URETHRAL RUPTURE FOLLOWING FRACTURE PENIS: PROGNOSTICATION WITH MRI

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ABSTRACT

Fracture penis is a rare but serious urological condition. If it is associated with urethral rupture, it worsens the immediate and long-term prognosis and poses a problem in management. Magnetic resonance imaging (MRI) because of its multiplanar capability and excellent tissue contrast is a useful diagnostic tool in the evaluation of patients with acute penile fracture. MR imaging can accurately depict the presence, location, and extent of tunica albuginea tear, which manifests as discontinuity of the tunica albuginea and urethral injuries. Here we present a case of fracture penis associated with urethral injury.

KEYWORDS

Fracture Penis, Urethral Rupture, Magnetic Resonance Imaging.


INTRODUCTION

Penile fracture is defined as the traumatic rupture of the tunica albuginea of the corpus cavernosum.[¹] The injury is usually unilateral. Most fractures occur distal to the suspensory ligament. It can occur in any age group. It happens most commonly, during sexual intercourse in unnatural positions, or due to self-manipulation. Proper history is infrequently given by the patient due to the sensitiveness of situation. If the patient is treated early, chances of restoring erectile function is high. Penile fracture may be associated with urethral trauma in 1% to 38% of cases.[²] It worsens the immediate and long-term prognosis and poses a problem in management. Though history and clinical examination are the most important tools to diagnose penile fracture, investigations also help by localizing the site of tear, particularly in those with high degree of suspicion.

CASE

A 40 year old came to our emergency ward with history of penile trauma four days ago. He had presented at a local hospital elsewhere with acute urinary retention and was catheterized.

On examination, the penile shaft was swollen and deformed with blood on the Foley’s catheter (Figure 1A). Apart from routine investigations, MRI of the penis was done. Fast spin-echo T1- and T2- weighted axial, sagittal, and coronal images were obtained. In addition, axial Short STIR (Short tau inversion recovery) sequences were studied. It revealed disruption of tunica albuginea in the left ventrolateral aspect with urethral disruption (Figure 1B-1F).

He was thus taken up for surgery, where a circumferential subcoronal incision taken, penile degloving done and hematoma evacuated. This revealed the tear in tunica albuginea in the left ventral part of the proximal shaft with extension into the left corpus cavernosum.

DISCUSSION

The increased risk of penile rupture during tumescence is partially due to the fact that the tunica albuginea stretches and thins when the penis is erect. Studies show that in the flaccid state, it is up to 2.4 mm thick, while in the erect state, it can be as thin as 0.25-0.5 mm.[³] Most cases occur when the erect penis is struck against the symphysis or perineum after the penis has slipped out of the vagina during aggressive intercourse.[⁴]
Due to the microanatomy of the penile shaft, injury typically occurs along the ventral side of corporal bodies. Here thinning of Buck's fascial layer occurs as it splits with one lamella continuing to surround the corpora cavernosum and the second to invest the corpus spongiosum. In response to the increased pressure during the injurious insult, the pattern of injury reflects a blowout type of tear in the ventral corporal bodies. Associated urethral injuries have been reported in 1% to 38% of patients.[2]

Signs of urethral injury include blood at the meatus, inability to void or haematuria. One should be aware that urethral bleeding without a urethral injury has been reported after penile fracture.[3]

Penile ultrasonography, retrograde urethrography, cavernosography, and, recently, magnetic resonance imaging (MRI) have been reported to be helpful in establishing the diagnosis and localizing the site of the tear, particularly in suspicious cases.[6,7] However, ultrasonography depends on the observers' skill and can miss the site of the tunical tear if it is too small or it is full with a clot that renders it indistinguishable from the surrounding normal tunica albuginea.[3] False negative results have been reported with retrograde urethrography.[7] Cavernosography for the diagnosis of tunical rupture has been opposed for being an invasive procedure with risks of infection, priapism, and allergy to iodides.[5]

MRI provides better soft-tissue contrast, higher spatial resolution, allowing better definition of images of penis, and it can reveals lesions of the corpora cavernosa. The high precision of the method allows differentiating vascular sinusoids of the cavernous body from the tunica albuginea, achieving high diagnostic accuracy.[8] MR imaging also depicts associated injuries to adjacent structures (i.e., corpus spongiosum, urethra). The penis should ideally be scanned in the anatomical position (To prevent confusing kinking of penis) and without intracavernosal agents. The hallmark of a fracture is an interruption of the low-signal tunica albuginea, usually best seen on T2 weighted sequences. However, a T1 spin echo sequence may show the associated haematoma best, and in one small series was the only sequence that showed the fracture well; enhancement was not necessary.[9]

This will help to prognosticate the patient, based upon their extent of injury, about the likely outcome and the long term morbidity and deformity.

REFERENCES