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Case Report

Incomplete Enucleation of the Globe Secondary to Human Bite in a patient with Thyroid Eye Disease

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Abstract

Most human bite wounds are sustained on the upper extremities, the face and neck, trunk, and lower extremities. However, direct bites to the globe are rare. Human bites are particularly notorious for their tendency to cause infection at the site of the bite injury and to pose a potential risk for the transmission of systemic infections. Patients may present with abrasion, laceration, deep wound, pain, swelling, redness, warmth, and pus draining from the bite wound along with fever, night sweats, or chills. Here, we report the case of a 28-year-old female civil servant with a human bite injury of the right eye with resultant incomplete enucleation of the right globe from a physical fight with a fellow female worker at the place of work. The patient had a pre-existing thyroid orbitopathy (thyroid eye disease; TED) with exophthalmos in both eyes. Due to associated bleeding from the eye, crepe bondage was initially applied over the eye and she was brought to the Accident and Emergency department of the University of Port Harcourt Teaching Hospital where enucleation was completed and hemostasis secured. The patient was treated with a course of ceftriaxone antibiotics, metronidazole, analgesics and later fitted with a prothesis.

Keywords: Human bite; Incomplete enucleation; Exophthalmos

Introduction

Animal bites and to a lesser extent human bites are common trauma cases in accident and emergency units and their incidence is rising [1]. Human bite injury is the most serious and requires a multi-disciplinary approach to management. Human bites often occur as a result of aggressive child's play, accidental bites associated with sports, school-related activities, fights, social fracas and sexual activity [2,3].

Most human bite wounds are sustained on the upper extremities, the face and neck, trunk, and lower extremities [4]. However, direct bites to the globe are rare. Furthermore, human bites resulting in partial or total enucleation of the globe, to the best of the knowledge of the authors have not been reported.

Human bite wounds are a common reason for patients to seek medical attention and are particularly notorious for their tendency to cause infection at the site of the bite injury and to pose a potential risk for transmission of systemic infection [5]. Patients may present with abrasion, laceration, deep wound, pain, swelling, redness, warmth, and pus draining from the bite wound along with fever, night sweats, or chills.

Epidemiological studies of human and animal bites are heavily biased by the preponderance of those caused by dogs [5], which account for about 90% of all reported cases [6]. Most animal bite wounds are polymicrobial in nature. Pasteurella species (spp.) is the most common organism isolated from both cat and dog bites. The microbiology of human bites consists of both aerobic and anaerobic bacteria. When infected, most human and animal bite wounds reveal a polymicrobial flora, mainly of oropharyngeal origin [7] from the offending human or animal.

Here, we report the case of a 28-year-old female civil servant with a human bite injury of the right eye with resultant incomplete enucleation of the right globe from a physical fight with a fellow female worker at the place of work. The patient had a pre-existing thyroid orbitopathy (thyroid eye disease; TED) with exophthalmos in both eyes; diagnosed one year ago. The visual acuity of the contralateral left eye was 6/24 unaided which improved to 6/9 with pin-hole. Immediately after the injury, there was some associated bleeding from the right eye and a crepe bondage was initially applied over the eye. The contralateral left eye had severe proptosis (30mm on Hertel's ophthalmometer). The patient was brought to the Accident and Emergency department of the University of Port Harcourt Teaching Hospital where prognosis was explained, informed consent obtained and complete enucleation under local anesthesia was done. Hemostasis was secured intra-operatively. The patient was treated with a course of intravenous antibiotics, metronidazole, tetanus toxoid, analgesics, anxiolytics and prothesis fitted on the thirtieth day. A consult was sent to the Endocrinology Team, for co-management of the patient (Figures 1-5).

On presentation, the optic nerve of the right eye was avulsed and the eye was incompletely enucleated and held by a string of extraocular muscle. Informed consent was obtained from both the patient and the father after explaining prognosis and the possible use of a prothesis. Enucleation was completed with minimal bleeding.

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Figure 1: Incomplete enucleation of the Right Globe.

Figure 2: Clinical evaluation of the Right Globe.

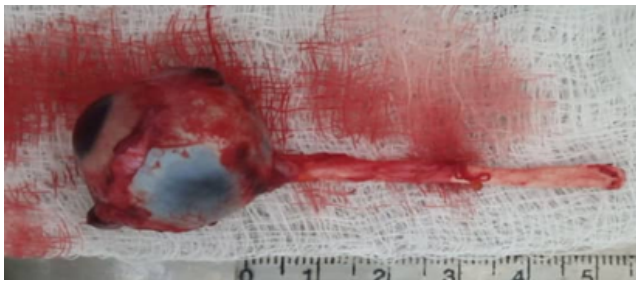

Figure 3: The avulsed Optic nerve, measuring 5.5cm in length.

Figure 4: The contralateral left eye with severe proptosis.

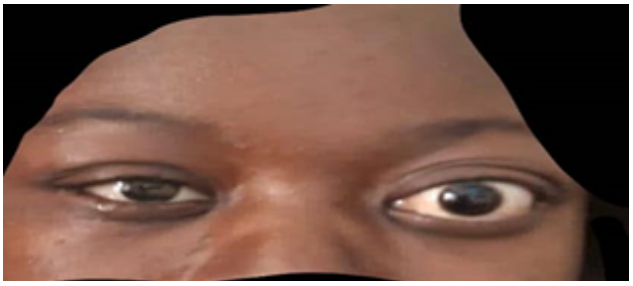

Figure 5: Patient with prothesis in the Right Globe.

Discussion

The commonest sites of involvement in human bites are the upper extremities, the face, the neck, trunk, and lower extremities [2,3]. Direct bites to the globe resulting in partial or full enucleation of the globe is rare, although bites inflicted by dogs or cats especially on children could involve any part of the face because of their small stature [8-10].

Our index patient was an adult female-28 years of age, who sustained human bite injury directly on the right eye following a physical fight with her co-worker that resulted in the avulsion of the optic nerve and incomplete enucleation of the right eye. The offender was 27 years of age, well oriented in time, place and person. Our index patient had proptosis, secondary to thyroid eye disease of one year duration. The exposed globe (axial proptosis) made the index patient at high risk of ocular trauma as the eye was no longer protected within the rim of the orbital walls. In 2013, Yacoub et al., reported a case of an 8-year-old boy who sustained a facial laceration after another child fell on him at a playground in South Florida, United States of America. The fallen child's teeth lacerated the patient's face just above his right eye. There was no direct injury to the globe. The child was managed successfully with antibiotics without complication.

Data on the incidence of human bites is largely unknown or at best underestimated [8] as most bites are associated with potentially embarrassing social circumstances such as quarrels or extreme sexual activities, which explains the high occurrence of underreporting [2,3,11]. Our index patient could not have concealed this incident probably because of the gravity of the trauma and damage to her sight.

Human bites are considered more serious by most clinicians because of their higher propensity for infection [2,3]. As with animal bites, the bacteriology of human bites is closely related to the indigenous oral flora of the culprit, with the saliva serving as a culture and inoculation medium for the invasive organisms. Although many of these are relatively harmless, it has long been known that bacterial scrapings from the oral cavity are capable of producing characteristic soft tissue infections when inoculated subcutaneously into experimental animals, similar to those occurring in human bite wounds [12].

Our index patient was successfully managed with empirical broad-spectrum antibiotics. In contrast to the case of an 8-year-old boy who sustained a facial laceration from the teeth of a playmate, there was resistance to a course of cephalexin and ceftriaxone therapy but later responded to amoxicillin/clavulanic acid therapy [13].

The major clinical significance of bite wounds consists in their potential for local or systemic infectious complications due to the

unavoidable contamination of the area with the perpetrator's oral flora. In addition to the species of the biter, the likelihood of infection depends on the type of wound and its location, the time from injury to treatment and the general medical condition of the patient. Our index patient accessed health care services one hour after the incidence and there was no further complication post-operatively. The age of the wound at the time the treatment is initiated is considered an important variant contributing to the risk of infection with the critical time period ranging from 12 to 24 hours post injury [14]. Thereafter a strong correlation has been found between the delay in treatment, the incidence of infection and subsequent morbidity [13].

Common pathogenic from human bites are usually mixed with aerobic and anaerobic bacteria. Streptococcus anginosus, Streptococcus pyogenes, S aureus, E corrodens, and Haemophilus spp. Eikenella corrodens is a gram-negative rod frequently associated with wound infections caused by clenched-fist injuries. This pathogen is susceptible to penicillin but exhibits resistance to first-generation cephalosporins and b-lactamase–stable penicillins [15].

Prevotella spp., Peptostreptococcus spp., Fusobacterium spp., Bacteroides spp., and Veillonella spp. are anaerobic bacteria frequently isolated in wounds from human bites [16]. More severe infections and greater morbidity are associated with anaerobic bacteria cultured from wounds sustained by human bites compared with animal bites. Most of these anaerobes are b-lactamase producers, thus the importance of choosing adequate empirical antibiotic coverage with a b-lactamase inhibitor.

Human bites have also been implicated as a mode of transmission of hepatitis B and C, tuberculosis, syphilis and even tetanus [17]. Keogh et al., [17] reported two cases of human bites injuries associated with the transmission of Human Immunodeficiency Virus (HIV)). Our index patient tested negative to HIV, hepatitis B and C; 3 months after the incidence of the human bite injury.

Conclusion

Human bite on the face resulting in incomplete enucleation of the globe is rare but can occur. Thyroid Eye Disease with attendant exophthalmos could be a risk factor. Patients with obvious exophthalmos should therefore avoid fights.

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None.

Conflicts of Interest

There are no conflicts of interest.

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