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Case Report

Bilateral penile crural fractures due to traumatic injuries: A rare case report and literature review

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ABSTRACT

Penile crural fractures caused by traumatic injuries are rare urological emergencies similar to urethral bulb injuries. This case report discusses the findings of a 59-year-old patient who presented to our emergency department 12 h after an electric bicycle accident. Clinical examination revealed an elevated body temperature, bruised perineal skin, tender penis, and swollen scrotum. Imaging confirmed a penile fracture at the bilateral crus of the penis without considerable urethral trauma. The patient underwent conservative treatment and was followed up on an outpatient basis for approximately three months. Consequently, the patient is relieved of penile pain, has regained erectile function, and reports a satisfactory sexual life. Moreover, this study discusses the efficacy of conservative treatment combined with outpatient follow-up in managing bilateral penile crural fractures.

Introduction

Traumatic injuries are the fifth most common cause of moderate-to-severe disabilities worldwide. Urethral and genital injuries are rarely isolated from major trauma cases and are typically observed in patients with multiple injuries [1]. Existing studies on penile crural fractures are limited. Injuries to the penile crus can often be overlooked because of its clinical similarities to urethral trauma. Therefore, imaging is necessary [2]. The optimal treatment for penile crural fractures remains controversial. Although surgical repair has been the preferred primary treatment in most reported cases, conservative therapy is also a viable option. In this report, we present the case of a patient with bilateral penile crural fractures who underwent conservative treatment. After approximately three months of outpatient follow-up, imaging revealed excellent bilateral continuity of the penile corpus cavernosum. The patient reported a favourable recovery with the restoration of erectile function and successful sexual activity.

Case report

A 59-year-old man presented to our emergency department with tender scrotal swelling for the past 12 h. Pain and swelling in the penis, scrotal tenderness, and slightly bloody urine during urination were observed immediately after the electric bicycle accident. Upon physical inspection, we observed an elevated body temperature, an ecchymotic and swollen scrotum, an increase in skin

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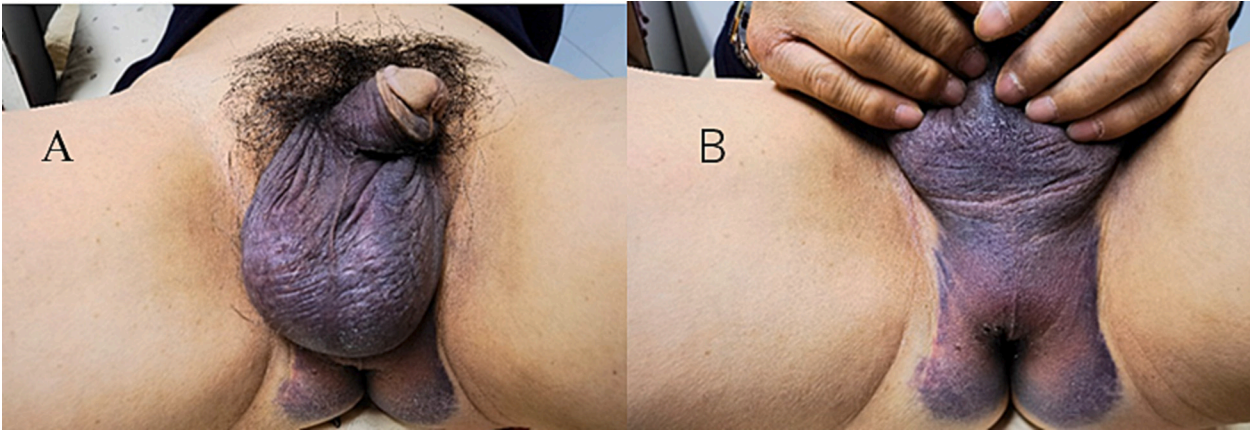


Fig. 1. The distribution of ecchymosis in the patient. Ecchymotic and swollen scrotum penis and scrotum. The bruises on the perineum spread to the buttocks (A, B).

temperature, bruising and tenderness in the penis, and bruising extending from the perineum to the gluteus (Fig. 1A and B). Computed tomography of the penis and pelvis revealed bilateral penile crural fractures without substantial urethral trauma (Fig. 2). Based on these findings, conservative treatment was preferred. Subsequently, antibiotics and analgesics were administered as a precautionary measure for elevated body temperature and local skin temperature. A computed tomography scan of the penis/pelvis revealed satisfactory bilateral continuity of the corpus cavernosum after approximately two months (Fig. 3). During the follow-up, the patient reported gradual improvement in erectile function, enabling satisfactory sexual activity.

Discussion

Genitourinary tract injuries account for 10 % of all abdominal traumas. The most common injuries involving the external genitalia are penile fractures, testicular ruptures, and penetrating penile injuries. Penile crural fractures are a rare type of genital trauma with an unknown mechanism of injury. They may be caused by blunt or penetrating forces that interrupt the continuity of the penile crus or white membrane [3]. Trauma to the penile crus is uncommon than penile body injuries because of its deeper location and coverage of the sciatic cavernous muscles. Both cruses are dorsally adjacent to the urethral bulb, and ventrally accompanied by the dorsal superficial penile vein, dorsal penile artery and nerves. Therefore, a bilateral injury to the penile crus may result in injury to these structures.

Swelling and bruising are the most common symptoms of penile crural fractures; other symptoms include pain in the penis [4]. Injuries to the crus of the penis can be easily overlooked because it is adjacent to the bulb of the urethra, and both injuries may appear similar. Therefore, imaging is necessary for an accurate diagnosis. Ultrasound or computed tomography is preferred owing to its wide availability, low cost, and short examination time. In cases where the above tests do not provide a clear diagnosis or are unavailable, magnetic resonance imaging (MRI) can be considered, despite its high cost and long examination time [5]. Additionally, retrograde urography can be used in combination with urethral trauma to assess the extent of urethral damage [6]. Notably, this case was exceptional because the patient was diagnosed with bilateral crural fractures on computed tomography without any apparent urethral trauma.

Currently, clear guidelines for the preferred management of penile crural fractures are lacking. According to the American Urological Association (AUA) Urotrauma Guidelines 2020, patients with genital trauma associated with haemodynamic instability, significant urethral trauma, or suspected testicular rupture should undergo prompt surgical exploration and repair to prevent erectile dysfunction and penile curvature [7]. Conservative treatment is recommended for haemodynamically stable patients with mild genital trauma. Conservative treatment typically involves continuous cold compression to reduce swelling, antibiotics to control infection, and nonsteroidal analgesics [8]. In this particular case, the patient had normal blood pressure and imaging did not reveal urethral trauma. Consequently, conservative treatment was preferred, which led to a successful recovery, including the restoration of erectile function over time.



Fig. 2. Disruption of continuity at the crus of the right penis (single arrow); disruption of continuity at the crus of the left penis with swelling (double arrows).

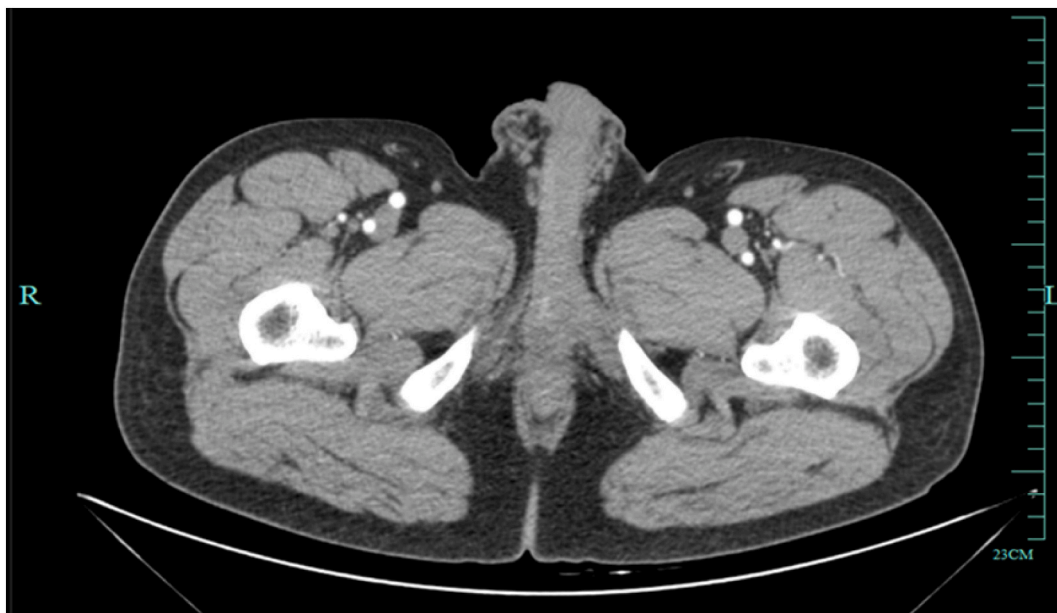


Fig. 3. Good continuity of the penile corpus cavernosum on both sides.

Conclusion

We described a rare case of bilateral penile crural fractures due to traumatic injuries. Computed tomography is beneficial to identify overlooked injuries. Individual penile crus injuries can be effectively treated without surgical intervention which is difficult on the crus. Conservative management can be successful, including complete regain of erectile function.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could appear to influence the work reported in this paper.

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