https://doi.org/10.47108/jidhealth.Vol8.Iss1.404
Katib A, et al., Journal of Ideas in Health (2025); 8(1):1262-1264
Journal of Ideas in Health

Worker falls with impalement by a steel bar that results in a penetrating scrotal injury: a case report

Atif Katib[1*], Alya Filfilan[1], Bssem Dakkak[1], Bassam Bugis[1]

Abstract

Background: Scrotal injuries constitute the great bulk of genito-urinary traumas. Penetrating scrotal injuries are infrequent when compared to blunts. Moreover, impalement injuries by hard metals are rarer, especially when no permanent harm is left.

Case presentation: A 38-year-old male construction site worker was brought to the accident and emergency (A&E) department after falling from a 3 meters-high building. On arrival, his look was horrific, as a large steel bar was penetrating his right chest causing pneumothorax. A second bar penetrated his scrotum from bottom to up. The patient was frightened by the accident. Vitals were normal, with no signs of major blood loss. The chest trauma was dealt with by the relevant team, while the scrotal injury necessitated emergency surgery. Operatively, the steel bar was found to travel miraculously across the scrotal contents sparing vital structures. Subsequently, the bar was removed leaving no permanent damage. The patient was discharged home uneventfully.

Conclusion: A steel bar might cause an eerily external genital injury that passes throughout the scrotum without notable content damage.

Keywords: Male External Genital Injury, Penetration Scrotal Trauma, Acute Scrotum, Sharp Genital Trauma, Occupational Hazard, Fall with Impalement, Saudia Arabia

Correspondence: Atif Katib (atifkatib@gmail.com)
[1]King Abdulaziz Hospital, Makkah.

How to cite: Katib A, Filfilan A, Dakkak B, Bugis B. A Worker falls with impalement by a steel bar that results in a penetrating scrotal injury: a case report. 2025 Feb. 28;8(1):1262-1264 DOI: 10.47108/jidhealth.Vol8.Iss1.404

Article Info: (**Case Report**)
Received: 30 December 2024
Revised: 04 February 2025
Accepted: 18 February 2025
Published: 28 February 2025

Journal Home page: https://www.jidhealth.com

e ISSN: 2645-9248

Background

Scrotal trauma is an uncommon surgical emergency, accounting for less than 1% of all trauma cases annually in the United States [1]. It is most commonly seen in individuals aged 15-40. Blunt force trauma makes up about 80% of scrotal injuries, while penetrating injuries account for the remaining 20%. Penetrating scrotal injuries are less common in children [2,3]. Typical causes of injury to the external genitalia include accidents, gunshots, sports activities, animal bites, injuries during sexual activity, and both domestic and community violence [4,5,6]. Gunshot wounds make up approximately 50–90% of penetrating genital injuries, and their incidence appears to be rising in the US [4]. Additionally, in military conflicts, genital injuries occur in 60% of GU injuries, with gunshots and blast shrapnel being the primary causes of penetrating trauma [2]. Sharp scrotal injuries can result in severe damage to the penis and scrotum, along with significant injuries to other body parts [4]. In comparison to gunshot wounds, impalement injuries from hard metals are much rarer [7].

Case presentation

A 38-year-old man was brought by the Red Crescent to the accident and emergency (A&E) department at King Abdulaziz Hospital, Makkah, Saudi Arabia in November 2024 due to a fall injury. The injured man is a construction site worker who has no medical or surgical history of importance. He lost his balance and fell from a 3-meter-high building. On the ground, he was impaled by 12mm steel bars in a nearly vertical position. Two bars have gone through his body, his chest and genitalia (Fig. 1). At the scene, he was conscious, yet appalled by what had happened. Paramedics had to cut the steel bars and rush him to a nearby hospital. In the A&E he was wearing a neck collar and could talk weakly. His vital signs were stable, Glasgow Coma Scale (GCS) of 15/15. No active bleeding was noted, and no blood at the urethral meatus. A urethral catheter 16-Fr was placed. Resuscitation was carried out as per ATLS protocol. The The focused assessment with sonography in trauma (FAST) study was unremarkable. Pan computed tomography (CT) scan revealed no fractures or internal injuries. The urologist took the case over and shifted the injured to the operating room (OR).

Figure 1: A torn part of the jeans denoting the bar`s inlet

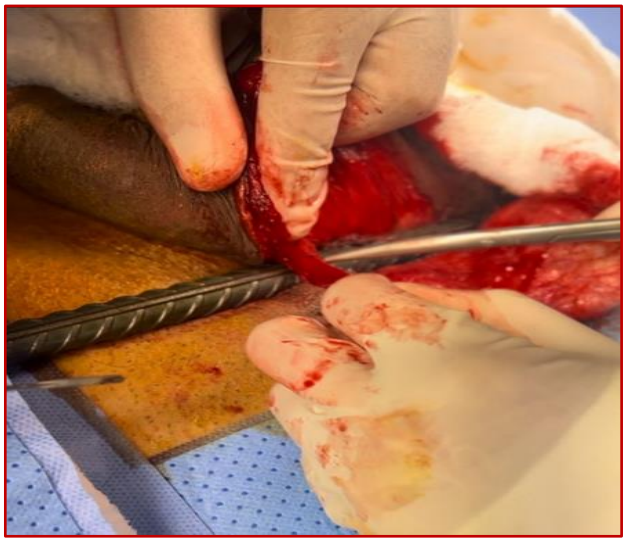

Figure 3: A crossing vessel within a bundle of cremasteric tissue

Figure 2: The bar`s exit is a few millimeters close to the right corporal body

Figure 4: The bar`s course after removal showing No injuries, and No bleeding

On the operation table, under general anesthesia (GA) the wound was examined carefully to find the entry port at the lower part of the scrotal sac with no fresh bleeding. The exit port was a few millimeters right to the base of the penis (Fig. 2). The decision was made to cut through the scrotum, in an open-book fashion, from the inlet to the outlet straight along. After exploring the wound, the right vas deferens and testicle were found intact with good vascularization (Fig. 3). The bar was traveling just under the vas without causing any harm. When the bar was freed from the surrounding tissues, it was carefully removed. No active bleeding was encountered. Dead tissues excised (Fig. 4). The wound was cleansed thoroughly. A 10-Fr wound drain was inserted. The scrotum was closed primarily in one layer using a 3.0 proline stitch (Fig. 5). The post-operative period was uneventful. The urethral catheter was removed the next morning, wound drain was removed in 48 hours. The patient was discharged on day 5. The patient did not show up for follow-up.

Figure 5: After wound closure

Discussion

The anatomical location of the male`s gonads in the scrotum makes them vulnerable to a wide array of injuries. The victim in this case fits the ideal demographic characteristics of patients experiencing impalement injuries being a young male, between the ages of 18 and 40; subjected to a fall from a building under construction as an occupational hazard. Although the diagnosis was evident on the spot, the injured was speechless and distraught by the accident. A full history was obtained from the rescue personnel. Radiologic studies were directed at discovering internal hemorrhage, urethral, and testicular injuries. The FAST study and pan CT scan ensured the safety of questionable organs. On the operation table, it was not difficult to fashion the surgical incision as it was directed by the bar`s course. Ceftriaxone antibiotic was prescribed during the in-hospital stay. Scrotal trauma carries a risk of infertility if gonads were involved.

Conclusion

This article reports a violent penetrating scrotal injury with sharp heavy metal that passes throughout the scrotum and lower pelvis. Furthermore, the injury resulted in only trivial tissue damage.

Abbreviation

A&E: Accident and Emergency; GCS: Glascow Coma Scale; ATLS: Advanced Trauma Life Support; FAST: Focused Assessment with Sonography in Trauma; GA: General Anesthesia; OR: Operation Room

Declaration

Acknowledgment

None

Funding

The authors received no financial support for their research, authorship, and/or publication of this article.

Availability of data and materials

Data will be available by emailing atifkatib@gmail.com

Authors' contributions

Atif Katib (AK) is the lead author who reported the case, compiled the first draft and approved the final version of it. Alya Filfilan (AF), Bssem Dakkak (BD), and Bassam Bugis (BB) contributed in writing the case report draft. All authors read and approved the final manuscript.

Ethics approval and consent to participate

We conducted the research following the declaration of Helsinki. The ethical approval was obtained from the general directorate of Makkah health affairs IRB. Saudi Arabia [IRB approval code: H-02-K-076-0121-1278]. Patient verbal and signed consent form was obtained.

Consent for publication

Not applicable

Competing interest

The authors declare that they have no competing interests.

Author Details

[1]Department of Urology, King Abdulaziz Hospital, P.O. Box19011 Makkah, 21955, Saudia Arabia.

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