

Case Report

Eyelid Avulsion Following Animal Bite: a Case Report

Mansoureh Jamshidian Tehrani ¹, MD; Sepideh Ghods ¹, MD; Mohammad Soleimani ^{*1}, MD

1. Ocular Trauma and Emergency Department, Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran.

Corresponding Author: Mohammad Soleimani

E-mail: Soleimani_md@yahoo.com

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Abstract

Animal bite is a relatively frequent health problem with the main cause being domestic dogs responsible for around 90 % of cases. Other common aggressors include cats, cows, camels, donkeys and horses. Here we report a case of total lid avulsion by a pet dog in a middle-aged man. This report represents the medical and surgical approaches used and the result of the lid injury treatment.

Key words:

Bites and stings

Eyelid

Evulsion

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Introduction

The animal bite is a relatively frequent health problem all around the world ¹. The main cause is domestic dogs, responsible for around 90 % of cases. The other common aggressors include cats, cows, camels, donkeys and horses ¹⁻³.

The most common victims are children, comprising 70 % of the animal bite registered patients in the United States ¹. Bite injuries can be located in different body regions, including head and face ⁴. Generally orofacial injuries and their management are important topics because of beauty issues and rich vascularization, which can cause transmission of microbial agents and lead to serious infections (Such as *Pasteurella* species) ²⁻⁴.

In patients with animal bites the principle of management is wound cleansing, debridement, irrigation and the use of appropriate antibiotics, anti-rabies prophylaxis, and finally surgical repair if needed ²⁻⁹.

Here we report a case of total lid avulsion after a pet dog attack in a middle-aged man. The medical and surgical approaches and result of the lid injury repair will be presented. We required a written consent from the patient for presenting this case and the report was approved by the ethics committee of Tehran University of Medical Sciences, Tehran, Iran.

Case presentation

A 40- year- old man was referred to our emergency department two hours after a pet dog bite on his right eye. Other than his right eye, the other parts of the body were intact and the patient status was stable. Visual acuity in both eyes was 10/10. There was a centrally located upper lid avulsion in his right eye involving 40 % of the upper lid, but the other ocular structures were intact. No pathologic finding was found in the left eye. He had

brought the avulsed eyelid to the hospital. The avulsed lid segment did not look ischemic. It was irrigated with povidone iodine 5 % and then kept in wet gauze in 4 °C.

The patient received antibiotic, tetanus and rabies prophylaxis and then was taken to the operation room.

Surgical procedure

Precise suture placement and suitable tension is required to minimize the lid margin notching. Under general anesthesia, first the eyelid margin was aligned with resorbable tarsus to tarsus sutures and then the eyelash line, gray line and mucocutaneous junction were aligned using silk 5.0 sutures. The tarsal sutures were tied and cut and the lid margin sutures were left in place. Then the skin surface was repaired with nylon 6.0 sutures. Eventually the patient's eye was dressed with a sterile bandage. The repair was completed within three hours of the primary injury.

Discussion

According to statistics 1 to 2 million Americans are referred to emergency department due to animal bite each year ⁸. The most common cases are children who are bitten by dogs. In most cases, the dog is a domestic pet or is otherwise known to the victim. Another common aggressor is cat ⁸.

Animal bite can cause various degrees of damage (from simple abrasion to severe and life-threatening injuries and infections) ⁹. Different parts of the body such as head and face can be damaged ⁹. Although animal bite's orofacial and adnexal damages can be very severe, intraocular injuries are rare ⁹.

The first step in management of eyelid injury caused by animal bite is systemic and ocular evaluations for other significant problems. A complete ocular examination is also necessary



Figure 1: Centrally located upper lid avulsion in right eye involving 40 % of the upper lid caused by dog bite 2 hours after the injury



Figure 1: The piece of eyelid presented by the patient

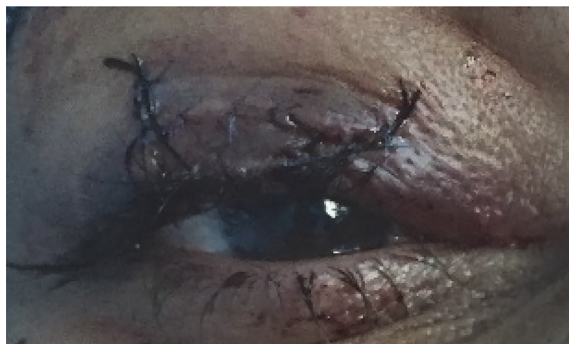


Figure 3: The eyelid after surgical repair

because eyelid injuries can be associated with various degrees of ocular injuries including ocular surface damage, hyphema, globe rupture and retinal detachment. The main

reason for attending to globe before eyelid is to prevent globe compression and ruling out an open globe injury. After this step eyelid examination should be considered.

The first step in repairing the eyelid damage is copious irrigation with saline and removal of all particles. Dirty wounds such as animal bites require meticulous irrigation and cleaning combined with prophylactic antibiotic and appropriate tetanus and rabies prophylaxis. The primary repair will be done after performing the cleansing steps.

The primary repair of eyelid injuries can reduce complications and the ideal time is 12 to 24 hours after damage. Successful treatment in lid avulsion cases depends on several factors including the retrieval of the avulsed tissue and the time of repair. In the present case we replanted the graft within 3 hours after the injury. Pauly, et al.,¹⁰ have reported a 6 years old girl with lower lid avulsion and ischemic lid segment that was repaired within 6 hours after trauma. Also, there is another report of successful replantation no later than 24 hours with successful results¹¹. Another factor in treatment success is proper preservation of avulsed lid. Yeatts et al.,¹¹ have suggested McCarey-Kaufman medium (a medium used in corneal preservation). Goldberg et al.,¹² have suggested a moist and cold (4 ° centigrade) environment.

Conclusion

Here we presented the medical and surgical approaches for treatment of eyelid injury caused by a dog bite. Our case shows the importance of retrieving the lost tissue, the use of prophylactic antibiotic and vaccination, keeping the tissue in proper environment and then precise and in time replantation in successful treatment of the injury.

Authors ORCIDs

Mansoureh Jamshidian Tehrani:

 <https://orcid.org/0000-0001-9588-3333>

Mohammad Soleimani:

 <https://orcid.org/0000-0002-6546-3546>

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Footnotes and Financial Disclosures**Conflicts of Interest:**

The authors have no conflict of interest with the subject matter of the present study.