Trauma and reconstruction

Massive urethrorrhagia due to a blunt perineum injury; a report of a case with bulbar pseudoaneurysm

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ABSTRACT

Blunt perineum trauma rarely leads to massive urethrorrhagia due to the formation of a bulbar aneurysm. A 29-year-old man with unstable hemodynamic underwent a digital subtraction angiography (DSA), which revealed a pseudoaneurysm in the penile bulb supplied from both internal pudendal arteries fistulized to the urethral duct bulb. A catheter was inserted into the distal part of pudendal arteries at the pseudoaneurysm’s proximity, and an intermittent embolizing agent (Gel-foam) was injected. The pseudoaneurysm was filled with Gel-foam. Despite the superiority of conservative management, urethrorrhagia’s life-threatening nature calls for angiographic intervention, successfully embolized using gel-foam with negligible complications.

Introduction

Urethral bleeding due to bulbar pseudoaneurysm mostly occurs iatrogenically during the bladder’s catheterization; however, traumatic events to the perineum may be another infrequent underlying leading cause for it.1 The primary goal in the management of urethral injuries is to preserve the continuity of the urethra and minimize related genito-urinary morbidities, including impotence and incontinence.2 Minimally invasive endovascular management provides a significant relief with the least surgery-related possible morbidities.

In the current report, a 29-year-old man with urethrorrhagia due to blunt trauma and secondary hemodynamic instability is introduced, successfully managed by a digital subtraction angiography and embolization of distal parts of both pudendal arteries.

Case presentation

A 29-year-old imprisoned man was referred to the emergency department with the complaint of active urethrorrhagia since the previous day. He presented that hemorrhage initiation due to a trauma to the perineum following jumping from a second-floor bed and falling on the first-floor bed’s edge.

A urinary catheter was embedded for him, and the hemorrhage was successfully controlled; however, due to catheter removal within 10 h, urethrorrhagia restarted.

Then, the perineum was packed, but by failure to control the bleeding, the patient was referred to the hospital when he was pale, fever-free (T: 37 °C), remarkably perspired, with dizziness, significantly decreased blood pressure (80/60 mmHg) and increased heart rate (130 per minute). The perineal and scrotum examination was normal without hematoma formation. Other examination investigations revealed no further pathological information. The patient was primarily urinary catheterized, and two peripheral intravenous lines were taken, and he was hydrated.

The preliminary laboratory test reports included white blood cell, red blood cell, hemoglobin, platelet, creatinine, and blood urea nitrogen levels measured as 9700 per ml, 2.95 million per ml, 6.7 mg/dl, 149,000 per ml, 1.2 mg/dl, and 22.

Therefore, two isogroup, isoRh pack cells were injected, and by stabilization of the patient, abdominopelvic ultrasonography and
radiographies of the hip were taken. The X-rays revealed no remarkable manifestations of any fracture in the hip, coccyx, and nearby bones. The ultrasonographic study showed normal size kidneys without hydro-nephrosis. The bladder was full of urine and contained the urinary catheter balloon. A heterogenic hyperechoic lesion next to the catheter balloon with distinct boundaries compatible with hematoma was noted, as well.

The perineal ultrasonography showed increased thickness, tunica albuginea was intact, and vas deferenses were normal. The Doppler assessments revealed normal arterial flow on both sides.

By the next 12 hours, the patient’s hemoglobin elevated up to 9.4 mg/dl, and his hemodynamic was stable. Nevertheless, due to the normal radiography and ultrasonography studies and continuation of urethrorrhagia, a digital subtraction angiography (DSA) was performed (Fig. 1).

The angiography revealed a pseudoaneurysm in the penile bulb that was blood supplied from both right and left (more dominant) internal pudendal arteries and was fistulized to the bulb of the urethral duct. In this term, by the injection of contrast to the pseudoaneurysm, blood, and the dye were exerted from the urethral meatus. Therefore, a catheter was inserted to the distal part of the left pudendal artery at the proximal part of the pseudoaneurysm, and an intermittent embolizing agent (Gelfoam) was injected. The pseudoaneurysm was filled with Gel foam, leaked to the urethra, and exerted from the urethral meatus. A similar pattern was performed for the right internal pudendal artery. Eventually, the blood supply to the pseudoaneurysm was cut, and the hemorrhage was successfully controlled.

Discussion

Urethral pseudoaneurysm is defined as an arterial injury leading to patent flow into a confined space outside the normal vessel limits. This condition occurs due to numerous events such as iatrogenic injury following urethral instrumentation, blunt trauma to the perineum, or pelvic and penetrating injuries.

The development of pseudoaneurysm from a pelvic artery following a blunt injury is a rare condition. Pseudoaneurysms of the pudendal artery is mostly presented as penile ecchymosis and perineal swelling. However, arteriocavernosal fistula may lead to painful priapism as well. Hematuria is another usual presentation of urethral injury, which can lead to intermittent refractory hematuria. Most of these cases do not require further angiographic interventions and are managed conservatively by manual compression or electrofugluration.

Life-threatening urethrorrhagia is the rarest presentation that occurs due to an internal pudendal artery–urethra fistula. These cases require further angiographic plans, as we performed DSA in the current case and embolized the distal parts of internal pudendal arteries using Gel foam. Fortunately, we observed no short-term complications. In further investigations, the patients had normal erectility as the most prominent adverse event related to internal pudendal artery embolization, and urethra stricture did not occur.

Few other cases with life-threatening urethrorrhagia that required angiographic interventions have been presented in the literature.

Nadarajah et al. introduced a middle-aged man with urethrorrhagia and urinary retention following a blunt perineal injury. Selective DSA of the bilateral internal pudendal artery was performed, and a pseudoaneurysm from the left bulbourethral artery with active contrast extravasations into the anterior urethra was discovered. The artery was accessed by microcatheter and coil embolized. However, urethral stricture led to an end-to-end anastomotic urethroplasty.

A 12-year-old patient was presented by José et al. referred with urethrorrhagia leading to hemodynamic instability due to a straddle injury. Although the primary CTA was suspicious for pseudoaneurysm, he was managed conservatively to prevent other erectile dysfunction as the bleeding was well-controlled. However, by the seventh day of admission, urethral bleeding was reactivated, and helical microcoil embolization was done through an angiography.

Lal and colleagues introduced a young man with intermittent painless hematuria who did not have any history of perineal trauma or urinary catheterization. In the DSA study, a bulbar artery pseudoaneurysm was noted that was successfully embolized using gel foam. Temporary arterial occlusion by gel foam, letting the arterial mucosa heal, is the gel foam’s superiority to coil embolization, which prevents future erectile dysfunction.

Conclusion

Urethrorrhagia following blunt injury is a rare manifestation of a bulbar pseudoaneurysm. Although conservative management is favored to prevent erectile dysfunction, the life-threatening nature of urethrorrhagia calls for angiographic interventions; however, the distal pudendal artery embolization using gel foam leads to negligible complications.

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Declaration of competing interest

No Conflict of interest.
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