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Case Report

Bilateral Testicular Evisceration Sequel to Trauma: Challenges of Management in Emergency Department

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Abstract

Introduction

The Genitourinary (GU) tract injury is rare with an annual incidence of less than one percent. We present a rare case of traumatic degloving injury of male external genitalia with complete evisceration of bilateral testicles following motor vehicle accident.

Case description

29-year-old lorry driver was brought to Emergency department following head-on crash of his lorry into a ravine resulting in chest, abdomen and pelvis slamming onto dashboard. The driver was trapped for 4.5 hours. On arrival, he was conscious but hemodynamically unstable. Clinical examination and Focused Assessment with Sonography in Trauma (FAST) was suggestive of left pneumothorax and no evidence of intraabdominal injury. Chest tube was inserted. Genital examination showed scrotal degloving wound with complete evisceration of bilateral testis. He also sustained open fracture of right tibia, fibula and left inferior pubic rami fracture. Upon stabilization, was sent for operation and intraoperatively found to have bilateral testicular rupture. He underwent scrotal exploration, and bilateral orchidopexy. Postoperatively, multiple dialysis sessions were done for rhabdomyolysis. Hormonal study yielded low levels of testosterone. He was discharged home after 2 weeks with testosterone pills.

Discussion

Challenges in Emergency Department setting would be prompt identification and management of life-threatening injuries along simultaneous management of degloving external genitalia injury and associated injuries. FAST and extended FAST play a key role in managing life threatening conditions.

Conclusion

Total evisceration of bilateral testis injury are rare. Although not life threatening, should be treated promptly and thoroughly in order to avoid long-term functional and psychological damage.

Introduction

The Genitourinary (GU) tract injury is relatively uncommon when compared to other parts of the human body, with an annual incidence of less than one percent [1]. Studies show external genitalia is involved in up to 67 percent of cases of genitourinary tract injuries [2]. Injury to external genitalia could result from trauma involving motor vehicles, power farm machinery, gunshot and stab injuries. Men have a higher incidence of genital trauma compared to women due to anatomical considerations and increased participation in activities such as aggressive sports, violent interaction, and war activities [2,3]. While the male external genitalia is particularly vulnerable to trauma due to their extracorporeal position, the scrotum and testes are relatively well protected. This is because the testes are inherently mobile within the scrotum and the scrotal skin has fair elasticity, causing the internal structures to slip away from the point of contact. Additionally, the physiological cremasteric reflex offers a protective reflex mechanism, and the tunica albuginea serves as a tough fibrous physical defence with its tensile strength, preventing severe injury [4]. The etiology of genitourinary injury can be divided into two broad categories, namely blunt injury and penetrating injury. Blunt injuries are more common (80%), compared to penetrating lesions (20%) [3]. While only 1.5% of blunt testicular injury involves the gonads bilaterally, approximately 30% of penetrating scrotal injury will involve both testes [2].

Hence, division into this 2 broad categories is important as the clinical approach and management of this injuries vary. We present a rare case of traumatic degloving injury of male external genitalia with bilateral testicular evisceration associated with pelvic fracture, sparing the internal abdominal and pelvic organs, resulting from a motor vehicle accident [5].

Case Report

A 29-year-old lorry driver, single and previously well, was brought to red zone of Emergency and Trauma department following a road traffic accident. He was the driver of a Nissan UD lorry which lost control due to faulty brake and crashed into a dry ravine. The impact of head-on crash of the lorry into the dry ravine resulted in the lorry driver's chest, abdomen and pelvis slamming onto the dashboard. The driver was trapped in the lorry for almost 4.5 hours before he was extricated. The patient experienced severe pain in the groin region and right lower limb. On arrival, he was tachycardic and tachypnoeic but conscious and able to converse. Clinical examination was suspicious of a left pneumothorax which was confirmed by the absence of sliding sign on the affected side. A left chest tube was inserted. There was no evidence of intra-abdominal injury and repetitive FAST scans were negative. Examination of the genitalia showed scrotal degloving wound with evisceration of bilateral testis (Figure 1).



Figure 1: Degloving injury of Penis



Figure 2: Penetrating scrotal injury with evisceration of testis

Examination of the lower limb revealed a gross deformity of the of the right leg. Over the anterior aspect of the leg, there was a 2cm × 3cm open wound with evidence of bone fragments. This findings were confirmed by radiograph which showed comminuted fracture of right tibia and segmental fracture of right fibula. In addition to that, the pelvic radiography showed a left inferior pubic rami fracture. An immediate referral was made to urology and orthopaedics. He was planned for emergency operation under general anaesthesia. Intraoperatively, he was found to have right testicular rupture with 4cm hematoma with only 10% viable seminiferous tubules and left testicular rupture with 3cm hematoma, 5% viable seminiferous tubules. Bilateral epididymis intact and cord structures intact. He underwent scrotal exploration, toilet and suturing and bilateral orchidopexy. He required multiple dialysis sessions during his admission in view of rhabdomyolysis and deranged renal profile.

Hormonal study was done and yielded markedly low levels of testosterone. He was discharged home after 2 weeks stay at the hospital with normal blood parameters and testosterone pills. He was due to be reviewed back in Urology clinic in 3 weeks. In addition to this, outpatient follow-up was arranged with endocrine team and psychiatry team for management of hypogonadism secondary to traumatic bilateral testicular rupture.

Discussion

Degloving injuries occur when the skin is ripped away from the underlying tissue, cutting off the blood supply. As in our case report, degloving injuries of the penis and scrotum probably occurred due to crushing force against the dashboard causing elastic tissues of the scrotum to become entangled in clothing, and tore off with the clothing, leaving behind the deep structures, exposing the denuded testicles. Scrotal degloving injuries are rare high impact penetrating injuries which often have a dramatic presentation [5]. This case adds on to its rarity because of the extensive degloving injury of the male external genitalia associated with bilateral testicular rupture without causing any crush injuries to the lower abdominal viscera and was complicated with rhabdomyolysis. Degloving injury of penis and scrotum are rarely life-threatening. However, there is a great need for early identification and urgent restoration of form and function in this type of injuries. Decreased testicular function, such as reduced spermatogenesis and hormone function, is a common complication due to testicular atrophy. Hemostasis, urgent surgical exploration and subsequent debridement of any non-viable tissue are the mainstay of management of penetrating penoscrotal injuries. Approximately 70% of patients with penetrating injury to the external genitalia have associated damage to neighbouring structures, such as the penis, bladder, urethra, and femoral vessels [2]. Hence, challenges in Emergency Department setting would be prompt identification and management of multiple associated injuries and not just concentrating on the obvious dramatic injuries. This require thorough evaluation of the patients. Although priority should be in managing life threatening injuries, there should also be simultaneous management of the degloving external genitalia injury which is a urological emergency.

In the emergency setting with polytrauma, Focused Assessment with Sonography in Trauma (FAST) and extended FAST play a key role in diagnosing life threatening conditions such as hemoperitoneum, hemothorax, pneumothorax and pericardial effusion. FAST scanning has a reported sensitivity of ~90% (range 75-100%) and a specificity of ~95% (range 88-100%) for detecting intraperitoneal free fluid [6]. As for extended FAST, numerous studies have demonstrated that ultrasound is far more sensitive than plain radiography and physical exam for diagnosing pneumothoraces with specificities of 99% [7,8]. Ultrasound is also a readily available method to assess scrotal injuries and diagnose testicular injury with a high level of accuracy bedside. High-frequency ultrasound with Doppler flow technique remains the imaging modality of choice for genital trauma [2]. Scrotal ultrasound is highly sensitive and specific for scrotal content injuries, making nonoperative management an appropriate treatment option. Scrotal ultrasound sensitivity and specificity were 100% and 84.6%, respectively in a case series by Churukanti et al in 2016 [9]. However, in our case, there was evidence of obvious evisceration of bilateral testis on clinical examination, hence warranting for immediate surgical exploration and restoration. Although genital trauma rarely results in life-threatening pathology, appropriate management of these injuries is pivotal in decreasing long-term morbidity. The psychological burden inflicted on male patients by this kind of injuries can be very great. Frequent follow-ups with data associating with testicular function and quality of life including sexual life after trauma should be emphasised.

Conclusion

Although degloving external genitalia injury may have a dramatic presentation and warrant an immediate surgical intervention, the patient should be evaluated systemically



keeping in mind the possibility of multiple associated life threatening injuries. It is important to shorten injury-to intervention time so as to save both life and the genitalia. They must be treated promptly and thoroughly in order to avoid long-term functional and psychological damage.

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