

Not Everything Lost in RTA: Early Intervention with Impeccable Outcome

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Abstract

Eye injuries in road traffic accidents are very common. Nature has provided a protective bony wall and lids to cover the eye to protect it from injury; hence lid injury is very common in all type of trauma. Eyelid mutilations are managed differently depending on the depth, width, and location of the injury. Wound presentation and primary repair initiation time play a major role in successful outcome. The eyelid has multiple layers with different functions, so it is of utmost importance to be proficient in eyelid anatomy when addressing an eyelid laceration. Here we report two cases of eyelid trauma which were intervened timely with primary repair.

Keywords: *Upper eye lid; Lid margin; Anatomy & Primary repair*

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Introduction

Beauty is the key. A thorough knowledge of the anatomy of the eyelids and periorbital structures are important for proper management of eyelid lacerations. Along with knowledge, careful examination for associated ocular injury is also essential. Eyelid lacerations are an important subtype of facial trauma. In adolescents and adults, blunt trauma is most frequent and males are affected more commonly than females. Traumatic laceration to the eyelid requires a well-planned approach in order to provide the best outcome and also reduce the chances of postoperative complications. Eyelid lacerations are managed differently depending on the depth, width, and location of the injury. Hence surgical management can also be broken down into these categories: laceration without eyelid margin involvement, laceration with eyelid margin involvement, and laceration with nasolacrimal system involvement [1]. Here we present a case of road traffic accident (RTA) where patient had upper and lower eyelid mutilation involving the eyelid margin, along with conjunctival trauma. Eyelid lacerations were closed primarily, which achieved ideal outcomes and complications of aesthetic, functional and reconstructive surgery were avoided.

Case Report 1

A 19-year-old man presented to the casualty department with 6 hours history of RTA. Patient had facial and leg injuries. As these injuries are mostly associated with intracranial trauma or other life-threatening problems, therefore first systematically

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ABCs was cleared. Patients GGCS was vital. Emergency NCCT brain was advised to rule out any devastating cranial injury. A complete eye examination was performed and a full-thickness upper eyelid and partial thickness lower eyelid injuries were seen. Upon gentle examination without any external pressure, the patient was unable to open the eye himself. There was also presence of corneal abrasion of right eye. Lower eyelid was lacerated with involvement of eyelid margin. Wound was inspected, cleaned and documented. (Figure 1- Figure 4) CT scan report was not finalized yet so eyelid wound closure was decided and planned under local anaesthesia.



Figure 1 - Figure 4: Preoperative picture showing mutilated right upper eyelid and lower eyelid.

1% Lignocaine was infiltrated in to the upper and lower lid. Wounds were copiously irrigated and explored and foreign material was removed. There was presence of little orbital fat. Following standard operating protocol repair of deeper tissue was planned first, but as Conjunctival lacerations was less than 5 mm it need not to be repaired. Primary repair of the levator aponeurosis by repositioning it to the upper half of the tarsus with 8-0 suture material was done. Suturing of the disinserted levator too inferiorly on the tarsus was avoided, as it could result in poor lid-globe apposition. Caution was taken to avoid suture incorporation of the septum during eyelid laceration repair as this would result in compromised eyelid excursion and even lagophthalmos. Skin and orbicularis were closed in layers. As wound was stepped in Z fashion, simple interrupted with 8-0 sutures were placed along the cutaneous skin defect. Rational of using interrupted sutures was to allow any hematoma to egress or infection if occurred to be drained. Next tarsal plates and eyelid margin were repaired. Approximation of the edges of the eyelid margin was done by placing one simple interrupted suture from gray line to gray line. Full-thickness margin repairs was achieved by placing a single "buried vertical mattress" through the tarsus in line with the meibomian orifices, as this location is critical for wound strength and margin eversion. Notching is likely to develop if the lid margin defect is not slightly everted at the time of repair. The knot was tied within the eyelid tissue rather than at the marginal surface to avoid suture knot corneal abrasions and the need for later suture removal. The suture is cut close to the knot to avoid corneal contact. The overlying skin was closed with 7-0 permanent sutures. The closure area was irrigated with diluted betadine, followed by topical Neosporin ointment and eye pack for 24 hours. At follow up the next day acuity was still maintained and one week later, after a full course of antibiotics, examination was unremarkable with equal acuity bilateral (Figure 5- Figure 7). Patient was prescribed anti vascular endothelial growth factor eye drop for effective conjunctival healing.



Figure 5 - Figure 7: Second day postoperative picture depicting normal eye ball and eyelid movement.

Case Report 2

A 43-year-old male reported to the casualty with 2 hours history of RTA. Patient had only facial injuries. There was associated head injury which was ruled out by NCCT brain. ABC resuscitation was done. Through facial examination showed deep lacerated wounds on forehead and nasal bridge region. Left eye ball seemed to be propped out as upper eyelid was grossly mutilated. There was mild laceration on lower lid with intact margin. Cornea was not abraded. As bleeding was profound from the eye wound area, primary repair was planned under local anesthesia (Figure 8 - Figure 10).



Figure 8 - Figure 10: Mutilated upper eyelid.



Figure 11 & Figure 12: Repair under local anaesthesia.



Figure 13 - Figure 16: Post-operative 20 days.

One Percent Lignocaine was infiltrated in to the upper and lower lid. Wounds were copiously irrigated and explored. Following standard operating protocol repair of deeper tissue was planned first following superficial structures. Although complete upper eyelid was mutilated, but there was no significant tissue loss, hence immediate repair with proper anatomical repositioning gave a good result. [Figure 11 & Figure 12] Post operatively patient had all normal eye function and vision. This is patients 20 days post-operative picture. [Figure 13 - Figure 16].

Discussion

Ocular surgeon seeking to achieve ideal outcomes and avoid complications in aesthetic, functional and reconstructive surgery must have an understanding of the three-dimensional anatomic features, as well as the dynamic aspects, of the eyelid and orbital region. Knowledge of the eye and its surrounding region may be the last frontier of human anatomy, as new information is still being uncovered every year and each clarification of anatomy leads to a new level of sophistication in the understanding and treatment of orbital and eyelid disease both medically and surgically [2]. The most basic techniques in eyelid surgery are the repair of an eyelid defect that involves the eyelid margin. Still many eyelid margins are poorly repaired and much confusion still exists in this area due to lack of knowledge.

A review of the appropriate literature demonstrated that mutilated eyelid injury is common, but rare conjunctiva is spared. In our present case there was laceration of conjunctiva but no significant which needed no repair [3,4].

Topical anesthesia has been proven to be safe and effective in cases where general anaesthesia is questionable. Also, local anesthesia has various advantages which include immediate onset, short duration of action, rapid return of visual function, and avoidance of the attendant risks of general anesthesia.

Complications of eyelid along with involvement of margin are notching, epiphora, irregular eyelid contour, lagophthalmos, exposure keratopathy, corneal injury, wound dehiscence, entropion, trichiasis, and hemorrhage, etc. Our patient is on regular follow up with no complication mentioned above [5,6].

Eyelid lacerations along with margin involvement disrupt the normal anatomy of the eyelid and require careful repair to prevent ocular surface decompensation and unnatural cosmesis. Hence when a wound is early intervened restoring anatomical structures, it gives the best outcome. We intervened at proper time keeping anatomy in mind and received best outcome.

Conclusion

When there is no intraocular penetration in a severe eyelid penetrating injury one can expect full recovery without any complication. Also, it is possible to have an injury pass under the lower margin of the lid and penetrate from inside to out, without any associated corneal injury. Knowledge of surgical anatomy, early intervention, proper medication and post-operative care is path to success.

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