Intracavernosal abscess: An unusual finding during repair of neglected penile fracture

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ABSTRACT
Penile abscess with involvement of the corpus cavernosum is a relatively rare condition and is typically associated with cavernosography, intracavernosal injections, penile prosthesis, open trauma, priapism, and seeding from a distant infection. Less commonly, it can be seen following penile fracture, particularly in patients with identified risk factors of uncontrolled diabetes mellitus or other immunosuppression. We report a case of a healthy 24-year-old man with a penile abscess discovered during repair of a one-month-old, imaging confirmed, neglected penile fracture.

1. Introduction
Penile abscesses are a rare clinical condition and are classically seen following trauma or invasive medical procedures with resultant infection. 1,2 Abscess secondary to penile fracture is a far less documented occurrence. Penile fracture is a well described pathology in which the tunica albuginea of the corpus cavernosum ruptures. This classically causes pain, detumescence, hematoma, and a "popping" sound or sensation. 3 We report a case of a neglected penile fracture complicated by discovery of penile abscess within the cavernosum of a 24-year-old man. The patient was successfully treated by surgical irrigation and debridement with repair of the tunica albuginea.

2. Case report
A 24-year-old with sickle cell trait presented to the emergency department with a primary complaint of penile pain. The patient reported pain after intercourse one month prior with mild swelling of the penile shaft. He denied detumescence or a "popping" sound or sensation at the onset of pain. He denied dysuria, hematuria, scrotal tenderness or swelling, and fevers. His pain had been mild, and he remained sexually active until it acutely worsened on the morning of presentation. Physical exam revealed significant swelling of the distal penile shaft with tenderness to palpation. No open lesions were noted, and there was no urethral discharge.

Vital signs were stable; however, leukocyte count was elevated (19.2 × 10^9/mL). Urinalysis and culture showed no evidence of infection and Chlamydia/Neisseria screen was negative.

MRI demonstrated a distal shaft penile fracture involving the dorsolateral aspect of the right corpora cavernosum with irregular rent in the tunica albuginea measuring 1.3 cm. There was an associated extra tunica and intracavernosal hematoma dissecting into the subcutaneous dorsal soft tissues. The left corpora cavernosum was unremarkable (Fig. 1).

The patient was taken to the OR and a 16Fr foley catheter was placed following cystoscopic visualization of a normal urethra.

An incision made sharply through his prior circumcision line immediately released purulent drainage, and samples were sent for culture. The incision was extended circumferentially through the dartos fascia, and degloving revealed the tear in the tunica albuginea with abscess involvement of the corpora cavernosum. Following aggressive irrigation, hemostasis was achieved with electrocautery. We debrided to healthy tunica and then repaired the defect with 3-0 PDS. The incision was then loosely approximated with 3-0 chromic absorbable interrupted sutures circumferentially. The penis was wrapped in Coban and Kerlix wrap.

The patient was admitted to observation on ceftriaxone and gentamicin. His post-operative course was uneventful, and he was discharged five days postop with oral trimethoprim-sulfamethoxazole. Intraoperative cultures resulted with heavy growth of Clostridium, Prevotella, and Streptococcus species. Attempts were made to switch his antibiotic to Clindamycin following culture sensitivities, but patient could not be reached by phone.

At clinic follow up nine days after discharge, the patient

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demonstrated an appropriately healing incision with mild dehiscence and no curvature [Fig. 2]. There was no swelling or tenderness and he denied fevers. Patient reported no issue with erections and was encouraged to return to clinic if problems arose.

3. Discussion

Penile fracture refers to a traumatic rupture of the tunica albuginea of the corpus cavernosum. This injury typically occurs while the penis is erect, and is most often seen following intercourse or masturbation. The injury classically presents with a “popping” sound or sensation followed by pain and immediate detumescence. This can be followed by hematoma formation, recurvatum, and hematuria if the urethra is involved.3 Our patient was atypical in that he did not experience the characteristic popping sensation or immediate detumescence. In fact, he was able to remain sexually active between onset of the injury and clinical presentation. Immediate surgical exploration is the current standard of care for penile fracture. The procedure involves a degloving incision followed by evacuation of any hematoma with repair of the defect in the tunica albuginea using absorbable suture.4

Penile abscess is a rare clinical condition that is typically associated with open wounds, priapism, and invasive medical procedures (intracavernosal injections, cavernosography, prosthesis, etc.). Penile fracture is a far less common etiology of abscess due to the closed nature of the injury with lack of exposure to external pathogens.1,2 Abscess following a fracture is rarely described in the literature, and those patients often have secondary risk factors including: uncontrolled diabetes mellitus, immune compromise, active sexually transmitted infections, or current use of intracavernosal injections. Additionally, of the few cases described, most do not present with abscess extension into the cavernous tissue, but are instead superficial to the tunica albuginea.

Our patient is unique in that he developed a penile abscess secondary to neglected fracture without preexisting risk factors. He had no history of diabetes mellitus, sexually transmitted infection, intracavernosal drug use, open trauma, or immune deficiency. His only preexisting condition was sickle cell trait, which had never caused an episode of priapism. Additionally, he had a true fracture with infection that extended through the tunica albuginea into the cavernosum.

One other case in the literature resembles ours in each of these aspects; however, that patient presented with symptoms of bacteremia and systemic infection. Our patient had only an elevated leukocyte count with abscess discovered incidentally during the operation. In addition, the cases differed in surgical management. The other patient in question suffered from a 0.5cm diameter fracture of the right cavernosum, complicated by intracavernosal infection. The surgeons thoroughly irrigated the cavernosum and then closed the tunica with 2-0 running suture. They washed the abscess cavity and left a Penrose drain in place. In our case, the tunica albuginea was repaired with 3-0 interrupted sutures following a thorough washout and no drain was left. Both patients had an uncomplicated recovery indicating the effectiveness of the differing surgical techniques.5

4. Conclusion

Our case demonstrates that neglected penile fracture in a healthy man can be complicated by intracavernosal abscess even in the absence of open trauma, invasive medical procedures, or immunocompromise. Rapid identification, prompt surgical management, and postoperative antibiotics can prevent systemic infection and restore erectile function.

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