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# To Study the Pattern of Eyelid Injuries in a Tertiary Care Hospital in Mewat Region

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**Abstract** **Original Research Article**

Trauma to eyelid is a major volume of ocular trauma regularly seen in our emergency. It can be a manifestation that can occur following trauma, maybe roadside accidents, falls, blasts and assault cases. Repairing of eyelid injuries requires good knowledge of anatomy of the lids. Good repair also requires fine and meticulous surgical approach to prevent complications. This study was planned to see the pattern of eyelid injury in a rural tertiary care hospital reporting in the emergency so that timely diagnosis and management will prevent the vision loss.

**Keywords:** ocular trauma, anatomy, roadside accidents, eyelid injury.



## INTRODUCTION

Eyelid injury is a common cause of visual morbidity. It causes extreme psychological and emotional stress to victims. It is an economic burden to society. Eyelid injuries are routinely managed in emergency departments Worldwide. Every year approximately 1.6 million people are blinded from ocular injuries and approximately 2.3 million people end up with bilateral low vision because of eye injuries [1]. In the United States, there are approximately 2.5 million cases of eye trauma every year, resulting in approximately 50 000 people losing partial or full vision [2].The incidence of eye injuries may be higher in developing countries. In addition the rates at which eye injuries require hospitalization are in the range of 4.9-89 per 10 million in developing countries [3-7]. Information on its epidemiology from developing countries is also available but the burden and pattern of injuries in developing countries are poorly known and not well studied. Developing country still lacks complete eye injury statistics and authoritative epidemiological data.

According to previous studies, 90% of these injuries are preventable and 45% of them happen in usual places like home, school or work area. It is essential for everyone to have basic information about eye injuries to prevent visual loss. Most of childhood ocular injuries can be prevented by parent's supervision.

Our hospital in Nalhar, NUH, Haryana (India) is a well-known tertiary referral centre for trauma in the region. All cases of trauma including eyelid trauma are transferred to our hospital, making our data representative of eyelid trauma in our region.

The aim of this study was to investigate the epidemiology and pattern of eyelid injuries attending the emergency department of SHKM Govt Medical College Nalhar, NUH, Haryana (India). Despite the heterogeneity of the results, these studies provide important information regarding the burden of eyelid injuries.

## MATERIALS AND METHODS

This descriptive cross-sectional study was conducted in Emergency Department of SHKM Government Medical College, Nalhar, Nuh in 2019. All the patients attending the emergency with eyelid injury

were included from 1st January 2019 to 31st December 2019. This hospital is a major eyelid injury centre and considered as a main referral centre in southern Haryana, so it could produce reliable information about this field.

Data collection was done using a checklist and eye observation and examination. And the following data was gathered through interview: sex, age, job, education, mechanism of injury, injury place, past eye medical history, type of eyelid injury, which eyelid was injured, injury to other part of the body, information about intervention prior to the visiting to the hospital and questions about parents supervision and job in the case of paediatric patients.

All subjects gave their informed consent prior to participating in the study. The informed written consent was given by the patients or guardians on behalf of the minors/children participants involved in our study. The ethical clearance for the study was granted by the Institutional Ethics Committee (IEC) SHKM, 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. In our study, eyelid injuries were found in 62 males and 14 female patients. Male to female ratio was 4.42:1. Among our patients, eyelid injuries were most commonly found in age group of 20-40 years.

**Table-1: Gender distribution of eye lid injuries**

| Gender | Number of patients | Percentage |
|---|---|---|
| MALE | 62 | 81.7 |
| FEMALE | 14 | 18.43 |

**Table-2: Age distribution of eye lid injuries**

| Age groups | Number of cases | Percentage |
|---|---|---|
| < 5 years | 8 | 10.5 |
| 5-20 years | 22 | 28.9 |
| 20-40 years | 35 | 46.2 |
| 40-60 years | 7 | 9.2 |
| >60 years | 4 | 5.2 |

**Table-3: Mode of injury**

| Mode of injury | No. of patients | Percentage |
|---|---|---|
| Accidental injuries | 10 | 13.1 |
| Assault | 26 | 34.2 |
| Road traffic accidents | 20 | 26.4 |
| Work place injuries | 6 | 7.9 |
| Animal related injuries | 4 | 5.3 |
| Play related injuries | 4 | 5.3 |
| Thermal injuries | 3 | 3.9 |
| Chemical injuries | 3 | 3.9 |

In patients less than 10 years, accidental and play related injuries were the commonest cause. In age group of 10 -20 years, accidental injury was the commonest cause. In patients of age group 20-60 years assault was the commonest cause. Right eye was injured in 23 patients. Left eye was injured in 45 patients.8 patients had injury of eyelids of both eyes. Left eye was involved 1.95 times than right eye (table 4). Lower eyelid was involved 1.6 times more than upper lid. Injury to both upper and lower eyelid was seen in 4 patients (table 5). 71 patients presented within 24 hours of injury. Only 5 patients present after 24 hr of injury. (Table 6) Medial 1/3rd of eyelids were involved 1.23 times more than 1/3 more than lateral 1/3$^{rd}$ (Table 8)

**Table-4: Eye Involvement**

| Right eye | 23 | 30.2 |
|---|---|---|
| Left eye | 45 | 59.3 |
| Both eyes | 8 | 10.5 |

**Table-5: Pattern of lid involvement**

| Upper eyelid | 27 | 35.5 |
|---|---|---|
| Lower eyelid | 45 | 59.2 |
| Both eyelids | 4 | 5.3 |

**Table-6: Time of presentation to hospital**

| Time of presentation | No. of patients | Percentage |
|---|---|---|
| 0-6 hours | 24 | 31.6 |
| 6-24 hours | 47 | 61.9 |
| >24hours | 05 | 06.5 |

**Table-7: Morphology of injury**

| Type of Eye Lid Injuries | No. | Percentage |
|---|---|---|
| Superficial skin lacerations | 3 | 3.9 |
| Anterior lamella not involvingmargin | 22 | 28.9 |
| Full thickness not involving margin | 1 | 1.4 |
| Full thickness involving margin | 31 | 40.9 |
| Tissue loss | 4 | 5.3 |
| Canthal tendon injuries | 5 | 6.5 |
| Canalicular injury | 4 | 5.3 |
| Thermal burns first degree burns | 3 | 3.9 |
| Chemical injury third degree burns | 3 | 3.9 |

**Table-8: Site of injury**

| Site of injury | No. of cases | Percentage |
|---|---|---|
| Medial 1/3rd | 32 | 42.1 |
| Middle 1/3rd | 26 | 34.2 |
| Lateral 1/3rd | 18 | 23.7 |

**Table-7: Associated Ocular Injuries**

| Subconjunctival haemorrhage | 10 | 13.2 |
|---|---|---|
| Corneal tear | 4 | 5.3 |
| Fracture orbital Wall | 5 | 6.6 |
| Fracture of bones forming maxillary antrum | 1 | 1.3 |
| CSF Rhinorrhea | 2 | 2.6 |

Sub conjunctival haemorrhage was the most common associated ocular finding followed by corneal tear along with lid injuries. Cerebrospinal fluid rhinnorhea was present in 2 patients. Fracture medial wall of orbit was also noted in 2 patients. One patient each of fracture of lateral wall, roof of orbit, floor of orbit and fracture of bones forming maxillary antrum was present. Diagnosis of each was confirmed with CT SCAN.

**Fig-1: Photograph of patient showing partial upper left eyelid laceration**

**Fig-2: Photograph of patient showing complete lower left eyelid laceration**

## DISCUSSION

In our study, male to female ratio was 4.42:1. In study of eyelid injuries- nine year review of management by ST Yiltok *et al*. male to female ratio was 6.3:1[8]. In our study, eyelid injuries were most commonly found in age group of 20-40 years. In the study of disorders and injuries of eyelid by Lori L Alexander, 20-39 years was commonly affected age group [9].

In our study, upto age of 20 years, accidental injury was the most common cause. In the age group of 20-60 years, assault was the most common cause of injury. In patients more than 60 years, accidental injury was the most common cause.

According to Study of eyelid injuries -Nine year review of management by Yiltok PD *et al*. road traffic accident was the most common cause in 27.3%, assault was the cause in 21.2% [8]. In our study 93.5% of patients presented within 24 hours. According to study by Chandra Vanshi *et al*. 94.64% patients presented within 24 hours [10].

In our study unilateral involvement was seen in 89.5% cases. Left eye was involved 1.95 times more than right eye. According to study by Chandra Vanshi *et al.* unilateral involvement was found in 96.4% [10]. In our study, lower eyelid was involved in 59.2%, upper eyelid in 35.5%, both upper and lower lids in 5.3% patients. In epidemiological study of eyelid injuries conducted by Holle P *et al.* upper eyelid was involved in 47.2% of patients, lower eyelid in 30.5%, and both upper and lower lid in 22.22% [11].

In our study, full thickness injury involving lid margin was the most common lesion, found in 42.3% of patients (table no 7). According to study by Chandra Vanshi *et al*. full thickness laceration involving eyelid margin was most common lesion found in 35.71%patients, followed by partial thickness lacerations not involving eyelid margin being found in 11.60% of patients [10].

In our study canalicular injury was found in 5.3% of patients, canthal tendon avulsion was found in 6.5% patients. According to study by Chandra Vanshi *et al*. canalicular injury was found in 7.1%, media, medial canthal tendon avulsion was found in 3.75%, lateral canthal tendon avulsion was found in 1.78% of patients [10]. In our study tissue loss was found in 5.3% of patients. In a study done by Chandra Vanshi *et al*. tissue loss of 25%-50% was found in 4.46% of patients and tissue loss more than 50% was found in 8.33% of cases [10].

As every study has some limitations, similarly due to short period of time and selection of single hospital limited our cases. The point of loss of some of the minor trauma cases & multiple traumas who might have sought care for eye injuries in other hospitals out of this region must be considered. However, these limitations do not significantly affect the major findings of this study.

## CONCLUSION

The results of this study provide a series of high risk conditions which would be better avoided and proper treatment can be given. By distinguishing the individuals already at greater risk of developing eye lid laceration, this emphasises the necessity for eyelid injuries to be treated primarily by a qualified surgeon. Patients which can't be managed should be referred to higher center at proper time to prevent complications. Proper eyelid repair is an art, the surgical art which requires good anatomical knowledge, proper and gentle tissue handling. Proper alignment of tissue is required to achieve the best cosmetic and functional outcome.

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