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*RESEARCH ARTICLE*

# CLINICAL STUDY AND PROFILE OF OCULAR TRAUMA: FINDINGS FROM A TERTIARY CARE CENTRE FROM NORTHERN INDIA

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## Abstract

**Purpose:** Studying the clinical profile of patients with ocular trauma presenting to casualty of MLB medical college ,Jhansi

**Materials and Methods:** This prospective study, which was hospital-based, was carried out from October 2023 to April 2024. In this study, 50 patients who came straight to the casualty department of MLB Medical College in Jhansi were included. These patients had evaluations of the anterior and posterior segments after having their exterior injuries and visual acuity evaluated. After a week, these patients were checked for follow up.

**Results:** Ocular trauma was widespread in people aged 29 to 42; only two patients were older than 60, and 15 of them were children (1–20 years old). Males experienced more ocular trauma (82.2%) than females (17.8%). Twenty percent of patients had open globe injuries, while eighty percent had closed globe injuries. The majority of the 35 patients had lid laceration (70%) when the open and closed globe injuries were categorized into their subtypes. Ten patients had corneal penetration (20%), three patients had corneal abasion (6%), and two patients had lid abrasion (4%). Although 36 patients (72%), who had a history of traffic accidents, arrived at the hospital, 6 of them had been traumatized by a wooden stick.

**Conclusion:** The most frequent cause of eye trauma among patients who visited this hospital's casualty department was automobile accidents.



## Introduction:-

The disruption of tissue function brought on by the transmission of external energy—whether mechanical, thermal, radiant, radioactive, chemical, or electrical—is referred to as injury to a person, tissue, or organ [1]. Ocular trauma is the leading cause of morbidity and visual impairment worldwide. Ocular trauma (OT) is a significant public health concern that is largely preventable and impacted by a variety of factors in quickly evolving international environments.[2]Over 500 lakh individuals in India are blind, and the number of blind persons rises by 38 lakhs annually. It is noteworthy that preventable eye injuries account for 1.2% of blindness cases. Blindness prevalence may be higher in rural areas (4.5%) than in urban areas (3.97%) [3]. Regretfully, the most prevalent age group is the young, productive one[4].Raising awareness and putting prevention measures in place are highly warranted given the financial expenses of ocular injuries and the strain that treatment and rehabilitation services place on the



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healthcare system. Raising public understanding of potential risk factors and agents that can cause harm can help prevent many injuries [5]. As a result, ophthalmic trauma plays a big role in ophthalmological patient care. By looking at the most influential research in the literature, one can learn about the advancements in science and areas that still need improvement

## Materials and Methods:-

The seven-month period from October 2023 to April 2024 was covered by this prospective study, which was carried out in a tertiary care facility. Based on the inclusion and exclusion criteria, patients with ocular trauma who were seen in the casualty and ophthalmology departments of MLB Medical College, Jhansi, were chosen for the study.

**Inclusion criteria:**
A] all the patients attending the casualty irrespective of age and gender
B] all the referred patients coming without any primary care

**Exclusion criteria:**
A] all patients with orbital fracture
B] patients who failed to follow up

**Sample size:-**
50 patients in all were seen by the casualty department of MLB Medical College in Jhansi. Following a thorough ophthalmic examination, which began with recording the patient's details and complaints, a detailed history of the type of injury, past medical history, and a history of any medications taken previously, a Snellen chart was used to record visual acuity, a Schiots tonometer was used to record intraocular pressure, a slit lamp examination was performed, an indirect ophthalmoscope was used to visualize the posterior segment, consent was obtained, the patient was managed as best we could based on the site and depth of injury, and the patient was followed up with various necessary investigations, such as xray, CT scan, and ultrasound, and examination of the same on the first follow-up after a

## Result:-

This study included patients with ages ranging from 1 to >60 years. Most of the patients were in the age group of 29-42 years. It was found that elderly patients (aged >60 years) had the least number of ocular traumas

**Table 1:-** Distribution of patients according to age.

| Age group | Number of patients | Percentage |
|---|---|---|
| 1-10 | 6 | 12% |
| 11-20 | 9 | 18% |
| 21-30 | 11 | 22% |
| 31-40 | 12 | 24% |
| 41-50 | 7 | 14% |
| 51-60 | 3 | 6% |
| >60 | 2 | 4% |
| Total | 50 | 100 |

For gender distribution;out of total 50 patients taken, 31 were males and 19 were females. Male to female ratio was approximately 2:1

**Table 2:-** Distribution of patients according to their gender.

| Gender | Number of patients | Percentage |
|---|---|---|
| Males | 31 | 62% |
| Females | 19 | 38% |
| Total | 50 | 100 |

After scanning the residential areas of patients, 29 patients came from rural areas and 21 were from urban areas

**Table 3:-** Distribution of patients according to their residence.

| Residence | Number of patients | Percentage |
|---|---|---|
| Rural | 29 | 58% |
| Urban | 21 | 42% |
| Total | 50 | 100 |

Out of 50 patients , 40 patients had closed globe injuries while 10 had open globe injuries

**Table 4:-** Distribution of patients according to type of injuries.

| Type of injury | No of patients | Percentage |
|---|---|---|
| Closed globe | 40 | 80% |
| Open globe | 10 | 20% |
| Total | 50 | 100 |

On classifying the injuries into their subtypes; it was noted that lid laceration contributed 40%, eyebrow lacerations 24%,corneal foreign body , ecchymosis & subconjunctival haemorrhage contributed 8% each whereas corneal tear 4% and tissue loss cases 2%

**Table 5:-** Distribution of patients according to subtypes of injuries.

| Subtype of injury | Number of patients | Percentage |
|---|---|---|
| Lid laceration | 20 | 40% |
| Eyebrow laceration | 12 | 24% |
| Abrasion | 3 | 6% |
| Tisuue loss | 1 | 2% |
| Corneal foreign body | 4 | 8% |
| Corneal tear | 2 | 4% |
| Ecchymosis | 4 | 8% |
| Subconjunctival hameorrhage | 4 | 8% |
| Total | 50 | 100 |

On accounting on the mode of injury, Road traffic accidents accounts for 72%, chemical exposure 10%, farm injury contributed 4% and 2% for assault.

**Table 6:-** Distribution of patients according to mode of injury.

| Mode of injury | No of patients | Percentage |
|---|---|---|
| Road traffic accidents | 36 | 72% |
| Chemical exposure | 5 | 10% |
| Farm injury | 2 | 4% |
| Assault | 1 | 2% |
| Total | 50 | 100 |

In the study, eyelid laceration contributed to the most , so lid suturing accounts for 40% for the total interventions given.

**Table 7:-** Distribution of patients according to the management done.

| Management | No of patients | Percentage |
|---|---|---|
| Suturing of eyelid | 20 | 40% |
| Suturing of eyebrow | 12 | 24% |
| Medical management | 12 | 24% |
| Corneal tear repair | 2 | 4% |
| Foreign body removal | 4 | 8% |
| Total | 50 | 100 |
| | | |

## Discussion:-

This study involved 50 patients with ocular trauma which attended the casualty of maharani laxmi bai medical college ,jhansi.

Most of the patients with ocular injuries in our study were between the ages of 29 and 42. Undoubtedly, one of the most significant avoidable causes of childhood blindness is trauma. [6] In a study including 500 patients, Poy Raiturcar et al. [7] found that the age range of 21–40 years old had the highest occurrence of ocular injuries (45%). In their study of 60 patients, Kumar and [8] Vishwas discovered that the age group with the highest prevalence (43.33%) was middle-aged males (36–55 years). Road traffic accidents were the most frequent cause of damage (56.67), which is consistent with the 40% rate discovered in a Karnataka study on ocular trauma by Kumar et al.[9]Kuhn et al. [10] created a model for prognosis, They analyzed more than 2500 eye injuries from the United States Eye Injury Registry and the Hungarian Eye Injury Registry and evaluated more than 100 variables with the goal of identifying specific predictors. In the calculation of OTS, a numerical value is assigned to the following six variables: initial visual acuity (VA), globe rupture, endophthalmitis, perforating injury, retinal detachment, and relative afferent pupil defect (RAPD). Ophthalmic trauma is a preventable cause of vision loss that can drastically affect one's quality of life [11] The scores are then divided into five categories that provide the probabilities of attaining a range of VAs after injury.The study underscore the need for targeted public health interventions, including educational programs on eye safety and the implementation of preventive strategies, particularly in high risk populations[12]

Pre operative picture of a patient that presented with full thickness lid laceration, eyebrow laceration and tissue loss.

Post operative picture of management with lid and eyebrow suturing along with saving as much as tissue we can.

## Conclusion:-

Based on our findings, ocular trauma is a cause for concern irrespective of the geographical area, economic status, gender, and occupation of the patients as it causes visual disability that makes a person physically, economically, and psychologically disabled. Agriculture is the major occupation in rural areas in central India, and men in the age group of 31-40 years were found to be predominantly affected in our study as most of the males in this age group are engaged in manual labor to earn a living, which makes them vulnerable to injuries of all sorts.It is necessary to educate the working class about exercising caution while working as well as gaining awareness about traffic rules to reduce the incidences of road traffic accidents. It is also important to raise awareness about getting treatment immediately following injuries

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