

Case Report



Emergency urethroplasty for penile urethral injury in a case of blunt trauma of the penis: challenges and dilemmas during management

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Abstract

Penile urethral injury may be associated with cavernosal rupture due to distractive force during coitus. Non-coital penile injury due to direct blow to the penis causing penile urethral and cavernosal rupture is rare. Definite management of urethral injury in such cases can be deferred as extent of devitalised tissue can be deceptive in acute conditions.

Key words: Penile injury, Non-coital injury, Urethral injury, Urological trauma

Introduction

Injuries to the penile urethra from blunt external trauma are very rare. Urethral injuries associated with blunt trauma are primarily reported in the context of posterior urethral injuries¹. Anterior urethral injuries comprise only 10% of lower urinary tract injuries, with bulbar urethral injuries accounting for 85% of them². These are commonly due to straddle injuries arising from a fall from a height or a road traffic accident. Non-iatrogenic penile urethral injuries are associated with 15–37% of penile fractures². Microvascular injuries in direct penile urethral trauma can cause urethral loss over time, making their management challenging³. We report our experience in managing a patient with penile urethral injury due to blunt external trauma that resulted in extensive penile urethral loss and discuss the challenges faced in the management.

Case presentation

A 52-year-old male presented to the emergency services following a fall from a height of about 6 feet with direct impact to the penis. At the time of presentation there was blood at the urethral meatus with ‘eggplant deformity’ of the penis, typically seen in cases of cavernosal rupture associated with penile fractures⁴. There were no other associated injuries. Ultrasound of the penis showed a 4-cm subcutaneous haematoma but no defect in the tunica albuginea. Retrograde urethrography showed urethral disruption with extravasation of contrast into the corpora cavernosa (Figure 1). After diagnosis of penile urethral injury, the patient was taken for exploration of the injury. Operative findings were a 2-cm loss of penile urethra, a haematoma overlying it and a defect in the adjacent tunica albuginea on the ventral aspect of the corpora cavernosa (Figure 2). After evacuating the haematoma and repairing the tunica albuginea defect, primary end to end anastomosis of the urethra was performed. The urethra was mobilised proximally up to the bulbar urethra and an end to end anastomotic urethroplasty was done over a 16 French Foley catheter with interrupted 4-0 polyglactin sutures. A suprapubic catheter was inserted as urinary diversion. Postoperatively, the patient developed

a 3-cm black discoloration of the skin on the ventral aspect of the penis which slowly necrosed within 5 days (Figure 3). Subsequently, the surgical site was explored again and was found to have dehiscence of the urethral anastomosis with 3 cm of the proximal urethral end sloughed off. After debriding the sloughed urethral ends, the proximal and distal healthy urethral ends were exteriorised separately on the ventral aspect of the penis (Figure 4). The patient recovered and was voiding well from the neomeatus on follow up. Second stage surgery is planned to be performed soon.



Figure 1. Retrograde Urethrogram (RGU) suggestive of urethral injury and extravasation of the contrast in the cavernosal tissue



Figure 2. Suggests urethral injury along with defect of 2 cm and cavernosal injury



Figure 3. There is blackening of the distal penile skin at Post op day 2.



Figure 4. After debridement of the dead skin distal and proximal opening of the urethra was exteriorized

Discussion with literature review

The bulbar urethra is the most common site of injury to the anterior urethra following blunt injury. Rupture of the corpora cavernosa, commonly known as penile fracture when it occurs during erection, can occur when the engorged penile corpora are forced to buckle and rupture under the pressure during sexual activity. This may be accompanied by urethral injury. Injury to the corporal bodies of the penis by other forms of external trauma is rare due to its secluded location between the thighs and also as it is mobile when it is flaccid. For the same reason, injury to the penile urethra from blunt external trauma is rare⁵. Urethral trauma was reported in only 3% of penile trauma cases by Zargooshi⁶. Blood at the urethral meatus is the cardinal sign and retrograde urethrography is the standard investigation for the evaluation of urethral injury^{3,7}. The treatment of penile urethral injury depends on the type and the mode of injury. Urethral injury associated with penile fracture can be repaired immediately along with tunica albuginea repair⁸. Owing to its rarity there is a paucity of evidence-based guidelines on the treatment of blunt external trauma causing crush injuries to the corpora cavernosa and the spongy penile urethra.

Cavalcanti et al, studied 77 cases of penile injuries, among which 72 (93.5%) patients had sexual trauma⁹. Only one (1.3%) patient had direct trauma to the flaccid penis as in our case. There were a total of 11 patients with a urethral injury: 8 were partial and 3 were a total laceration. In case of partial injury urethral closure was carried out and in total injury end to end anastomosis was carried out primarily. They reported a good outcome of primary repair except mild chordee of the penis. However, most of the urethral injuries were due to sexual trauma and not crush injury to the penis as in our case.

In a consensus on genitourinary trauma, Morey et al, suggested that after debridement, complete transaction cases

can be repaired primarily after adequately mobilising it for tension-free repair¹⁰. Partial disruptions can be managed by either placing a urethral catheter alone, suprapubic cystostomy alone, or primary repair.

We opted for primary repair of urethra in our patient in view of the apparently healthy urethral margins at the time of exploration and our ability to bridge the gap without any tension with adequate proximal urethral mobilisation. Postoperatively the patient developed penile skin ischaemia and necrosis, which could possibly be due to local skin trauma aggravated by degloving through circum-coronal incision leading to compromised vascularity. A linear incision over the injury would have been sufficient to reduce the skin loss. We conclude from our case that with spongiosal contusion it is difficult to evaluate the extent of non-viable urethra immediately after injury⁷. The outcome in our case showed that the condition of the tissues in such scenarios can be deceptive. Exploration by minimal incision and damage control by exteriorising the ruptured urethra with a second look after 48 hours may be the better alternative.

Conclusion

In cases of blunt injury of the penis, the decision of emergency urethroplasty can be dubious due to deceptive local conditions. Extensive surgery can be deferred in the acute setting. Exploration with damage control surgery may be optimal in such cases. In resource-constrained environments, like in Malawi, initial debridement with exteriorization of the urethra can be safe and allow for definitive management with a specialist team in the future.

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