



**ORIGINAL RESEARCH PAPER**

**Ophthalmology**

**STUDY OF THE PATTERN AND VISUAL ACUITY PROFILE OF OCULAR MEDICO-LEGAL INJURY CASES PRESENTING TO A TERTIARY CARE HOSPITAL**

**KEY WORDS:** medico-legal ocular trauma, road traffic accidents, open globe and closed globe injury

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**ABSTRACT**

**Aim:** To study the pattern and visual acuity profile of ocular medico-legal injury cases presenting to a tertiary care hospital.

**Methods and materials:** In this prospective observational study we included 145 medico-legal ophthalmic injury cases attending ophthalmology department.

**Result:** In our study, we found most of the patients belonged to the young age group and having the mean age of 30.39±3.79. Majority of the cases were male, laborer by occupation. Ocular trauma cases were predominant in urban population as compared to rural population. Amongst various causes, the most common cause of medico-legal ocular injury was road traffic accident (64.13%, n =93). The maximum number of patients at admission had visual acuity between 1/60 to 6/60 (40%, n= 58) and at 3 month follow-up, 47 patients (32.41%) had visual acuity between 6/36 – 6/12

**Conclusion:** Most of the time ocular medico-legal injury cases primarily dealt by non ophthalmologist, so proper triage and early referral to ophthalmologist can optimize the visual outcome.

**INTRODUCTION**

A medicolegal case (MLC) is a case of injury or illness where as per the history given by the patient some investigation by law enforcement agencies is essential to establish and fix responsibility for the case in accordance with the law of the land.<sup>[1, 2]</sup> Ocular trauma is one of the causes of preventable blindness.<sup>[3]</sup> The outcome is challenging in patients with severe injury and grossly reduced visual acuity on presentation. Certain factors like the delicacy of ocular tissues and delayed presentation may prognosticate the visual outcome.<sup>[4]</sup>

The impact of ocular trauma in terms of the need for medical care & the cost of rehabilitation services points towards the need for strengthening of preventive measures worthwhile. Mass awareness regarding potential risk factors & agents causing injury can prevent many ocular hazards.<sup>[4,5]</sup>

This study aims at providing epidemiological data on ocular injuries in rural and urban areas and their medicolegal aspect. It will help in the planning and provision of eye care and implementing preventive and safety strategies in this region.

The casualty is an important department of every hospital as triage of patients according to the severity and all-important medico-legal work takes place here.<sup>[6]</sup> The emergency duty doctor in the casualty department has to first stabilize the patient and take an opinion from the respective emergency department.

**MATERIAL AND METHODS**

This is a prospective observational study conducted from January-2019 to June 2020. In this study, we included 145 medico-legal cases having ocular injury reported to our ophthalmology department. We excluded those patients who were not willing for study, having pre-existing ocular abnormalities, history of previous ocular surgery, or ocular trauma. Ethical clearance was obtained from the institutional ethical committee.

Patients recruited after taking informed consent. A detailed history from the patient was taken in form of age, sex, occupation, mode of injury, type of injury, time and place of

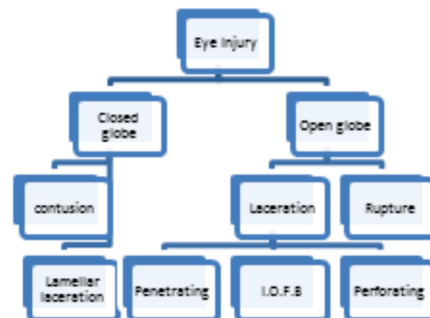
injury, either referred from other hospital or primary presentation and previous treatment history. After performing a general and systemic examination, assessment of visual acuity was performed using a Snellen's chart, anterior segment examination was done using slit lamp biomicroscope, posterior segment examination was done using a direct ophthalmoscope and indirect ophthalmoscope. Other investigations like B-scan, Computed Tomography (CT)-scan, Magnetic resonance imaging (MRI) was performed if required.

Ocular Injury was classified according to betts classification Fig 1. According to injury, patients were treated from conservative to operative management. In case when patient's general condition was poor and had multiple body part injuries, then patients were immediately referred to the respective department for emergency management after giving primary ophthalmic treatment.

After discharge patient's follow-up was done on 1 week, 1 month, and 3 months. Visual acuity and detailed ocular examination were performed on every follow-up.

Data were entered in Microsoft Excel and analysis was done.

**Fig 1 BETTS CLASSIFICATION**

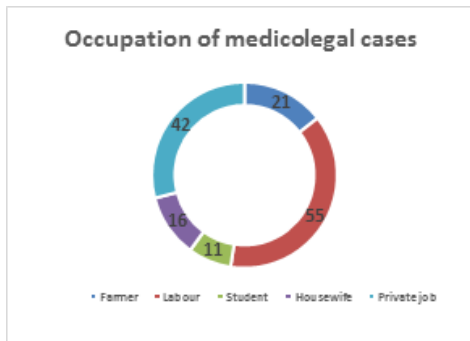


**RESULTS**

In this study out of 145 patients, most of the patients belonged to the age group of 21- 30 years (30.34%, n=44) and the lowest incidence in the age group of 61-70 years of age (2.069%, n=3).

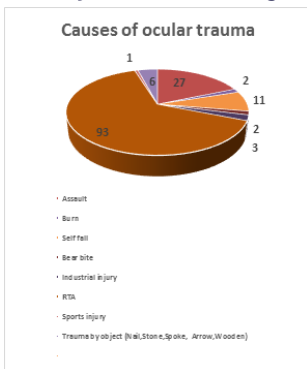
the mean age was 30.39±3.79. In this study 125 cases (86.20%) were males and 20 cases (and 13.79%) were females. Most of the cases were labourer by occupation (37.93%, n=55), followed by private job workers (28.96%, n=42) (graph 1)

**Graph 1: Occupation of medico legal cases**



In our study 98 cases (67.58%) belonged to urban areas and 47 cases (32.41%) belonged to rural areas. The most common cause of medicolegal ocular injury was a road traffic accident (64.13%, n=93), followed by assault (18.62%, n=27) and then self-fall (6.89%, n=11). **Graph 2**

**Graph 2: Causes of injuries in medicolegal cases**



In this study, most of the patients had closed globe injuries (82.75 %, n=120), followed by open globe injuries (17.24 %, n=25). A maximum number of patients had visual acuity between 1/60 to 6/60 (40%, n= 58) and very few patients had visual acuity of no perception of light (2.75%, n= 4). At 3 months follow up, 47 patients (32.41%) had visual acuity between 6/36 – 6/12, and 39 (26.89%) patients had visual acuity between 1/60 – 6/60. Table 1

**Table 1: Visual acuity at the time of presentation and after 3-month follow-up.**

Grade of Vision	No. of case(n) at presentation	No. of cases(n) at 3-month follow-up
No PL	4	4
PLPR	14	14
HMPR	17	18
1/60 – 6/60	58	39
6/36 – 6/12	29	47
6/9 – 6/6	23	23
Total	145	145

Most of the cases (33.79%, n=49) presented to the hospital between 4 to 12 hours of trauma, followed by 37 cases presented more than 12 hours of trauma. 90 patients (62.06) were received medical treatment and 55 patients (37.93) received medical as well as surgical treatment.

**DISCUSSION**

Ocular injury is one of the common causes of blindness. The medicolegal aspect of ocular trauma has been a subject of study and discussion for a long time. The most common age

group was 21 to 30 year, as this age group is most active and do outdoor work for their day to day earnings. Sometimes they are involved in high-risk activity during work and prone to trauma. This age-related finding was similar to the study by Malik et al [7] and Santosh chandrappa siddappa et al. [8] Incidence of ocular injuries in this study was 6 times higher in males. The proportion of males is more because they are involved in high-risk outdoor activities and they want to take revenge and want compensation for trauma from private or government authority. Females are the most neglected ones and even if they want to report the case their family members refuse to report the case as medico-legal. [7,9]

It was found that laborers were more prone to injury. As they perform risky work and they need to travel for their day-to-day earnings, which may prone to workplace injury and road traffic accidents. The most common cause of medico-legal injury was found to be road traffic accidents (RTA) in our study. [10] 67.58% of cases belonged to urban areas as compared to rural areas (32.41%) as urban population involve in heavy industry work, they are more aggressive in nature and resulted injury may be medico-legal . [8] Few studies had rural medicolegal cases more than urban cases. [7,10] In this study, 82.75% of cases had closed globe injuries (CGIs) and 17.24% cases had open globe injuries (OGIs). Various other studies had similar results to our study. [2,8,11] Most of the patients with medico-legal cases had multiple injuries along with eye injuries. According to the severity of the injury, priority should be set by the casualty medical officer for prompt primary treatment and a multi-department approach will help to save the patient's life as well as the injured part of the body. [12,13] In this study, most of the medico-legal cases had visual acuity from the perception of light present and projection of rays intact in all 4 quadrants (PLPR) to 6/60 at the time of presentation. At 3 months follow-up most of the patients had visual acuity 6/36 to 6/12. Time of presentation plays an important role in visual outcome, in our study 33.79% of patients presented to the hospital between 4 to 12 hours after injury. Being tertiary centre , most of the severe injury patients, came from remote areas, which cause a delay in presentation. Delay in seeking medical help after an ocular injury increases the severity of the disease and affects the final visual outcome. [4]

**CONCLUSION**

Casualty medical officers should have proper knowledge for the medico-legal workup so that proper treatment can be initiated in all ocular emergencies, by which we can prevent the delay in the management. There should be some policy made by the government so, that private doctors will not hesitate to handle medicolegal ocular trauma cases. Proper history taking, documentation, photographs, counselling, and regular follow-up of medico-legal cases will help to produce any record in front of the court of law if required.

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