

## Case Report


# Management of human bite injury of the eyelid with tissue loss: A case report

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## Abstract

Human bite injuries of the eyelids are particularly rare. In most reported cases of human bites to the eyelids associated with tissue loss, the avulsed tissue was viable and available for reconstruction. Herein we reported successful reconstruction of eyelid defect due to human bite injury in which the avulsed eyelid tissue was not available for reconstruction.

## Key words

Human bite, Eyelid, Tissue loss, Reconstruction.

## Introduction

Human bites are injuries where the teeth have broken the skin barrier to external insults such as pathogens [1]. Human bites can be classified depending on the mechanism of injury into occlusion bites and the closed fist bite (or fight bite). Occlusion bites occur when the teeth are sunk into the skin with sufficient force to breach the integrity of the skin. Clenched fist injuries occur when a closed fist impacts another individual's teeth, leaving an injury over the

dorsal aspect of the third, fourth or fifth metacarpophalangeal joints [2].

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 transmission of systemic infection [3]. This is because of the high load of pathogen in the human saliva which is known to contain as many as 50 species of bacteria with almost  $10^8$  microbes/ml [2]. Most human bite wounds are sustained on the upper extremities, followed

by the face and neck, trunk, and lower extremities [3].

Human bite injuries of the eyelids are particularly rare. In most reported cases of human bites to the eyelids associated with tissue loss, the avulsed tissue was viable and available for reconstruction [4, 5]. Herein, we report a successful reconstruction of eyelid defect due to human bite injury in which the avulsed eyelid tissue was not available for reconstruction.

### **Case report**

A 32 year old man presented to our hospital 2 days after he sustained human bite injury to his left eyelids. On clinical examination, his visual acuity on both eyes were normal. There was approximately 50% full thickness loss of the left upper eyelid involving the middle third and medial half of lateral third of the upper eyelid with resultant lagophthalmos and exposure of the cornea. The defect extends approximately 5 mm vertically from the lid margin. There was also a partial thickness loss of the left lateral half of the lower eyelid about 6mm below the lid margin measuring approximately 12 mm x 8 mm (**Figure – 1**). The rest of the ophthalmic examination findings of both eyes were within normal limits. The patient was admitted and worked up for surgery under general anesthesia. As part of preparation for surgery, written consent was obtained and routine hematological test were done on him results of which were all within normal limits.

Preoperatively he was started on broad spectrum antibiotics tablets augmentin 1000 mg twice daily, tablets metronidazole 400 mg thrice daily and tablets ibuprofen 400 mg twice daily. Eyedrops methylcellulose 4 hourly left eye and ointment chloramphenicol noctate to protect the exposed cornea from dessication. He was also given tetanus toxoid injection because he was unaware of his immunization status. At surgery after routine cleaning with 10% povidone iodine and drapping, the wound was thoroughly irrigated with normal saline and debrided. The

upper eyelid defect was then reconstructed using Tenzel semicircular flap at the lateral canthus. The flap was raised by making lateral canthotomy and superior cantholysis. The canthotomy incision was carried inferiorly and laterally in a semicircular fashion. Dissection was then carried out under the orbicularis muscle to mobilize the flap. The flap was advanced medially to cover the upper lid defect. The wound was closed in layers directly using 5-0 vicryl suture. The dog ear that developed following the closure was excised. The lower eyelid defect was dressed with antibiotic impregnated gauze (sofra tulle) and left to granulate and heal by secondary intention (laissez-faire approach).

**Figure - 1:** Photograph of patient at presentation (a) appearance with open eyes showing tissue loss (b) appearance with closed eyes showing inadequate closure of the left eyelids with exposed cornea.



At 6 weeks follow up there was no lagophthalmos and the eyelids closes quite well and normally, the lower eyelid wound healed satisfactorily and patient was quite happy (**Figure – 2**).

### **Discussion**

Human bites can occur in various circumstances including homicides, sexual or non sexual assaults, in attempted suicide, during sports events and may sometimes be self inflicted to falsely frame someone. It may be found in the

victim as well as in an assailant as a defense wound from a victim [6].

**Figure - 2:** Post operative photograph at 6 weeks (a) appearance with eye open (b) adequate closure of left eyelids.



Human bites are serious injuries that may result in infection, loss of function and gross disfigurement. Infection from oral contaminants, tissue damage and difficult surgical reconstruction make the management of human bites injuries a challenge [7]. Bites to the eyelids are rare but can pose a particular threat in terms of eye closure and corneal protection as seen in this patient.

The goals of therapy are to prevent or appropriately treat infection and to achieve wound closure, restoration of anatomic landmarks and minimize surgical revisions as well as well as psychological trauma [7, 8].

Infection prevention or treatment is a major consideration in management of human bite injuries. Most infected human bite wounds contain mixed organisms that aligns closely with the indigenous flora of the human mouth. Streptococcal species (mostly non-beta hemolytic streptococci), Staphylococcus epidermidis, and Staphylococcus aureus are most commonly isolated. Eikenella corrodens, a gram-negative aerobe of the mouth, is sometimes found. The most prevalent anaerobes are Prevotella species, others are Fusobacterium, Veillonella, and Eubacterium species [3].

A key step towards infection control following human bite is cleansing of the wound and copious irrigation with saline, 1% povidine iodine or tap water at body temperature. This helps to reduce the bacterial inoculums and debride the wound. In this patient irrigation was done with saline. This should be followed by debridement of devitalized tissue if required [2]. To further deal with the issue of infection, broad spectrum antibiotics (augmentin) and metronidazole to deal with anerobes was administered in this patient. Also patient was given anti tetanus as he was unaware of his immunization status. This treatment regimen has been shown to be adequate in reports of human bite injury with tissue loss [8].

The challenges of surgical reconstruction depend on the fullness and extent of tissue loss and whether or not the avulsed part is available for reconstruction [7]. In this case the avulsed part of the eyelid was unavailable for reconstruction. We reconstructed the avulsed defect of the upper eyelid using a local advancement flap. Advantages of this technique include optimal color match due to similarity of the flap to missing skin in color and texture, it is less time consuming and the flap has excellent vascularity [8]. The laissez- faire approach used for the lower eyelid defect is a viable option for management of select cases of periocular skin defect following injury or tumor excision.

Functional and cosmetic outcome results in our patient were satisfactory. The eyelids close and open normally without lagophthalmos.

## **Conclusion**

Human bites injuries to eyelids are rare but are potentially dangerous wounds and can constitute a significant cause of morbidity. Local advancement flap is a useful technique in the reconstruction of select cases of human bite injury involving the eyelids with tissue loss.

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