CASE REPORT

Penile fracture: Penoscrotal approach with degloving of penis after Magnetic Resonance Imaging (MRI)

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Summary
Fracture of the penis, a relatively uncommon emergency in Urology, consists in the traumatic rupture of the tunica albuginea of the corpus cavernosum. Examination and clinical history can be highly suspicious of penile fracture in the majority of cases and ultrasonography (US) can be useful to identify the exact location of the tunical rupture, which is proximal in 2/3 of cases and therefore manageable through a penoscrotal approach. Although expensive and not readily available in the acute setting, Magnetic Resonance Imaging (MRI) may play a role in the differential diagnosis with rupture of a circumflex or dorsal vein of the penis or when the tunical rupture is not associated with tear of the overlying Buck’s fascia. This form of imaging is more sensitive than US at identifying the presence of a tunical tear. The treatment of choice is immediate surgical repair, which allows preserving erectile function and minimizing corporeal fibrosis.

KEY WORDS: Penile fracture; Magnetic Resonance Imaging (MRI); Ultrasonography; Fibrosis; Erectile dysfunction.

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INTRODUCTION
Fracture of the penis, which consists in the traumatic rupture of the tunica albuginea of the corpus cavernosum, is a relatively uncommon emergency in Urology and it may be associated with urethral trauma in 1% to 38% of cases. It usually occurs when the erected penis hits the female pelvis during enthusiastic sexual intercourse. As the thickness of tunica albuginea decreases from 2 mm in the flaccid state to 0.25 mm during the erect state, a sudden increase in intracorporal pressure due to blunt trauma during an erection could easily result in a rupture. All penile fractures occur on the shaft penis and in 2/3 of cases the tear is located at the level of the penoscrotal junction.

Although trauma during intercourse is the most common cause of penile fracture in the Western World, penile self-manipulation to stop erection is the most common etiology in The Middle East and the Persian Gulf (1-8). Accurate history taking and clinical examination represent the mainstay in the diagnosis of penile fracture. Typically the patient reports a “popping” sound followed by immediate detumescence. Generally the penis appears diffusely swollen, if Buck’s fascia is breached, a diffuse hematoma is visible on the penis (“eggplant deformity”) and may extend to the scrotum, groin and perineum (the “butterfly sign”). Early surgical exploration is paramount to guarantee the preservation of the erectile function, to minimize the formation of corporeal fibrosis and to identify and repair an associated urethral rupture. Although several reports suggest that diagnostic investigations, add little information to the clinical diagnosis, add extra costs to the treatment and potentially can delay surgery, penile ultrasonography (US) is promptly available, reasonably cheap and allows to identify the exact location of the tunical tear (9). Magnetic Resonance Imaging (MRI) is not frequently performed, as US can provide all the necessary information and may not be available in the out of hour settings. However, it guarantees superior image quality and allows better differentiating between penile fracture and other conditions such as rupture of the deep dorsal vein or circumflex veins, which produce a penile hematoma similar to the one present in case of tunical tear, but do not require surgical treatment. MRI is also an adjunctive tool in the evaluation of atypical presentation of a suspected penile fracture, as has the ability to identify disruption of the corpus cavernosum due to excellent tissue contrast and visualization of soft tissue pathological processes (10). Over the last 3 decades, management of penile fracture has progressively shifted from a conservative approach to early surgical repair, as non surgical management was associated with the formation of fibrosis of the corpora cavernosa and led invariably to a degree of curvature and erectile dysfunction (4). Surgical treatment aims at repairing the torn tissue of tunica albuginea. Although adequate expo-

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**Discussion**

Penile fracture occurs during erection, as the expansion of the corpora stretches the tunica albuginea and renders it thinner and more vulnerable to trauma. Although the diagnosis of penile fracture is often based on history and physical examination, imaging can be particularly useful when the clinical picture is not fully clear and when planning the type of surgical approach. Among the radiological investigations, US is the most widely used, as it is readily available and relatively inexpensive. However, although this form of imaging is highly specific in detecting a fracture, it is not very sensitive for detecting a cavernosal tear (6, 8, 9). On the contrary, MRI scan of the penis is highly sensitive at detecting the exact location of the tunical tear and allows the surgeon to choose the best surgical approach. Therefore, although more expensive and not always readily available in the acute setting, MRI should be considered the gold standard diagnostic investigation in case of suspected penile fracture. Although penile degloving is the most commonly used surgical approach, as it allows visualizing and inspecting adequately all the corpora cavernosa and urethra, it can be very morbid, due to the presence of diffuse bruising and edema of the Dartos fascia. As 2/3 of fractures occur all the way down on the proximal aspect of the shaft, a complete degloving becomes an unnecessary procedure, as a penoscrotal approach would guarantee adequate exposure in these patients (7, 8). Magnetic resonance imaging or US of the penis play therefore a pivotal role for the identification of the exact location of the tear and therefore allow the surgeon to adequately choose the most appropriate surgical approach. Surgery should be immediate, in order to preserve as much cavernosal tissue as possible and to minimize the formation of corporeal fibrosis, which would lead to ED, penile shortening and curvature (3-5). Although patient history and clinical examination are highly sensitive and accurate in predicting the presence of a penile fracture, diagnostic imaging such as MRI and US of the penis can be very useful to confirm the diagnosis and to identify the exact location of the tunical tear and to plan the type of surgical approach (9). When readily available, MRI should be the first choice modality of investigation due to its superior sensitivity in detecting tunical injuries (9).

**References**


**Case Report and Figures are posted in Supplementary materials on www.aiu.it.**

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