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CASE REPORT

Deadly Injuries Sustained From a Hyena Attack: The Importance of Timely Diagnosis and Treatment – A Case Report

Abdullahi Ahmed Ahmed[1], Ismail Gedi Ibrahim[2], Ismail Mohamoud Abdullahi[3], Abdihakim Artan Abdi[4], Mohamed Dahir Omar[1], Abdulkadir Ahmed Mohamed[4]

[1]Department of Emergency Medicine, Mogadishu Somali Turkey Training and Research Hospital, Mogadıshu, Somalia; [2]Departmentof Radiology, Mogadishu Somali Turkey Training and Research Hospital, Mogadıshu, Somalia; [3]Departmentof Pathology, Mogadishu Somali Turkey Training and Research Hospital, Mogadıshu, Somalia; [4]Department of ENT, Mogadishu Somali Turkey Training and Research Hospital, Mogadıshu, Somalia

Correspondence: Abdullahi Ahmed Ahmed, Mogadishu Somalia Türkiye Recep Tayyip Erdogan Research and Training Hospital, Department of Emergency Medicine, Mogadishu, Somalia, Tel +252615887782, Email drfuqsade@gmail.com

Abstract: Animal bites represent a significant global public health concern, with hyena attacks being rare but highly destructive. This report details the case of a 22-year-old male who was attacked by a hyena while herding camels in rural Qardho, Somalia. The attack resulted in traumatic amputation of both testicles and the penis, finger loss, extensive muscle damage, and a jawbone fracture. The patient initially received local care and was subsequently transferred to Mogadishu for advanced treatment. Key interventions included wound closure, tracheotomy, broad-spectrum antibiotics, and tetanus prophylaxis. This case highlights the complexities of managing severe trauma in resource-limited settings and underscores the necessity of timely, multidisciplinary care. Long-term rehabilitation, along with psychological support, are essential components of the patient's recovery. Furthermore, the case emphasizes the importance of trauma prevention strategies and ensuring access to specialized medical care in remote regions.

Keywords: hyena attack, human trauma, mandibular fracture, genital injury

Introduction

Animal bites are a significant global public health concern, contributing to increased rates of morbidity and mortality worldwide. Children are particularly vulnerable, with dog bites being the most common type of animal attack. Alarmingly, up to 50% of pediatric dog bite incidents result in injuries to the face. This heightened risk can largely be attributed to children's small stature, which places their faces within easy reach of animals, and their often unintentional aggressive behavior toward animals.[1,2]

The dynamics of animal bites vary geographically, influenced by local fauna and human-wildlife interactions. For instance, in northern Ethiopia, the abundance of spotted hyenas (*Crocuta crocuta*) is reported to be 15 times higher in human-dominated settings compared to natural habitats.[3] While all wild carnivores are potential reservoirs for rabies in the wildlife cycle, the primary reservoirs differ regionally. In northern Iran, for example, the most common rabies reservoirs are dogs, foxes, and jackals, whereas wolves are predominant in the western regions.[4]

Urban-adapted hyenas, in contrast to their counterparts in more natural habitats, develop distinct survival strategies. Cubs raised in urban areas place less emphasis on spotting live prey and have limited interaction with traditional rivals like lions. Instead, proximity to humans becomes a significant factor.[5]

This study explores the circumstances surrounding hyena attacks, the types of injuries sustained, and the challenges of reconstructive surgery in resource-limited settings, offering insights into the unique complexities of managing such cases.

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Case Report

22-year-old male was attacked by a hyena on the mid night around 11;30 pm, while herding camels in the rural area of Qardho, located in the northeastern Bari region of Somalia. The attack resulted in the patient losing consciousness and sustaining extensive, life-threatening injuries (Figure 1). The loss of consciousness in a patient following a hyena attack could be attributed to several possible causes, Pain-Induced Syncope and Hypovolemia was the common cause due to the extreme pain and physiological stress of the attack could trigger a vasovagal response and profound fluid loss from both blood and tissue injury. The attack caused devastating injuries, including the amputation of both testicles and the penis, as well as the amputation of fingers and thumbs on both hands. The patient also suffered extensive muscle damage to the right thigh and multiple deep lacerations to the scalp and upper body (Figures 2 and 3). Additionally, the hyena inflicted trauma to the right hip and mandibular (jawbone) fracture. The unconscious patient was discovered by passersby, who rescued him and ensured his transport to a medical facility.

Upon arrival at Qardho Hospital, the patient received urgent medical care, including wound closure and a tracheotomy to secure the airway. After his condition was stabilized, he was transferred to our hospital (Mogadishu Somalia Turkey Training and Research Hospital) in Mogadishu for advanced management. At the emergency unit, the patient was treated with tetanus prophylaxis, pantoprazole 40 mg for stress ulcer prevention, 1000 mL of isotonic saline for fluid resuscitation, ceftriaxone 1 g as a broad-spectrum antibiotic, and other supportive care measures as necessary. Rabies exposure was suspected and four doses of the rabies vaccine are administered on days 0, 3, 7, and 14, but rabies immunoglobulin (RIG) was not administered because it was unavailable in the stock at the time.

Diagnostic imaging, including head and maxillofacial CT scans and extremity X-rays, revealed complex craniofacial trauma. Findings included displaced fractures of the bilateral mandibular condyles, anterior mandibular body, bilateral maxillary sinus walls, right nasal bone, right ethmoid bone, and left pterygoid plate. Additionally, hemorrhage was noted in the maxillary and ethmoid sinuses (hemosinuses), along with associated soft tissue injuries of scalp lacerations (Figure 4). X-rays of the hands and femur revealed multiple phalangeal amputations and fractures in both hands, along

Figure 1 The image illustrates a patient with facial injuries (Left picture) and amputated fingers sustained from a hyena attack (Middle picture), alongside the deceased hyena (Right).

Figure 2 Shows bilateral amputations of the fingers (Left and middle picture) and bilateral absence of the testes, along with partial absence of the penis (Right picture).

Figure 3 Illustrates multiple lacerations on various parts of the body resulting from hyena bites.

with significant soft tissue defects in the right thigh (Figure 5). Consultations were arranged with the urology, ENT, and orthopedic departments for further evaluation and management.

The ENT doctors initiated treatment with intravenous medications, including total parenteral nutrition (1440 mL), and Prednisolone 40 mg. Severe injuries caused by hyena attacks, reconstructive options are often critical in restoring

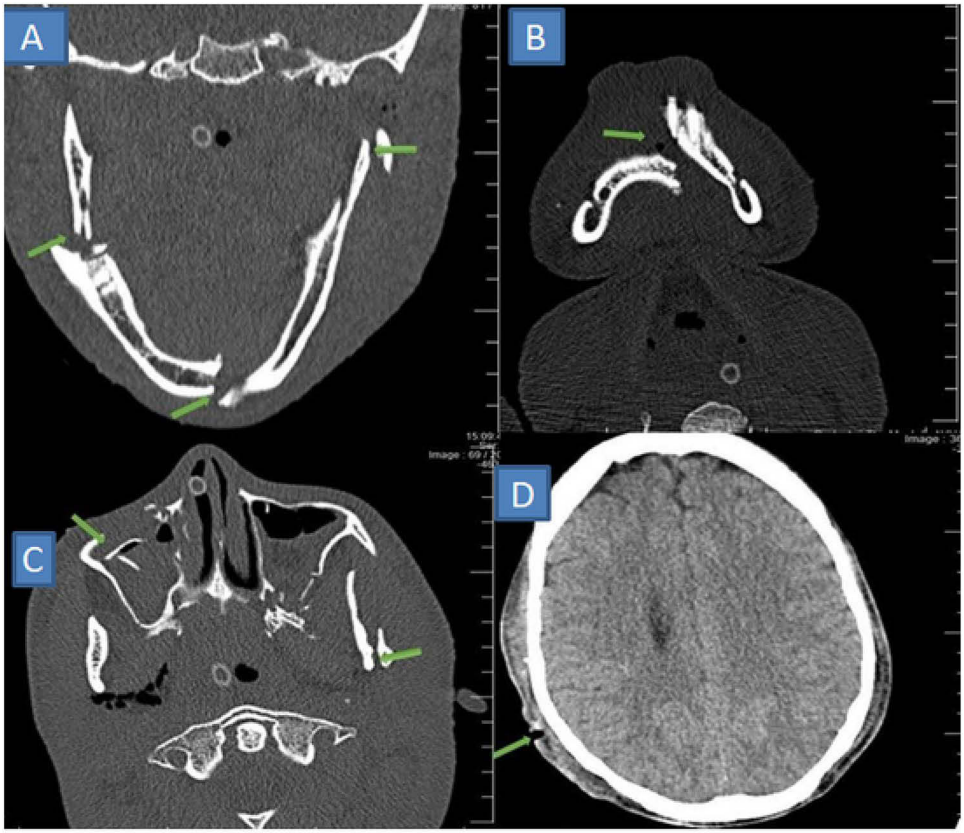

Figure 4 The head and maxillofacial CT examination revealed displaced fractures of the bilateral mandibular condyles, anterior mandibular body, and bilateral maxillary sinus walls, as seen in the coronal (**A**), axial (**B**), and sagittal (**C**) views, respectively. The brain window scalp (**D**) also demonstrated scalp lacerations (indicated by arrows).

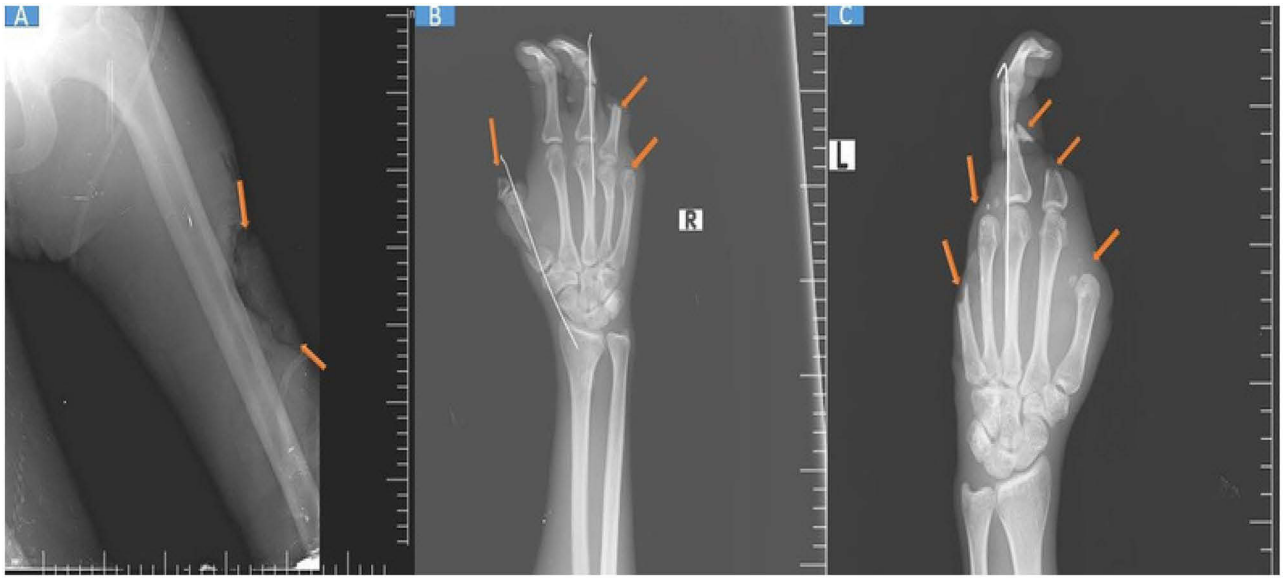

Figure 5 Significant soft tissue defects in the thigh (**A**) and the X-rays of the hands (**B** and **C**) revealed phalangeal amputations.

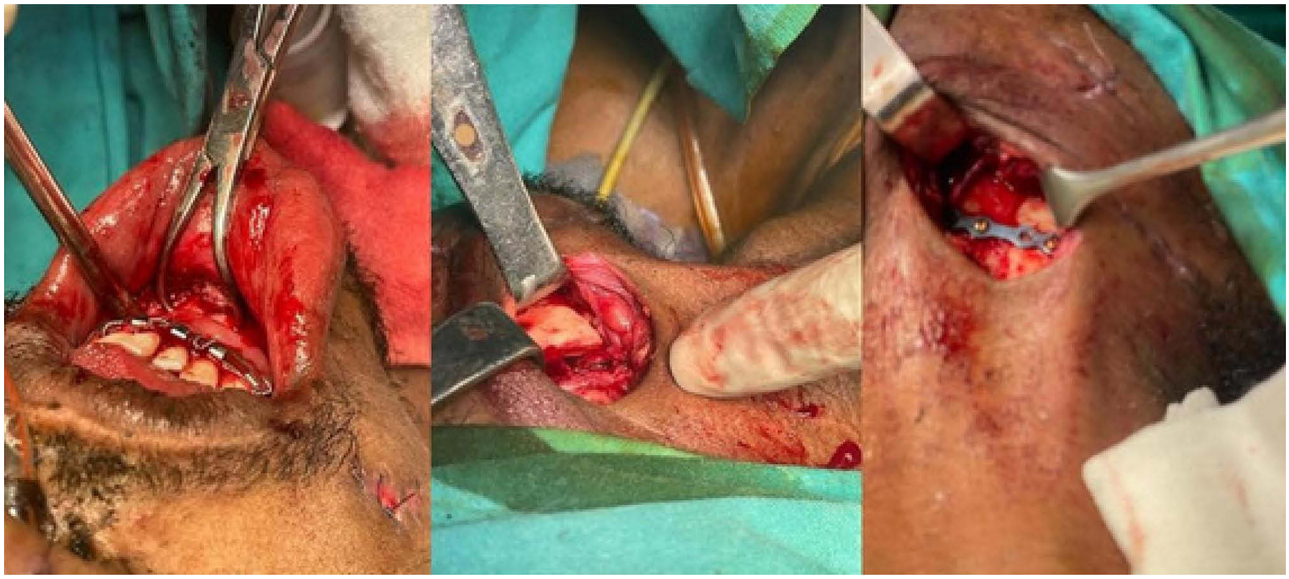

Figure 6 Illustrates intraoperative maxillofacial reconstruction procedures.

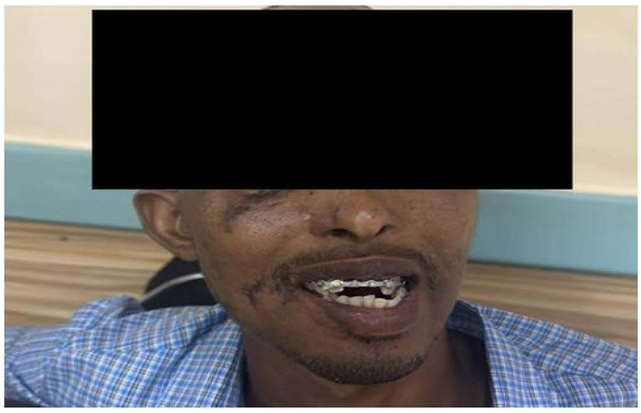

Figure 7 After two weeks of follow up image.

function and aesthetics, particularly for injuries involving the face, head, or limbs. Wound Debridement and Primary Repair as initial management was made, typically involves thorough debridement of devitalized tissue and wound cleaning to prevent infection. Facial Reconstruction and free flap of the thigh was performed to repair extensive soft tissue defects, ensuring optimal functional recovery and cosmetic outcomes. Following a surgical procedure to stabilize the craniofacial injuries with fixation devices (Figure 6), the patient was transferred to the orthopedic department for continued care. Additional wound care and management were provided during this phase. Upon stabilization, the patient was discharged with instructions to return for follow-up visits in 14 days. Outpatient medications prescribed included: Clindamycin 150 mg- 2 tablets once daily, Ciprofloxacin 750 mg- 2 tablets once daily, dexketoprofen 25 mg- 3 tablets once daily after meals. At the two-week follow-up, the patient reported feeling well, with significant improvement in the healing of his wounds. Regular follow-up visits were scheduled, with the patient advised to visit the hospital twice a week for continued wound care (Figure 7).

Discussion

This case report underscores the significant trauma caused by a hyena attack, including complex mandibular fractures, severe genital injuries (loss of penis and testis), bilateral finger amputations, as well as additional maxillofacial, soft

tissue, and parietal injuries. These injuries highlight the severe and multifaceted nature of hyena attacks, which require complex medical interventions for effective management. A case series presented in the literature reports a high fatality rate of 27.3%, demonstrating the severe outcomes that can result from animal attacks.[6] Millions of animal bite victims seek medical treatment annually, contributing to a major global public health concern with considerable morbidity and mortality.[7] Both reports highlights the critical public health impact of animal attacks, emphasizing the urgency of medical intervention for severe injuries. Our case involved a non-fatal hyena attack with complex injuries such as genital amputation and mandibular fractures, the case series reflects a higher fatality rate resulting from various animal bites across different regions.

Animal bites remain a major global public health challenge, with substantial morbidity and mortality rates.[8] The severity of injuries in bite victims depends on several factors, including the species of the animal, whether it is unhealth (Rabies) or healthy, and the individual characteristics of the victim, such as age, nutritional state, and overall health.[9] Hyenas, with their advanced hunting skills, may perceive humans as potential prey in certain situations.[10] In contrast, dog bites are the most common form of animal bite injury worldwide, including in Turkey.[11] However, reports of hyena attacks on humans in eastern and southern Africa over the past 200 years remain limited, though underreporting is likely. Some regions in Africa have seen a troubling rise in animal attacks on humans.[12] Consequently, the victim's whole well-being necessitates interdisciplinary techniques involving specialists such as an oral and maxillofacial surgeon, an ophthalmologist for repair, a prosthodontist for rehabilitation, and a psychiatrist for rejuvenation.[13] Animal bite injuries tend to affect different parts of the body in different age groups. Head injuries are more common in children, but adults are more prone to suffering damage to other parts of their bodies.[14] Bites to the face can result in fractures, avulsions, lacerations, crush injuries, and perforations in both soft and hard tissues.[15]

This study explores the circumstances surrounding hyena attacks, the types of injuries sustained, and the challenges of reconstructive surgery in resource-limited settings. We emphasise the severity of hyena attacks, while the case series highlights the anatomical targets of dog attacks, illustrating differences in species and attack methods.

Conclusion

This case report highlights the severe and life-threatening consequences of hyena attacks, demonstrating the extensive trauma that can result, including complex mandibular fractures, severe genital injuries (loss of external genitals), and multiple soft tissue and parietal wounds. Timely, multidisciplinary management incorporating surgical intervention, wound care, and prophylaxis against infections such as rabies and tetanus is essential for optimizing patient outcomes. This case underscores the importance of public health awareness, preventive measures, and rapid medical response in regions where wild animal attacks pose a significant threat to human safety. Further research and investment in trauma care infrastructure in remote and resource-limited regions are essential to reduce the morbidity and mortality associated with such attacks. As we learn from these experiences, we hold hope for achieving better outcomes for future victims of severe animal-related injuries in our country.

Data Sharing Statement

The data that support the findings of this study are available in Mogadishu Somali Turkey, Recep Tayyip Erdogan Training and Research Hospital information system. Data are however allowed to the authors upon reasonable request and with permission of the education and research committee.

Ethics Approval

Mogadishu Somali Türkiye Training and Research Hospital (MSTH) does not require institutional review board (IRB) approval for publishing case reports.

Informed Consent for Publication

Written and signed informed consent for publication of case details was obtained from the patient.

Author Contributions

All authors made substantial contributions to the reported work, including its conception, study design, execution, data collection, analysis, and interpretation. They participated in drafting, revising, or critically reviewing the article. Each author gave final approval for the version to be published and agreed on the journal where the article was submitted. Furthermore, all authors take full responsibility for every aspect of the work.

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Disclosure

The authors declare that they have no competing interests.

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