

Camel Bite Injury to the Face in an Adult Patient: Skin Closure Controversy

Hany A. Zaki¹, Eman E. Shaban², Ahmed E. Shaban³, Haitham Hodhod⁴, Amr Elmoheen¹

Review began 11/04/2021

Review ended 11/14/2021

Published 11/20/2021

© Copyright 2021

Zaki et al. This is an open access article distributed under the terms of the Creative Commons Attribution License CC-BY 4.0., which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

1. Emergency Medicine, Hamad Medical Corporation, Doha, QAT 2. Cardiology, Aljufairi Diagnostic and Therapeutic Hospital, Doha, QAT 3. Internal Medicine, Mansoura General Hospital, Mansoura, EGY 4. Emergency Medicine, King's Mill Hospital, Mansfield, GBR

Corresponding author: Hany A. Zaki, hanyzaki1976@gmail.com

Abstract

Animal bite injuries are prevalent worldwide. Camel bites, as a cause, are relatively rare. Male camels are particularly aggressive, especially during the rutting season. These injuries, when inflicted over the face, have a disfiguration effect with possible psychological repercussions to the patient. The surgical management of facial camel bite is described sporadically and remains a source of deliberation. Our paper reports the mechanism and management of facial soft tissue injury inflicted by camel bite over the face in an adult male with long-time follow-up for the patient post surgical repair without any documented complications. This case report demonstrates the complex nature of camel bite injuries over the face. Inappropriate wound management may result in long-term sequelae, which may affect the patient's quality of life. Individuals should apply caution when dealing with camels, mainly in the rutting season. Primary skin closure, especially to the face or neck, and proper wound management will decrease the risk of permanent scars and infections.

Categories: Emergency Medicine, Plastic Surgery, Infectious Disease

Keywords: wound infection, postoperative wound infection, skin closure, face injury, superficial cervical plexus block, primary fascial closure, soft tissue injuries, mammalian bite, animal bite management, camel bite

Introduction

Camels are domestic animals that serve as a means of transportation in desert regions and other areas where modern transportation is near impossible. It is a simple animal, very quiet, and usually very obedient to its proprietor. But then, it has been observed that the threshold of tolerance of these animals reduces drastically during their breeding season. The camel breeding season begins from December right up to March. During the breeding season, people close to them become very vulnerable to their attacks.

It is important to note that animal bite injuries vary based on geographical distribution, animal anatomy, and behavior. Human injuries due to camel bites are a rarity, and the injuries and attacks become more common during the rutting season. At this time, male camels become very aggressive [1]. Camel bites have a very complex mechanism, and this explains why it is associated with high morbidity. Injuries to the neck and head are usually frequent and severe [2]. Injuries may include skull fractures, facial wounds, cervical neurovascular injuries, and intracranial bleeding [1,2].

Most studies reporting camel bites are retrospective in nature, and not many case studies have been documented. A Saudi Arabian study reporting animal-related injuries submitted that out of 13 cases, ten were due to camels; therefore, this translates to 77%, and two of these were camel bites (15%) [3]. A Nigerian study reported that camels caused 9 out of 34 animal-related injuries (translating to 26%). Of these, two were attributed to camel bites [4]. A third study also conducted in Nigeria reported that 6 out of 9 camel-related injuries (translating to 67%) were upper limb bites [5].

Injuries caused by camels are unusual, severe, and usually maxillofacial [6,7,8]. The injury does not have a fixed pattern but usually involves the zygoma, maxilla, mandible, orbit, and nose. Over 60-70% of camel bites involve the neck and head region because these regions are easily accessible [9]. The precise incidence of camel bites is not known, and very few cases have been documented. As such, a detailed review of this subject will be of immense interest to the reader [6,7].

We report a rare case of camel bite injuries to the face of an adult patient that resulted in irregular, superficial to deep lacerations and contusions over the left external ear region, left side of the face over the parotid gland, and neck.

Case Presentation

A young adult male, previously healthy, was referred to our accident and emergency department by a primary health center, with a history of being bitten on the face by a male domestic camel while he was

How to cite this article

Zaki H A, Shaban E E, Shaban A E, et al. (November 20, 2021) Camel Bite Injury to the Face in an Adult Patient: Skin Closure Controversy. Cureus 13(11): e19765. DOI 10.7759/cureus.19765

attempting to feed it. The camel attacked, as it was confused between him and another human who had previously harmed the camel physically. This behavior is part of a camel's vengeful nature.

The camel bite included the left side of the face, left ear, and neck. No other obvious injuries were observed nor was there a history of loss of consciousness, vomiting, or recent or current medical illness. No recent hospital admission or previous surgical intervention was reported. In addition, no history of known allergies was noted.

Clinical examination

The patient appeared to be in pain and anxiety, but not in respiratory distress, and had normal vital signs. He had irregular, superficial to deep lacerations, and contusions over the left external ear region, left side of the face over the parotid gland, and neck. There was no obvious bleeding from the ear canal, parotid gland injury, hearing affection, or pain with mastication which might indicate (temporomandibular joint [TMJ] dislocation/subluxation) (Figure 1). Neurological examination of the fifth and seventh cranial nerve was unremarkable, and the rest of the facial bones were intact. Spine, chest, abdomen, and extremities examinations did not reveal any injury.



FIGURE 1: Multiple irregular, superficial to deep lacerations, and contusions over the left external ear region, left side of the face over the parotid gland, and neck.

Management and follow-up

Before starting wound cleaning and debridement, we performed a wound swab that was sent for the microbiology culture and sensitivity to be a guide for the antimicrobial therapy. Prophylactically, IV antibiotics and cefazolin plus metronidazole (10 mg/kg) were administered. Passively immunized with 0.5 ml of tetanus toxoid vaccine and 1 ml of inactivated rabies virus vaccine intramuscularly at 0, 3, 7, 14, and 28 days after exposure with 20 IU/kg body weight of human rabies immunoglobulin, as per Schedule C of WHO 1997 guidelines, were administered. The wounds were thoroughly irrigated with 3% hydrogen peroxide solution, 5% povidone-iodine solution, and finally by copious isotonic saline under superficial cervical plexus block guided by ultrasound by using bupivacaine 0.25%, 10 ml. The facial and ear lacerations were closed primarily, continuous type, after judicious debridement of foreign bodies and devitalized tissue. He was subsequently discharged from the hospital in satisfactory condition with no residual functional or aesthetic disability (Figure 2).



FIGURE 2: The facial and ear lacerations were closed primarily, continuous type, after judicious debridement of the devitalized tissue.

Daily dressing with follow-up and clear instructions were given to the patient in case of any compromise symptoms, with a prescription on both amoxicillin/clavulanate, 1 gm orally twice daily for a total of 10 days with oral metronidazole 400 mg orally twice daily for a total of two weeks. Results of the wound culture came back 48 hours later, showing growth of *Actinobacillus* and *Pasteurella*. Both organisms were sensitive to amoxicillin and metronidazole. Based on these results, the patient was contacted and was updated about the results, and was advised to continue the previously prescribed oral antibiotics courses. The wound showed good healing in the follow-up appointment for sutures removal 10 days post suturing (Figures 3-4).



FIGURE 3: The wound showed good healing in the follow-up appointment for sutures removal 10 days post suturing.



FIGURE 4: Another post-suture removal view; The wound showed good healing in the follow-up appointment for sutures removal 10 days post suturing.

Discussion

Camel bite injuries are rare, and the patient in our study was bitten by a male camel. Most camel bites occur in the rutting season, which begins from December and extends through March. At this time, the camels become irritable, hard to handle, and their behavior becomes highly unpredictable.

Bites from a camel can cause severe lacerations and puncture wounds. A camel's bite has the potential to injure deep body structures despite the wound's superficial appearance. Skull fractures, facial bone fractures, and brain injuries are possible complications of camel bites to the face and head [2,4,10]. Severe injuries like brain infarctions and carotid artery occlusions can result from camel bites to the neck [1]. The severe nature of camel bite injuries is attributed to its dentition, which is unique. A mature camel has 34 teeth with four very sharp and long canine teeth [11]. Canine teeth caused the deep lacerations and contusions observed in our patient.

Camel bite injuries have a very complex mechanism. This includes crushing and penetrating wounds by the camel's strong jaws and sharp teeth, as well as blunt injuries when they come, picks up, shakes, and throws its victim [1,12]. The repeated bites experienced by our patient resulted in superficial to deep lacerations over the region of the left external ear and the left side of the face over the neck and the parotid gland (Figure 1).

In the present case, injury to the parotid gland was due to the penetrating injury of the cheek along the line linking the tragus of the ear to the lip midportion [13]. Because of the close association of the parotid duct with the buccal branch of the facial nerve, trauma to the parotid duct or gland will certainly raise suspicion of injury to the facial nerve.

Surgical management of bite injuries caused by animals remains controversial among clinicians who handle such cases [14]. Treatment of each case depends on several factors, including the nature and location of the injury and the type of animal [15].

Some authorities advise against suturing of the injury due to probable contamination while also recommending rabies prophylaxis because it remains the major complication secondary to animal bite [16]. However, in the present case, we administered passive immunization with 0.5 ml of tetanus toxoid vaccine and 1 ml of inactivated rabies virus vaccine intramuscularly at 0, 3, 7, 14, and 28 days after exposure with 20 IU/kg body weight of human rabies immunoglobulin as per Schedule C of WHO 1997 guidelines. The facial and ear lacerations were closed primarily, continuous type, after judicious debridement of foreign bodies and devitalized tissue. Antibiotics were continued seven days postoperatively, after which the patient was discharged in satisfactory condition.

Management of complex injuries such as this requires several protocols and methods [17]. Tissue and fracture repairs require special focus because they are difficult (technically) [18]. Communication, for instance, increases the risk of ischemic compromise plus vascular necrosis of fragments, potentially leading to infection, nonunion, and continuity defect [19,20]. In such cases, it becomes challenging to reconstruct both hard and soft tissues. As such, it is important to adopt a multidisciplinary approach to get good results [21,22].

Conclusions

In conclusion, our case demonstrates the complex nature of camel bite injuries over the face. Poor treatment may result in long-term sequelae, which may affect the patient's quality of life. Individuals should apply caution when dealing with camels, mainly in the rutting season. Primary skin closure of face wounds and antibiotics prophylaxis with meticulous care may lead to a good prognosis without complication.

Additional Information

Disclosures

Human subjects: Consent was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

References

1. Abu-Zidan FM, Eid HO, Hefny AF, Bashir MO, Branicki F: Camel bite injuries in United Arab Emirates: a 6 year prospective study. *Injury*. 2012, 43:1617-1620. [10.1016/j.injury.2011.10.039](https://doi.org/10.1016/j.injury.2011.10.039)
2. Al-Ali MA, Hefny AF, Abu-Zidan FM: Head, face and neck camel-related injuries: biomechanics and severity. *Injury*. 2019, 50:210-214. [10.1016/j.injury.2018.11.029](https://doi.org/10.1016/j.injury.2018.11.029)
3. Janjua KJ, van den Berg AA: Animal injuries presenting to Riyadh Armed Forces Hospital: a survey. *Trop Doct*. 1994, 24:84. [10.1177/004947559402400220](https://doi.org/10.1177/004947559402400220)
4. Ugboko VI, Olasoji HO, Ajike SO, Amole AO, Ogundipe OT: Facial injuries caused by animals in northern Nigeria. *Br J Oral Maxillofac Surg*. 2002, 40:433-437. [10.1016/S0266-4356\(02\)00181-X](https://doi.org/10.1016/S0266-4356(02)00181-X)
5. Tahzib F: Camel injuries. *Trop Doct*. 1984, 14:187-188. [10.1177/004947558401400417](https://doi.org/10.1177/004947558401400417)
6. Singh A, Gulati SK, Singh GP, Mander KS, Malhotra G, Singh M: Multiple fractures following camel bite of the face (a case report). *Acta Chir Plast*. 1994, 36:85-88.
7. Ogunbodede EO, Arotiba JT: Camel bite injuries of the orofacial region: report of a case. *J Oral Maxillofac Surg*. 1997, 55:1174-1176. [10.1016/S0278-2391\(97\)90303-7](https://doi.org/10.1016/S0278-2391(97)90303-7)
8. Berzon DR: The animal bite epidemic in Baltimore, Maryland: review and update. *Am J Public Health*. 1978, 68:593-595. [10.2105/ajph.68.6.593](https://doi.org/10.2105/ajph.68.6.593)
9. Abu-Zidan FM, Ramdan K, Czechowski J: A camel bite breaking the neck and causing brain infarction. *J Trauma*. 2007, 65:1423. [10.1097/01.ta.0000221664.71669.5a](https://doi.org/10.1097/01.ta.0000221664.71669.5a)
10. Kain R, Arya S: Camel bite: an uncommon mode of maxillofacial injury, its mechanism and fatality: case series and review of literature. *Natl J Maxillofac Surg*. 2015, 6:172-175. [10.4103/0975-5950.183868](https://doi.org/10.4103/0975-5950.183868)
11. Suess O, Magerkurth O, Da Silva C, Brock M, Pietilä TA: Camel bite: an unusual type of head injury in an infant. *J Pediatr Surg*. 2004, 39:e11-e13. [10.1016/j.jpedsurg.2004.06.038](https://doi.org/10.1016/j.jpedsurg.2004.06.038)
12. Eid HO, Hefny AF, Abu-Zidan FM: Epidemiology of animal-related injuries in a high-income developing country. *Ulus Travma Acil Cerrahi Derg*. 2015, 21:134-138. [10.5505/tjtes.2015.76508](https://doi.org/10.5505/tjtes.2015.76508)
13. Van Sickels JE: Management of parotid gland and duct injuries. *Oral Maxillofac Surg Clin North Am*. 2009, 21:243-246. [10.1016/j.coms.2008.12.010](https://doi.org/10.1016/j.coms.2008.12.010)
14. Goldstein EJ: Management of human and animal bite wounds. *J Am Acad Dermatol*. 1989, 21:1275-1279. [10.1016/S0190-9622\(89\)70343-1](https://doi.org/10.1016/S0190-9622(89)70343-1)
15. Wolff KD: Management of animal bite injuries of the face: experience with 94 patients. *J Oral Maxillofac Surg*. 1998, 56:838-843. [10.1016/s0278-2391\(98\)90009-x](https://doi.org/10.1016/s0278-2391(98)90009-x)
16. Morgan JP, Haug RH, Murphy MT: Management of facial dog bite injuries. *J Oral Maxillofac Surg*. 1995, 53:435-441. [10.1016/0278-2391\(95\)90720-3](https://doi.org/10.1016/0278-2391(95)90720-3)
17. Govila A, Rao GS, James JH: Primary reconstruction of a major loss of lower jaw by an animal bite using a "rib sandwich" pectoralis major island flap. *Br J Plast Surg*. 1989, 42:101-103. [10.1016/s0007-1226\(89\)90124-0](https://doi.org/10.1016/s0007-1226(89)90124-0)
18. Pryor JP, Cotton B: *Ballistic Trauma: Neck Injury*. Springer, London; 2005. 209-240. [10.1007/978-3-519-](https://doi.org/10.1007/978-3-519-)

61364-2

19. Maloney PL, Lincoln RE, Coyne CP: A protocol for the management of compound mandibular fractures based on the time from injury to treatment. *J Oral Maxillofac Surg.* 2001, 59:879-884. [10.1053/joms.2001.25021](https://doi.org/10.1053/joms.2001.25021)
20. Stacey DH, Doyle JF, Mount DL, Snyder MC, Gutowski KA: Management of mandible fractures. *Plast Reconstr Surg.* 2006, 117:48e-60e. [10.1097/01.prs.0000209392.85221.0b](https://doi.org/10.1097/01.prs.0000209392.85221.0b)
21. Haug RH, Assael LA: Outcomes of open versus closed treatment of mandibular subcondylar fractures. *J Oral Maxillofac Surg.* 2001, 59:370-375. [10.1053/joms.2001.21868](https://doi.org/10.1053/joms.2001.21868)
22. Manson PN, Crawley WA, Yaremchuk MJ, Rochman GM, Hoopes JE, French JH: Midface fractures: Advantages of immediate extended open reduction and bone grafting. *Plast Reconstr Surg.* 1985, 76:1-10. [10.1097/00006534-198507000-00001](https://doi.org/10.1097/00006534-198507000-00001)