organ injury scaling. *Surg Clin North Am*. 75(2):293-303.
- [7] Morey AF, Brandes S, Dugi DD, 3rd, Armstrong JH, Breyer BN, Broghammer JA, Erickson BA, Holzbeierlein J, Hudak SJ, Pruitt JH et al. 2014. Urotrauma: AUA guideline. *J Urol*. 192(2):327-335.
- [8] Wessells H, Angermeier KW, Elliott S, Gonzalez CM, Kodama R, Peterson AC, Reston J, Rourke K, Stoffel JT, Vanni AJ et al. 2017. Male urethral stricture: American urological association guideline. *J Urol*. 197(1):182-190.

