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CASE REPORT

Phalangeal amputation from human bite; management of a case report

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Summary

Human bite could occur to any part of the human body as a result of diverse provocative factors, notably matrimonial crises, sex-abuse-related factors, and interpersonal conflicts. Prompt hospital presentation and immediate initiation of treatment are critical to achieving successful treatment. A 22-year-old student was involved in an interpersonal fight with his sibling and sustained complete phalangeal amputation of his right ring finger. He had wound care, tetanus prophylaxis, and antibiotics. A good understanding of the pathology with prompt multidisciplinary treatment is pivotal for good clinical outcome.

Keywords: Aetiology, Amputation, Human bite, Management, Wound care

Introduction

Human bites are a rare encounter in clinical practice. Although this has been documented in various studies, the reported incidence is quite low, as it has been reported to constitute about 3% of bite injuries commonly encountered by the emergency room physician.[1,2] Human bites are usually heralded by conflicts resulting in physical assaults to any anatomical region of the body. Although the upper limbs have been reported to be involved more than other anatomical regions of the body due to defensive positions during fights or attacks, bite injuries to the scrotum, breast and orofacial regions have also been described.[3,4]

In as much as both genders are usually involved, human (fight) bites have been documented to be more prevalent among the male gender in their 3rd to 4th decades of life. Human bites have been reported to be associated with serious complications if neglected because of the untoward sepsis from the contaminating antimicrobial commensals of the oral cavity and/or the consequent anatomical dysfunction that could ensue from the soft tissue injuries.[3-5] In this report, we present a perplexing encounter of a human(fight) bite that resulted in complete amputation of the distal phalanx of the involved digit following a domestic brawl. This case was reported because of the rarity of phalangeal loss resulting from a human bite and the significant functional morbidity associated with such an injury. The patient consented to the reporting of this case.

Case report

AAD is a 22-year-old, right-handed male student who presented to the emergency room with complete amputation of the right distal phalanx of the ring finger following a domestic fight with his sibling. The duo was said to have been engaged in a domestic brawl which degenerated into physical assault that could not be curtailed by the immediate family members. In the heat of the fight, he was bitten in the distal phalanx of the right ring finger by his brother, leading to complete avulsion of the part involved. On sustaining the bite injury, there was profuse bleeding with pain, and the sight of an amputated finger triggered a panic and anxiety state that necessitated immediate hospital presentation, approximately 30 minutes after the injury

At the emergency room, pressure packing was done, after which a thorough clinical examination was conducted in the emergency room theatre (Pictures 1 and 2). The amputation was towards the base of the distal phalanx (just above the distal interphalangeal

joint), with complete severance of the tendons, the digital vessels and the nerves. He had broad-spectrum antibiotics (ceftriaxone and metronidazole) and tetanus prophylaxis administered; imaging with plain X-rays was carried out (which revealed complete amputation) [Images 1 and 2]. Intramuscular pethidine was given for analgesia and haemostasis was secured. The orthopaedics team was invited to review and take over the management according to the hospital policy. The patient had wound exploration with initial wound care. He, however, went on discharge against medical advice on the second post-operative day.



Picture 1



Picture 2



Image 1



Image 2

Picture 1. The palmar view of the right hand with complete severance of the distal phalanx of the ring finger.
Picture 2. The oblique view (palmar orientation) of the amputated phalanx and raw wound surface of the right ring finger.
Image 1. Plain X-ray of the right hand (oblique view) showing absence of the distal phalanx, but remnant proximal bone at the distal interphalangeal joint of the ring finger.
Image 2. Plain X-ray of the right hand (anterio-posterior view) showing absence of the distal phalanx of the ring finger.

Discussion

Human bites have been well documented across various climes, with different authors reporting their encounters as a significant source of morbidity with impaired cosmetic outlook.[4,5] Human bites have been observed among various age groups, and the majority of the reported cases were noticed to be prevalent among the male gender in their 3rd to 4th decades of life.[5,6] Our index patient in this report also conforms to this demographic description; however, Osaiyuwu *et al* reported a preponderance of the female gender in their study.[4] Their contrasting observation may not be out of place, as the majority of their patients

were reportedly involved in matrimonial crises and sexual abuse.

In contemporary society, human bites could be triggered by matrimonial disharmony, interpersonal conflicts, armed robbery, and gender-based violence; therefore, bite injuries have been seen to occur more on the upper limbs because this is usually an instinctive protective mechanism between the aggressor and the victim.[4] Other forms of human bite injuries were linked to intimate or romance-related activities, with bite marks commonly identified on the breasts, lips, thighs, and genitalia.[4] Olaitan *et al.*, from Enugu, Southeast Nigeria, also reported some variants of human bites arising from domestic violence, resulting in orofacial injuries with attendant significant tissue loss.[6] With all these reports, it can be seen that the spectrum of injuries that could ensue in human bites ranges from simple lacerations to avulsion injuries that may warrant cosmetic repair.[7]

In this index patient, the trigger for the domestic violence could not be ascertained, as the information was concealed by the family members. Although human bite injuries have been widely reported, cases involving complete severance of a phalanx and loss of an appendage are uncommon. The nature of this incident has led to the consideration of a possible association with clinical vampirism or pseudo-vampirism in this situation, and this may necessitate a follow-up with the aggressor.

The clinical consequences of human bites extend beyond cosmetic disfigurement and include the risk of soft tissue infections resulting from the transmission of polymicrobial organisms such as *Eikenella corrodens, Pervotella spp, Fusifobacterium spp, Pseudomonas, Escherichia coli, Staphylococcus aureus*.[4-6] Therefore, prophylactic broad-spectrum antibiotic therapy covering the likely causative organisms should be initiated promptly upon presentation. Similarly, tetanus prophylaxis should be administered without delay, given the potential for contamination of such wounds with *Clostridium tetani* spores. Agrawal *et al* [8] and Muguti *et al* [9] have earlier reported cases of tetanus infection following human bites; hence, they advocated for immediate tetanus prophylaxis in view of the attendant high morbidity and mortality that could ensue; however, opinions are still divided on this among practitioners. In view of the documented risk of tetanus infection as well as soft tissue infection ensuing following such injuries, it was considered appropriate to administer both tetanus prophylaxis and antibiotic therapy upon the patient's presentation to the emergency department.

The clinical possibility of human immunodeficiency virus (HIV) being transmitted through human bites has been previously reported with more predilection among those that have a pre-existing ulcerative oral lesion. However, the risk of HIV transmission through human bites has been reported to be low, largely due to the presence of salivary HIV inhibitory factors that reduce the likelihood of viral transmission through saliva.[10,11] Nevertheless, individuals with a high viral load, particularly the hypersecretors, may still pose a risk of salivary HIV transmission, even when only small quantities of saliva are involved.[12] It therefore becomes important to know the HIV status of both the aggressor and the victim, as well as their hepatitis profile. This is of medicolegal importance as well as being helpful in taking prompt clinical decisions with respect to post-exposure prophylaxis.

In addition to the antimicrobial treatment, local wound care with thorough debridement and cleansing should be undertaken because this class of wound is stratified to be clean contaminated/contaminated. Wound closure/tissue reconstruction, where indicated, is considered after the wound is deemed clean and safe for such. But in general, the surgical principles of wound closure with respect to the class of wound must be followed strictly. Generally speaking, a multidisciplinary approach involving the reconstructive surgeon, craniofacial surgeons, orofacial surgeons, orthopaedic and general surgeons (as determined by the site of injury) is imperative for a good treatment outcome.

Our index patient had his wound cleansed with saline solution and an antiseptic agent (povidone iodine); partial wound approximation was done, and he was placed on intravenous medications (antibiotics and analgesics). He was scheduled for re-fashioning of the digit by the orthopaedic surgeon, but he discharged himself against medical advice. Decisions of discharge against medical advice is a common practice among our population, which is partly borne out of the sociocultural belief that injuries to the limbs can be managed by alternative/ traditional medical practitioners. Sometimes, such patients return to the hospital with complications, which may necessitate intensive care and prolonged hospital stay.

As the patient is right-hand dominant and currently a student, the injury may have a significant adverse impact on his daily activities and academic pursuits. Furthermore, the resulting cosmetic deformity may negatively affect his social interactions and self-perception. In the long term, the functional

limitations associated with this injury may restrict his occupational opportunities and potentially hinder his career development.

The decision of the patient to discharge against medical advice is a limitation in following up his management and assessing the treatment outcomes.

Conclusion

The occurrence of human bites is not is a rare encounter and clinicians should be aware of this. In contemporary society, the common triggers include matrimonial disharmony, interpersonal conflicts and sex-related reasons. The management of such cases could entail a multidisciplinary approach, and being proactive with the treatment protocol, especially with respect to antibiotics and tetanus prophylaxis, is essential in achieving a good clinical outcome.

Conflict of interest: None

Authors' contribution: Author AAA was involved in the evaluation and management of this patient. He conceived the idea of this report. Authors AOO and OEO, together with author AAA, were involved at different stages of the manuscript preparation, including literature search, proofreading, and editing of the manuscript. The manuscript represents an honest work, and all authors read and approved the final version being submitted.

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