

To Study the Management and Outcome of Eyelid Injuries in a Tertiary Care Hospital in Mewat Region

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Abstract

Original Research Article

Eyelid trauma is routinely seen in the emergency departments worldwide. There are numerous causes which can lead to eyelid injuries. The cause of eyelid injury can be road side accidents, penetrating injuries. These injuries can cause functional and aesthetical loss like ectropion, entropion, excessive scarring etc. This study was planned to see management and outcome of eyelid injuries in a rural hospital of Mewat reporting in the emergency so that timely diagnosis can be done and complications can be prevented.

Keywords: Eyelid accidents, ectropion, entropion.

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INTRODUCTION

In a tertiary care hospital good number of eyelid lacerations patients are managed in emergency department worldwide. Although ocular trauma is of much importance to the health community, there is rarely a consensus on the epidemiological characteristics of this incident, especially noted outside the regions of developed nations [1, 2]. Although a lot of work has been done to determine more effective prevention and ideal management; there is still room to improve the aetiology, demographics, causes, and clinical features of eye lid laceration [3]. It is really of utmost importance to address this issue. Proper management of eyelid injuries can reduce its impact on the socioeconomics of the country [4]. Among all types of injury, eyelid laceration seems to be neglected in terms of sufficient epidemiological investigations [5]. Many studies that have been conducted have addressed the capability of sharp objects like needles, knives, hooks to penetrate the eye lids and cause the probable damage. The sharp things can damage eyelids and even deeper structures like the cornea, sclera and even retina [6-9].

Eyelids are not only aesthetic but also functional units of the face. Thus any damage to eyelids lead to both aesthetic and functional issues. The management of such injuries require variety of well planned reconstructive procedures depending on the availability of tissues. This can produce best results and also avoid complications. The eyelid injuries require meticulous repair in the expert hands.

On eyelid margin there is a gray line which lies anterior to meibomian gland openings and divides lid into two parts. Anterior to this line is eyelid skin and orbicularis muscle and posterior part comprises of conjunctiva and tarsal plate. Fibrous extension from the tarsal plate forms the medial and lateral canthal tendons [10]. Good knowledge of anatomy of eyelid is very important for the surgeon for successful outcome of eyelid repair.

The repair of eyelid requires good care of the wound. Before we suture the wounds good irrigation is done. Any foreign body present is removed under local anaesthesia. Deeper injury is suspected if foreign body is present. Reconstruction of eyelid injuries is done in layers. Deeper tissues are repaired first and then superficial tissue. Primary repair of Levator aponeurosis

is the golden rule to be followed in repair of eyelid injuries.

Like any other surgery, even eyelid injury repair is associated with some complications. There can be issues related to closure of eyelids. This issue can be transient and permanent also. Inability to close eyelid during sleep can lead to dry eyes and corneal scarring. There can be slight swelling and imbalance of size of both eyes. Excessive scarring is sometimes difficult to deal with. Acne, entropion and ectropion are commonly seen complications post repair of eyelid injuries. This study was planned to see management and outcome of eyelid injuries in a rural tertiary care hospital reporting in the emergency so that timely diagnosis and management can prevent complications.

MATERIAL & METHODS

This cross-sectional study was conducted in Emergency Department of SHKM Government Medical College, Nalhar, NUH Hospital in 2019. This hospital is a tertiary care hospital providing as a referral centre to the trauma and emergency services in southern region of Haryana. Prior informed consent was taken from all subjects participating in the study.

A detailed history regarding the mode, time of onset of injury, and its course was recorded. Eyelid injuries are classified as

1. Injury without tissue loss
2. Injury with tissue loss. This was further classified depending on the horizontal extent of defect. Small defects (<1/3), Medium defects (1/3–1/2) and large defects (>1/2) as compared with eyelid length.

Eyelid lacerations on the medial side usually lead to canalicular system injury. Telecanthus was ruled out if any fracture of the lacrimal bone or laceration of the medial canthal tendon was absent. CT scan of the orbits and brain was done to rule out any bony fracture, retained foreign body or intracranial injury. Most of patients were operated under local anaesthesia. General anaesthesia was used for young children and complex injuries.

Eyelid injuries without tissue loss in the form of simple, superficial eyelid lacerations were repaired by primary closure with interrupted sutures.

Eye lid margin was repaired by re-approximating the eyelid margin edges by using vertical mattress suture approximating gray line of the wound. The tarsal plate edges were approximated by partial thickness simple interrupted sutures. Repair of canalicular injuries was done by using silicon tube. If proximal end was crushed and were not retrieved, eyelids were closed primarily. Eyelid injuries with small defects of tissue loss were repaired by *closure or direct* lateral canthotomy. Repair of moderate and large defects were done by Mustarde cheek rotation flap.

All eyelids lacerations were repaired by the qualified surgeon who also perform complex lacerations involving eyelid margin, canalicular system or canthal tendons. The ethical clearance for the study was granted by the Institutional Ethics Committee (IEC) SHKM GMC, Nalhar. All parameters were not only tabulated but also analysed using suitable statistical tests.

RESULTS

In the year 2019, 46913 patients visited SHKM emergency, out of these 76 patients had eyelid injuries.

Table-1: Classification of wound

Type of wound	No of cases	Percentage
Eyelid injury without tissue loss	72	94.8%
Eyelid injury with tissue loss	4	5.2%
Small defects	1	1.3%
Medium defects	2	2.6%
Large defect	1	1.3%

Eyelid injury without the tissue loss was found in 94.8% of patients. Only 5.2 % patients had injury

with the tissue loss. Out of these patients 2.6% had medium defects, 1.3% had large and small defects each.

Table-1: Type of suturing

SUTURING DONE	NO. OF CASES	PERCENTAGE
Simple skin suturing	4	5
Skin,orbicularis	26	37
Skin,orbicularis,lps	2	3
Skin, orbicularis, tarsus,	31	42
Canthal tendon avulsion-anchoring	6	8
Rotation flap	3	4
Lateral cantholysis	1	1
Canalicular repair	3	4

Superficial skin lacerations were found in 4 patients. They were treated by simple suturing skin. Partial thickness wounds involving only anterior lamella were found in 26 patients. Repair of muscle and skin was done. Full thickness wound involving lid margin was found in 31 patients. They were repaired by approximating the wound in 3 layers. Canalicular injury was found in 3 patients. Canthal tendon avulsion was found in 6 patients.

Tissue loss was found in 4 patients. In one of these patients tissue loss was less than 1/3rd of horizontal extent of lid. It was managed by direct closure after lateral cantholysis procedure. In 3 patients, tissue loss was more than 1/3rd of the eyelid length. Mustarde Cheek rotation flap was performed to reconstruct the lids in these cases.

Table-2: Post-operative complications

EYELID DEFORMITIES	NUMBER OF CASES	%
Lid notching	3	4
Entropion	1	1
Ectropion	2	3
Narrowed palpebral fissure	1	1
Unsightly scar	4	5
Epiphora	6	8

Complication developed in 22 % of patients. Epiphora was the commonest complication seen in 8% of the patients followed by the unsightly scar seen in 5% of the patients. Lid notching developed in 4% patients and ectropion in 3%. Entropion and narrowed palpebral fissure each was developed in 1% patients.



Fig-1: Post op laceration repair



Fig-2: Post-operative ectropion

DISCUSSION

Eyelid injury without the tissue loss was found in 94.8% of patients. Only 5.2 % patients had injury with the tissue loss. Out of these patients 2.6% had medium defects, 1.3% had large and small defects each. According to study by Chandra Vanshi *et al.* tissue loss with small defects was found in 4.46% of patients. Eyelid injury with tissue loss of moderate to large defect was found in 8.33% of cases [12].

Canalicular injury was found in 3 patients in our study. Canthal tendon avulsion was found in 6 patients in our data. According to study by Chandra Vanshi *et al.* canalicular injury was found in 7.1%, medial canthal tendon avulsion was found in 3.75% patients. In the same study lateral canthal tendon avulsion was also found in 1.78% of patients. The study of epidemiological aspects of eyelid injuries which was conducted in Munich, Germany in 2001, the canalicular injury was found in 16% of the total patients [11].

In our study, the direct closure was done in 96% patients. Cheek rotation flaps were done in 4% patients. According to study by Chandra Vanshi *et al.* direct closure was done in 85.71% of patients. In our study, we also repaired the lower canalicular injury. Repair was accompanied with the canalicular intubation. This was done in 4% patients. According to study by Chandra Vanshi *et al.* canalicular repair was done in 10.71% patients [12]. In study of canalicular lacerations by Naik *et al.* canalicular lacerations were found in 36.36% of patients. In the same study, canalicular intubation was done in all cases with minimonoka stent [14].

In our study, complications developed in 22%, patients following repair of eyelid trauma. 8% patients developed epiphora. 14 % patients had structural defects. Complications seen by Tomy *et al.* were lid margin notching, lagophthalmos, hypertrophic scars, infections, tearing, and traumatic ptosis [11]. According

to Chandra vanshi *et al.* secondary surgical correction was done in 14 patients, ectropion correction and scar revision were done in 3 patients each, and entropion correction was done in one patient.

CONCLUSION

Eyelid trauma is routinely managed in the emergency departments worldwide. There are many causes which can lead to eyelid injuries. These injuries can cause functional and aesthetical loss. So these wounds require early repair. The repair should be early, fine and meticulous. Good primary repair in expert hands with good anatomical knowledge showed best results. Good repair definitely leads to excellent anatomic and functional outcome. The complications though not life threatening can lead to devastating results. They badly affect the quality of life of the affected patients. Complications if occur can be managed by the secondary repair. Any type of secondary repair if needed can give good results. Good results occur due to good healing of the lid as it has good vascularity. Any undue delay or any type of inappropriate treatment can lead to infection and fibrosis. This will compromise the outcome of repair.

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