

Case Report

Bulbar Urethral Diverticulum after Blunt Perineal Trauma: A Case Report

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ABSTRACT

Partial injury of the urethra might lead to diverticulum formation and present in a delayed fashion with obstructive voiding symptoms. Herein, we present the case of an 18 year male who presented with urethral diverticulum. He was examined properly, evaluated thoroughly and managed by modified excision of the diverticulum and spongioplasty. In this report we discuss the possible mechanism of diverticulum formation, its treatment (with our modification) and the outcome. We also discuss the world literature related to this topic in brief.

Key Words: Urethra, Injuries, Diverticulum

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INTRODUCTION

Straddle injury to the perineum can cause partial or complete injury of the urethra. The urethral injury is characterized by the presence of blood at the meatus or urine mixed with blood¹. The mechanism of bulbar urethral injury in this situation is that the urethra is crushed between the pubic rami, puboprostatic ligaments and the blunt object². Injury may vary from minute laceration on the ventral surface of the urethra to major laceration or complete tear. Rarely, partial injury of the urethra might lead to diverticulum formation and present in a delayed fashion with obstructive voiding symptoms.

Herein, we present such a case scenario in a young adult male. We also discuss the possible mechanism of diverticulum formation, its management and outcome.

CASE REPORT

A male aged 18 years, presented in the Outpatient Department (OPD) with obstructive voiding symptoms for last 6 months. He had suffered straddle injury to the perineum 2 years back. At that time he had mild hematuria for one day and was treated conservatively elsewhere.

His general physical examination and examination of the external genitalia were unremarkable. Uroflowmetry showed maximum urinary flow rate (Qmax) of 8 mL/s with post-void residue of 100 mL. Urinalysis was within normal limits. Retrograde urethrogram (RGU) depicted a vague rounded shadow overlapping the area of bulbar urethra (Fig. 1). On urethroscopy, an opening on the floor of the bulbar urethra was visualized which led to a cavity which distended by flow of irrigation fluid (Fig. 2). Cystoscopy findings of the urinary bladder appeared normal.

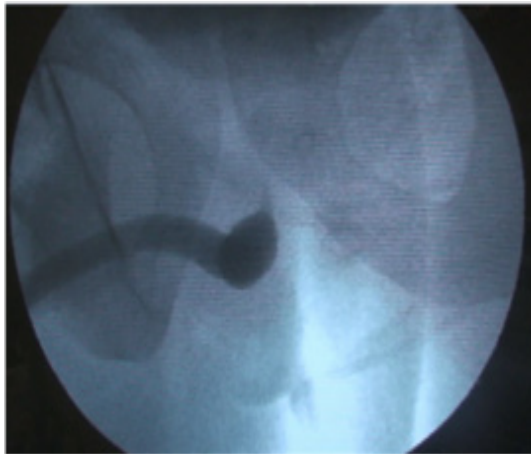


Fig. 1: A vague rounded shadow overlapping the area of bulbar urethra visualized on RGU.

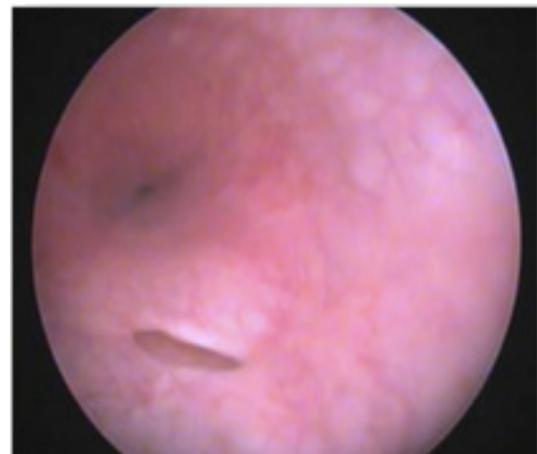


Fig. 2: An opening visualized on the floor of the bulbar urethra during urethroscopy

On the basis of history, examination and investigations, provisional diagnosis of urethral diverticulum was made. The patient was managed by excision of diverticulum, repair of urethral opening and spongioplasty. The bulbar urethra was dissected and isolated through the perineal route, the diverticulum was identified and dissected carefully. Urethra and the diverticulum were distended with xylocaine jelly (2%). Incision was given at the dome of the diverticulum and the urethral lumen was visualized (Fig. 3). Flimsy wall of the diverticulum was excised as much as possible (without causing any injury to the urethra) and the remaining margins were freshened (Fig. 4). The gaping portion of the urethra was repaired in single layer (interrupted fashion) with vicryl 4-0 sutures over a 14 French silicone catheter. Linings of the diverticular cavity were excised as much as possible and remains of the wall were approximated in midline using 3-0 polyglactin (second layer). Towards the end; spongioplasty was performed as buttress before closing the wound in layers.

The patient was discharged after one week with Foley catheter in situ and asked to visit the OPD after three weeks. Pericatheter RGU was performed after three weeks which did not show any contrast extravasation,

then the catheter was removed. The patient voided with good stream (Qmax of 18 mL/s), without any post-void residue. The patient is doing well at 6 months of follow-up.

Histopathological analysis of the remains of diverticulum was reported as fibrous tissue.

DISCUSSION

Dynamic RGU is the investigation of choice for the diagnosis of the urethral injury^{2, 3}. If partial tear is present then a silicon Foley catheter under endoscopic guide can be inserted and left for 2-3 weeks. Even if the partial tear is managed conservatively or by early endoscopic treatment; it may still lead to stricture formation^{2, 3}. Rarely, partial injury of the urethra may lead to hematoma formation in the penoscrotal region which can communicate with the urethral lumen. This potential space may be filled with urine during voiding and can put pressure on the urethra from below, leading to obstructive voiding symptoms. This is the theory behind urethral diverticulum formation following blunt/straddle injury and its potential to cause obstructive voiding symptoms^{4, 5}.

The diagnosis of urethral diverticulum can be made by RGU and confirmed on urethroscopy.

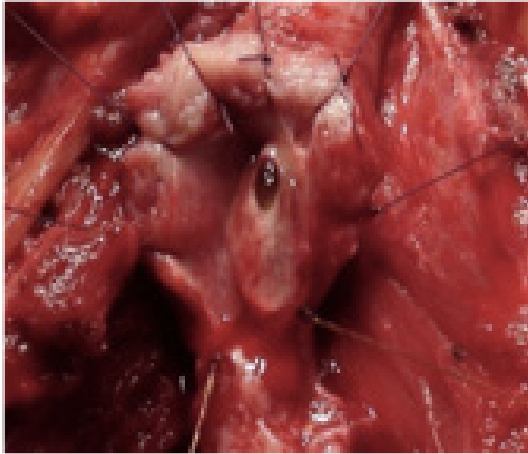


Fig. 3: Urethra and the diverticulum distended with xylocaine jelly (2%).

An opening in the urethra leading to a cavity is seen (as described above) along with ballooning/swelling in the penoscrotal region caused by irrigation fluid during endoscopy. On compression of scrotal swelling, dribbling of urine may occur. The diverticulum might cause obstructive voiding symptoms, recurrent urinary tract infection and/or stone formation. The treatment of such a diverticulum is the same as described in our patient^{4,5}.

We have modified our technique of urethral reconstruction by excising the linings of the diverticulum and preserving the diverticular wall to buttress the urethra in midline (Fig. 4). Spongioplasty is an important step of this operation to prevent the recurrence of the diverticulum.

In some instances, the diverticulum might be associated with stricture of the urethra for which end to end urethroplasty or substitution urethroplasty along with excision of diverticulum is recommended⁵. As per literature and in our patient, surgical management gave good results.

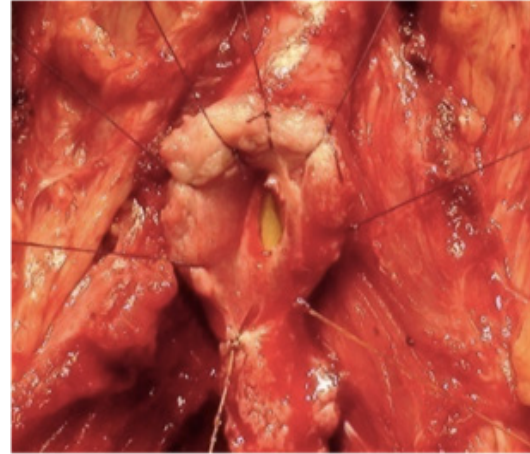


Fig. 4: Final appearance of the remains of the diverticulum before closure.

CONCLUSION

Bulbar urethral diverticulum formation following straddle injury is a delayed and rare complication. Surgical excision and urethral reconstruction with spongioplasty give good results.

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