Case series – Atypical animal-induced scrotal traumas

Luke Witherspoon[1], Ali Dergham[1], Joseph Y. Nashed[2], Hamidreza Abdi[1], Sohrab Naushad Ali[1], Ilias Cagiannos[1], Jeffrey T. Warren[1], Christopher Morash[1]

[1]Division of Urology, Department of Surgery, The Ottawa Hospital and University of Ottawa, Ottawa, ON, Canada; [2]School of Medicine, Queen's University, Kingston, ON, Canada

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KEY MESSAGES

- Animal-induced scrotal trauma, whether blunt or penetrating, can lead to severe injury. Early presentation, scrotal ultrasonography, and operative exploration are imperative for care.
- Urologists treating scrotal trauma should consider malignancy on the differential and obtain pathologic studies of all the specimens.

INTRODUCTION

Trauma to the male genitalia is rare, with scrotal injuries accounting for <1% of all traumatic injuries.[1] The scrotum's elasticity, mobility, small area, and anatomical location contribute to a low risk of injury.[2] Regardless, these injuries can affect patients of all ages; identification and proper management are crucial, as delay in treatment can lead to significant morbidity and poor outcomes.[3]

There are generally four mechanisms of scrotal injury: blunt, penetrating, degloving, and thermal injuries. Blunt injury accounts for the majority (75–80%) of scrotal trauma and are often a result of sports or motor vehicle accidents.[4] Blunt injuries can lead to hematomas, hematoceles, spermatic cord injuries, and testicular rupture, the latter seen in approximately 50% of cases.[4-8] The most common cause is gunshot wounds.[4,8] Surgical exploration, gonadal salvage and hemostasis, and debridement of non-viable tissue are recommended for all penetrating traumas.[6-8]

Animal-induced scrotal traumas are a type of injury that can occur through different mechanisms, with bites as the most commonly reported type. Most reported bite injuries are caused by dogs, although human bites have also been reported.[9,10] Bite injuries are often minor traumas, typically managed with irrigation, debridement, and antibiotic prophylaxis.[4] Although rarely reported, animals can induce injury via mechanisms other than biting. Herein, we report on three cases of unique animal-induced scrotal traumas. Specific, non-relevant patient details have been altered to preserve patient privacy.

CASE SERIES

Case 1

A 51-year-old patient had been camping at a remote location when a black bear approached his camp in the early morning. The bear was not deterred and attacked the patient, leaving the patient with injuries to the right scrotum and gluteal region. Unfortunately, due to the several-hour hike to return to his vehicle, the patient had a significant delay in his presentation to the hospital.

On presentation to the emergency department (ED), external puncture wounds were noted in the scrotum, with a non-palpable right testicle (Figure 1). An ultrasound (US) was ordered, showing a small right hematocele, but the irregular borders of the tunica albuginea and a heterogenous appearance within the testicle suggested hematomas within the testicle.

Urology was immediately consulted, and the patient was taken urgently to the operating room. The scrotum was explored through a median-raphe midline incision. The right testicle was determined to be extensively damaged, with no viable tissue to repair, and a subsequent orchiectomy was performed. The left side was not explored, as it appeared normal on the preoperative US and intact on palpation. The patient recovered uneventfully, and his pathology ultimately showed no concerning findings.

Case 2

A 57-year-old patient had been working on a deer farm and had been trimming male deer antlers. A male

deer escaped its steel cage, trapped the patient against the barn wall, and gored him in the scrotum with its antlers. Once subdued, the patient returned to work, and discovered a laceration to the right hemiscrotum only an hour after the incident, and promptly presented to the ED. On examination, there was a 5 cm laceration to the right hemiscrotum. As per American Urological Association guidelines,[7] the patient underwent prompt surgical exploration with repair and recovered uneventfully. Fortunately, no orchiectomy was required and the resulting pathology was unremarkable.

Case 3

A 58-year-old patient had been working on a dairy farm and presented to the ED with a one-month history of scrotal swelling that began after a cow kicked him in the scrotum. On examination, there was a very swollen left hemiscrotum, with some necrotic-appearing scrotal skin, but no other findings. US revealed a large hematocele, with no discernable testicular tissue, suggesting a shattered testicle. The patient was urgently transported to the operating room. The scrotum was explored through a median-raphe midline scrotal incision, revealing what was initially thought to be a completely shattered mid-portion of the left testicle. Given the lack of viable testicular tissue, a simple scrotal orchiectomy was performed. Some scrotal skin was thought to have been devitalized due to the prolonged compression from the hematocele and was excised.

Figure 1. Images showing trauma sustained to scrotum during a bear attack.

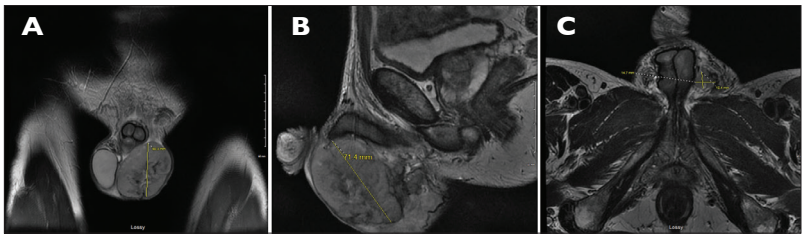

Figure 2. Post-orchiectomy pelvic magnetic resonance imaging: (A) coronal view of recurrent scrotal mass; (B) sagittal view of recurrent scrotal mass; and (C) coronal view showing scrotal wall tumor deposit.

The pathology indicated a pure seminoma, an unexpected finding. Given the mechanism of injury, it was difficult for the pathologist to establish negative margins; however, there were some suggestion of invasion into the scrotal skin. The medical oncology service was consulted for consideration of adjuvant chemotherapy.

On subsequent examination, a persistent mass was felt in the scrotum, despite the orchiectomy. Magnetic resonance imaging (Figure 2) showed a large (7.1 cm) scrotal mass felt to be a recurrent tumor, possibly several tumor deposits within the scrotal wall, and some enlarged left-sided pelvic lymph nodes. Adjuvant chemotherapy was continued, with the patient receiving four rounds of etoposide and cisplatin, with no recurrence over five years, suggesting a complete clinical response. Importantly, the patient subsequently had a normal scrotal exam on followup and did not require any further scrotal surgeries. He has since been discharged back to his family physician.

DISCUSSION

Animal attacks are a rare cause of scrotal injuries; here, we present three cases of animal-induced scrotal traumas. Initial management of scrotal trauma should be focused on confirmation of trauma through a history and physical exam.[6] The role of imaging (typically US) is somewhat unclear because typically the ED will obtain imaging prior to urologic consultation. Furthermore, if a penetrating injury is suspected, surgical exploration is recommended urgently to ascertain the full extent of the damage and to repair or remove affected tissue as necessary.

Primary reconstruction or staged procedures, like microsurgical vaso-vasostomy after initial healing, are typically predicated on the severity of the injury, tissue viability, patient stability, and potential to preserve fertility and hormonal function. In cases of significant damage or patient instability, orchiectomy may be necessary.[6] ED management can include saline irrigation, broad-spectrum antibiotics, and consideration for tetanus and rabies vaccination.

Scrotal injuries are most common in men aged 10–40 years, the same population at risk for testicular cancer. The discovery of testicular cancer following scrotal trauma has been reported previously. Cassie et al reported a case of testicular trauma treated with

scrotal exploration and suture of the testis.[11] Pathologic examination reported a likely seminoma, and the patient underwent an inguinal orchiectomy. Likewise, Lunawat et al reported a case involving a patient treated with a scrotal orchiectomy following a blunt scrotal injury. After histology showed a seminoma, he was treated with three cycles of bleomycin, etoposide, and cisplatin.[12] Unfortunately, neither case reported longer followup results.

Given the scrotal wall involvement, our case was treated as a good-risk metastatic testicular tumor, with no evidence of recurrence in followup. In this case, reopening the surgical scar was not deemed appropriate due to the patient's chemotherapy treatment and the seminoma's histologic characteristics. The examples of these three cases underscore the importance of considering the possibility of cancer when dealing with injuries to the scrotum.

Urologists treating testicular trauma should similarly consider cancer when proposing treatment for their patients, performing an inguinal approach for orchiectomies when possible. It is imperative that all specimens be sent to pathology, with proper followup.

In cases where malignancy is diagnosed following a scrotal orchiectomy, adjuvant treatments are recommended.[13] Patients with low-stage seminomas undergoing radiation should have their radiation extended to include the ipsilateral groin and scrotum. In patients with low-stage non-seminoma germ cell tumors, the scrotal scar and spermatic cord remnants should be widely excised during the retroperitoneal lymph node dissection (RPLND). Patients who had received platinum-based chemotherapy should also have the cord stump removed at the time of RPLND.[14]

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CORRESPONDENCE: Dr. Luke Witherspoon, Division of Urology, The University of Ottawa, General Campus, Ottawa, ON, Canada; lwitherspoon@ohri.ca