

Open Scrotal Trauma Complicated by Testicular Evisceration: An Unusual Injury after a Brawl in 2 Cases

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Abstract

Background: Scrotal trauma is a rare injury, and can compromise reproductive function. If in closed trauma, a morphological assessment of the lesion is usually necessary before treatment, in open trauma otherwise, namely in the case of testicular evisceration, surgical exploration is the rule. **Objective:** To present the management of open scrotal trauma. **Case Presentation:** These were two adults aged 42 and 63, admitted for post-traumatic testicular evisceration. One of the patients presented with signs of infection due to a diagnosis delay. Management consisted on surgical exploration, with scrotal debridement and testicular reintegration. The evolution was favourable. **Conclusion:** Open scrotal trauma is a rare lesion that can cause testicular evisceration. It requires surgical exploration, which should be systematic.

Keywords

Scrotal Trauma, Testicular Evisceration, Infection, Surgical Exploration

1. Introduction

Scrotal trauma refers to all lesions of the testicular parenchyma and/or its components, caused by an external assaulting agent, associated or not with lesions of the scrotum [1]. Its prevalence ranges from 0.23% to 0.4% [2] [3]. This rare clinical situation can compromise the reproductive function [3]. Open scrotal

trauma is a common injury in adolescents and young adults [4] [5]. In the United States, the most common causes are gunshot related wounds, while in Africa, road-traffic accidents rank in the first place [2] [3] [4]. Fights in adults are exceptional causes of open scrotal injury. Surgical exploration in cases of closed trauma relies on imaging, whereas in cases of open trauma it should be systematic. We hereby report two cases of open scrotal trauma with evisceration, both resulting from a fight. These cases are particular for two reasons: on one hand it is a very rare lesion resulting from an exceptional mechanism. On the other hand, the clinical presentations of these two lesions are antagonistic, because of the different management deadlines.

2. Clinical Case 1

This was a 42-year-old patient with no remarkable past history, admitted into the emergency units for a bleeding wound of the scrotum, which occurred 30 minutes earlier during a domestic fight. The mechanism of lesion was a direct assault of his scrotum by his partner's nails. The significant haemorrhage prompted the consultation. Upon admission, the patient was hemodynamically stable and examination of the scrotum revealed a "V"-shaped wound involving the two hemi-scrotums with evisceration of the two testis, which were macroscopically normal and covered only by the vaginal layer (**Figure 1**). There was



Figure 1. Testicular evisceration through a "V"-haped wound. A = Penis; B = Scrotum; C = right testis, D = left testis.

neither no urethrorrhagia nor haematuria and the digital rectal examination was unremarkable. The clinical diagnosis was that of an opened scrotal trauma complicated by a bilateral testicular evisceration with active haemorrhage. Haemostasis was performed urgently after bimodal analgesia. No local samples for culture were requested. The indication for surgical exploration had been made, and was done after a normal coagulation assessment and spinal anaesthesia. This consisted in a surgical debridement of the damaged tissues and a copious lavage with normal saline. The reintegration of the testis into the scrotum and a loose closure into two planes of the scrotum completed the intervention. Postoperative management consisted of continued analgesia alongside with antibiotic prophylaxis based on amoxicillin-clavulanic acid within 48 hours. The postoperative evolution was simple, there were no signs of infection and on day 7 postoperative, the wound was clean (**Figure 2**). A counselling session was done to the patient explaining the possibility of an alteration of reproductive function and the need for an andrologic evaluation. On day 14 post-operative, the patient was no longer seen.

3. Clinical Case 2

This was a 63-year-old patient with known hypertension and follow-up. He had been admitted into the emergency room for pains and externalization of the left



Figure 2. Surgical wound on the seventh postoperative day.

testis, which occurred during a fight with one of his neighbours 3 days earlier. The mechanism was that of violent manual traction of the scrotum, which led to externalization of his left testis. Initial treatment consisted of local home care. The course was marked by exacerbation of pain associated with fever. On admission, the patient presented with a systemic inflammatory response syndrome with a fever of 39°C and a tachycardia of 112 beats per minute. On physical examination of the scrotum, we noted a foul-smelling odour; there was an oval wound of approximately 5 cm on the long axis in the left hemi-scrotum revealing the left testis of viable appearance. The left testis was inflamed and covered with false membranes (**Figure 3**). There was no urethrorrhagia or haematuria and the digital rectal examination was normal. Biology workups revealed an increase leucocyte count at 15,200/mm³ with a neutrophil predominance and an increased C reactive protein at 96 mg/L. the coagulation profile was normal. The workup diagnosis was an open scrotal trauma with evisceration of the testis of late discovery, complicated by an acute Orchitis. Local sampling for culture with antibiogram was requested, but was undone, due to lack of financial resources. Treatment consisted of the administration of analgesics and antipyretics. Broad-spectrum antibiotic therapy with Ofloxacin and Metronidazole **is used** to control the infection. Surgical exploration was indicated, and performed under spinal



Figure 3. Left eviscerated testis with signs of infection. A = scrotum; B = False membranes; C = left testis.

anesthesia. The surgical procedures consisted of debridement of non-viable tissues associated with abundant washing with physiological serum. The testis was reintegrated during the same surgical procedure. The scrotum had been closed in two planes under a lamellar drainage. Postoperative care consisted of continuing the medication started preoperatively. The evolution was simple with afebrile on the 2nd day post-operative. At the local level, the wound was clean, the removal of the drainage blades took place on the 5th postoperative day (**Figure 4**). The patient was discharged on the 5th day post-operative, after a counselling session on the need for assessment of reproductive function. The latter did not judge the importance of this evaluation and after healing of the wound on the 18th day post-operative, he no longer honoured subsequent appointments.

4. Discussion

Scrotal trauma is an uncommon injury. Its incidence is estimated at 3 - 5 cases/100,000 inhabitants per year for a prevalence varying between 0.23 and 0.4% [2] [3] [4]. This low incidence could be explained by its location below the pubic symphysis and the mobility of the testis, thanks to the spermatic cords which give them a certain protection [6]. It is more frequent in the young population, with an average age of 28 years [7]. In sub-Saharan settings, they occur most often during road traffic accidents [3] [4]. The most common are those involving motorcycles and bicycles [2] [6]. In the United States, firearms are by far the most common mechanism [2]. Fights as a mechanism of scrotal trauma are extremely rare and represent less than 1% of cases [4]. In the USA, open trauma is found in 50.5% of cases while closed trauma concerns 49.5% of cases [2]. The average consultation deadline is 3 days [3]. This time is shorter in cases



Figure 4. Surgical Wound on postoperative day 5.

of open scrotal trauma and is estimated at 45 minutes [4]. One of our patients had had a consultation deadline of 30 minutes. The early consultation in cases of open trauma could be explained by the haemorrhagic nature of these lesions, which always constitutes a phobia for most patients. The painful large scrotum is the most frequent reason for consultation, generally present in cases of blunt trauma [3] [4] [7]. Our patients presented with bleeding and pain. The presence of fever as a reason for consultation in the 2nd patient can be explained by the long delay of consultation, which led to bacterial colonization resulting in orchitis, with respect to the inflammatory nature of the left testicle. Thus, an early consultation deadline in case of open scrotal trauma results in early management, which would help to limit other complications such as infections. Left scrotum is mostly involved [3]. This can be explained by the fact that the vast majority of the population is right-sided. In case of trauma, the protective mechanism involves the dominant limbs. Thus the right thigh would more easily protect the right hemi-scrotum unlike the left thigh. Bilateral involvement is found in 6% of cases [3].

In the case of open trauma, a local sample for culture in an aerobic and anaerobic environment with an antibiogram to isolate the germs responsible for the infection and adapt the antibiotics should be done [8]. No local sample was requested in the first patient because we considered that the consultation time was short for bacterial colonization of the traumatic wound. This sample was requested in the second patient but could not be honored due to limited resources. This difficulty is explained by the fact that in our context, in the majority of cases, the entire responsibility for patient care falls to them. Morphologically, testicular ultrasound is the first-line examination in closed scrotal trauma. Its sensitivity and specificity are 100% and 84.6% respectively [9]. Retrograde urethrography is indicated in cases of suspected urethral injury, haematuria, or a rectal examination revealing a hematoma or an abnormal prostate. Computed tomography is indicated in cases of multi-system trauma. It provides information on testicular dislocation, the anatomy of intratesticular structures and evaluates testicular perfusion [8]. No morphological examination was performed in our patients.

In the United States, in the event of open scrotal trauma, the administration of antibiotics while awaiting for culture depends on the mechanism of injury. Patients who suffer injuries during farming, hunting or by firearms are treated with clindamycin combined with penicillin. Lesions due to animal bites are treated with amoxicillin-clavulanic acid [8]. We do not have an established protocol regarding the administration of antibiotics in cases of open trauma. The first patient was treated with amoxicillin-clavulanic acid because of the sensitivity of the skin flora and negative grams to amoxicillin. The proximity of the lesion to the anus made it vulnerable to anaerobes, hence the need for clavulanic acid. The second patient was treated with Ofloxacin, because of its sensitivity on gram

negative bacterials and its good tissue diffusion. The addition of metronidazole was due to its effectiveness against anaerobes. On the surgical level, if surgical exploration in closed trauma depends on the state of the scrotum and the lesion assessment on imaging. However, it is not similar in case of open trauma, where surgery is the rule. In the event of partial amputation of the scrotum, surgery consists of debridement, excision of bruised and necrotic tissues followed by primary suturing. In case of total loss of the scrotum, a skin graft is necessary [8] [10]. All our patients underwent a surgical debridement followed by a primary suture. These procedures were associated with lamellar drainage in the second patient to minimize the occurrence of an intrascrotal abscess.

The progression can be influenced by a soft tissue infection, which can lead to Fournier's gangrene. Testicular atrophy is possible when the spermatic cord is damaged [8]. In the long term, the complications are more of an andrological nature: residual testicular pain, oligoasthenospermia, erectile dysfunction [3]. Our patients did not have any infectious complications and their long-term complications are unknown because all were lost to follow-up.

5. Conclusion

Scrotal trauma is a rare injury. The diagnosis is clinical. In the event of testicular evisceration, an urgent surgical debridement in the operating room with reintegration of the testis is the rule and helps reduce the risk of infection.

Author Contributions

All authors have read and approved the final version of the manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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