



Clinical Profile of Ocular Injuries at Pravara Rural Hospital (PRH)

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Abstract

Ocular trauma is a major cause of preventable blindness and visual impairment in the world.

Objectives: *Our study is aimed at determining the clinical profile of ocular injuries in Pravara Rural Hospital. We have also studied the time interval between the injury and treatment intervention and visual outcome.*

Methods and Material: *A one year retrospective and prospective study was conducted on patient of ocular trauma in Department of Ophthalmology, Pravara Rural Hospital, Loni from May 2013 to May 2014. Patients of all the age group and either sex were included. A proforma was designed and the data was collected from the clinical records using this proforma. Total 30,000 medical records were screened. 160 patients out of 30,000 were treated for ocular injury.*

Results: *Occurrence of ocular trauma was 0.53%. Males predominated (63.75%) irrespective of the age. Incidence peaked in second decade of life (31.25%) and 152 patients (95%) lived in villages. Agricultural activities accounted for maximum number of cases (32.5%). Main cause of ocular injury was foreign body (25%). Most common diagnosis in surgically treated patient was iris prolapse (13.75%) and corneal tear (13.75%). Maximum patients (56.25%) reported in hospital within 6 hours. Close globe injuries were seen in more number of patients (58.75%). Most of the injuries were mechanical (87.5%). Presenting visual acuity of FC<3mtrs was noted in 30 patients (18.75%). The final visual acuity was 6/6 in 44 cases (27.5%) followed by 6/9 in 33 cases (20.62%).*

Conclusion: *Delay in presentation was associated with complications. Public awareness and preventive strategies can help to reduce occurrence of ocular injury.*

Introduction

Ocular trauma is an important and has assumed greater significance in modern technology when

greater industrial, agricultural and vehicular revolution has taken place and so the incidence of ocular trauma has increased sharply which is the

leading cause of monocular blindness especially in children and in young generation. However it is preventable public health problem.^[1] As many as half a million people in the world are blind as a result of ocular injuries.^[2] Most of the eye injuries have a direct relation with the specific occupation and the nature of activity at the time of injury.^[3] A good proportion of work related assault (agriculture and other occupations) were reported in young adult males.^[4] Agricultural injuries leading to corneal ulcer and vision loss is very common in developing countries.^[5] Risk factors of incurring ocular trauma are more in males.^[3] Despite its public health importance, there is relatively less data on magnitude and risk factors for ocular trauma, especially from developing countries.^[3] This data helps in the development of appropriate preventive measures.^[3] Objective of present study was to study the clinical profile of ocular injuries and its occurrence with special emphasis on the time interval between injury and treatment intervention and visual outcome. Chemical injuries are by no means uncommon. These vary in severity from trivial and transient irritation of little significance to complete and sudden loss of vision. Like any other part of the body, eyes are also not exempt from these injuries; in spite of the fact that they are well protected by the lids, projected margins of the orbit, the nose and a cushion of fat from behind. Mechanical injuries can be grouped as under:

1. Retained extra ocular foreign bodies
2. Blunt trauma (contusional injuries)
3. Penetrating and perforating injuries
4. Penetrating injuries with retained intraocular foreign bodies.

New Ocular Trauma Terminologies

Before going into details of these mechanical injuries, it will be worthwhile to become familiar with the new ocular trauma terminology system. The term eye wall has been restricted for the outer fibrous coat (cornea and sclera) of the eyeball. The new definitions proposed by mechanical ocular injuries are as follows:

1. **Closed-Globe** injury is one in which the eyeball (cornea and sclera) does not have a full thickness wound but there is intraocular damage. It includes

- i. Contusion. It refers to closed-globe injury resulting from blunt trauma. Damage may occur at the site of impact or at a distant site.
- ii. Lamellar laceration. It is a closed globe injury characterized by a partial thickness wound of the eyeball caused by a sharp object or blunt trauma.

2. **Open-Globe** injury is associated with a full thickness wound of the sclera or cornea or both. It includes rupture and laceration of eye wall.

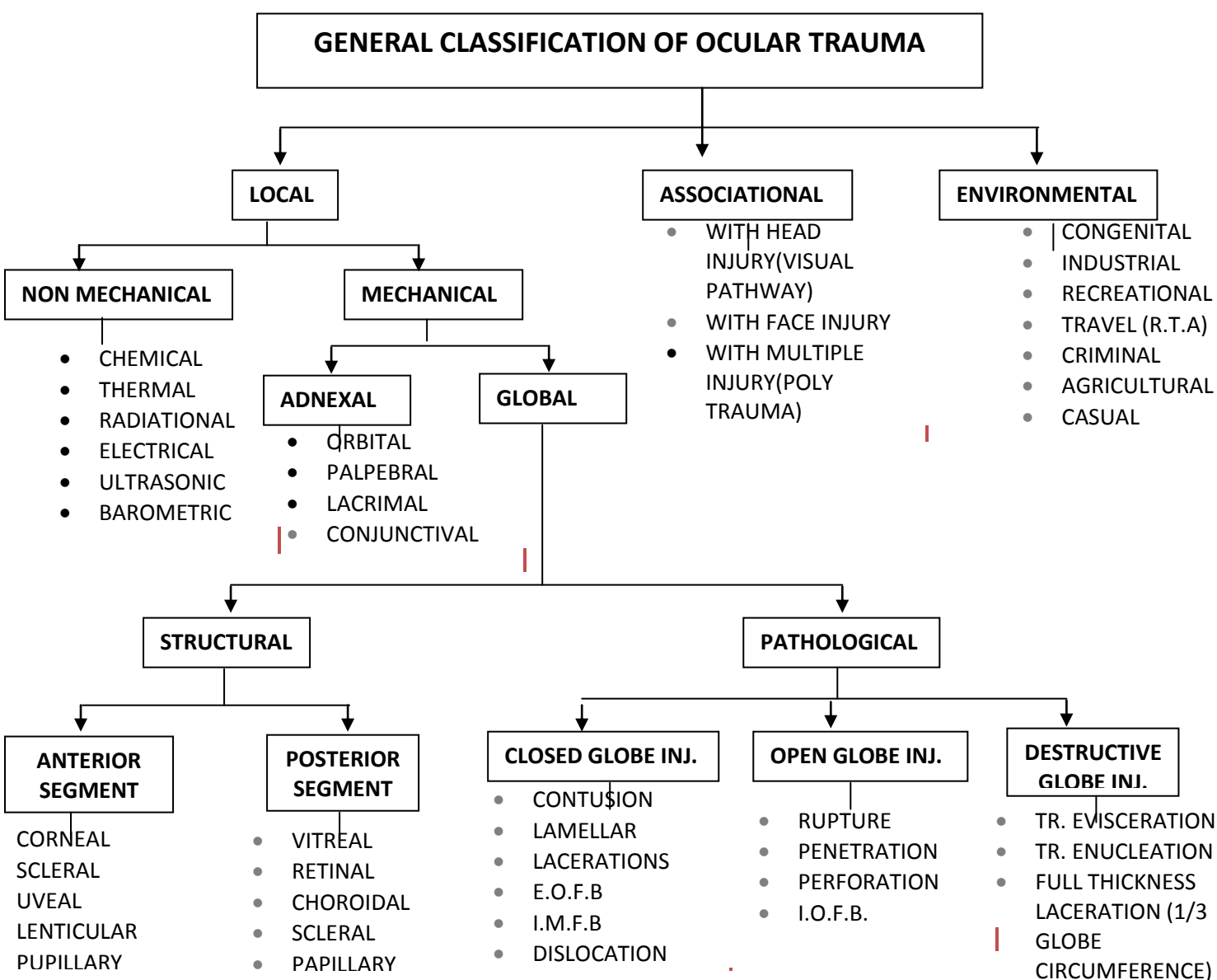
i. Rupture refers to a full thickness wound of the eye wall caused by the impact of blunt trauma. The wound occurs due to markedly raised intraocular pressure by an inside-out injury mechanism.

ii. Laceration refers to a thickness wound of the eye wall caused by a sharp object. The wound occurs at the impact site by an outside-in mechanism. It includes:

- Penetrating injury refers to a single laceration of eye wall caused by a sharp object.
- Perforating injury refers to two full thickness lacerations (one entry and one exit) of the Eye wall caused by a sharp object or missile wounds must have been caused by the same agent.

Aims and Objectives

- 1) To find out percentage of occurrence of ocular injuries at **PRH**.
- 2) To study the clinical profile of patients with ocular injuries at **PRH**
- 3) To study the time interval between injury and medical or surgical intervention.
- 4) To study the visual outcome in relation to the time interval between injury and intervention.



Materials and Methods

A one year retrospective and prospective study was conducted on patient of ocular trauma in Department of Ophthalmology, **PRH**, Loni.

Inclusion Criteria: All patients with any type of ocular injury visiting Department of Ophthalmology in **PRH**, Loni, patients of either gender, patients of all age group.

Exclusion Criteria: Patients with pre-existing ocular anomalies like Diabetic retinopathy, Hypertensive retinopathy and Glaucoma, patients with chronic disorders like Diabetic Mellitus, Cardiovascular and Cerebral abnormalities, patients on any drug that causes ophthalmic abnormality.

Sample size: 160 patients

Study period: May 2013 to May 2014

Study conduct: Data were collected from the clinical records using a structural data collection which included demographic data, date, time, and place of injury, activity at time of injury, visual acuity at time of injury. While conducting this study we came across with many paediatric age group patients of ocular injury and so with permission of IEC we included all the age group patients of ocular injuries in this study.

Statistical analysis: Data was collected, pooled, subjected to appropriate statistical analysis (Z test) and conclusion were drawn.

Observation and Result

We have screened the medical records of both OPD and IPD patients from May 2013 to May 2014. Total 30,000 were screened. 160 patients out of 30,000 were treated for ocular injury. Occurrence of ocular trauma was **0.53%**.

Table 1-Age and Sex Distribution in Study Cases

AGE INTERVAL	NO. OF CASES	
	MALE	FEMALE
1-10	16	8
11-20	13	7
21-30	32	18
31-40	19	11
41-50	9	7
51-60	5	3
61-70	6	4
71-80	2	0
TOTAL	102	58
GRAND TOTAL	160	

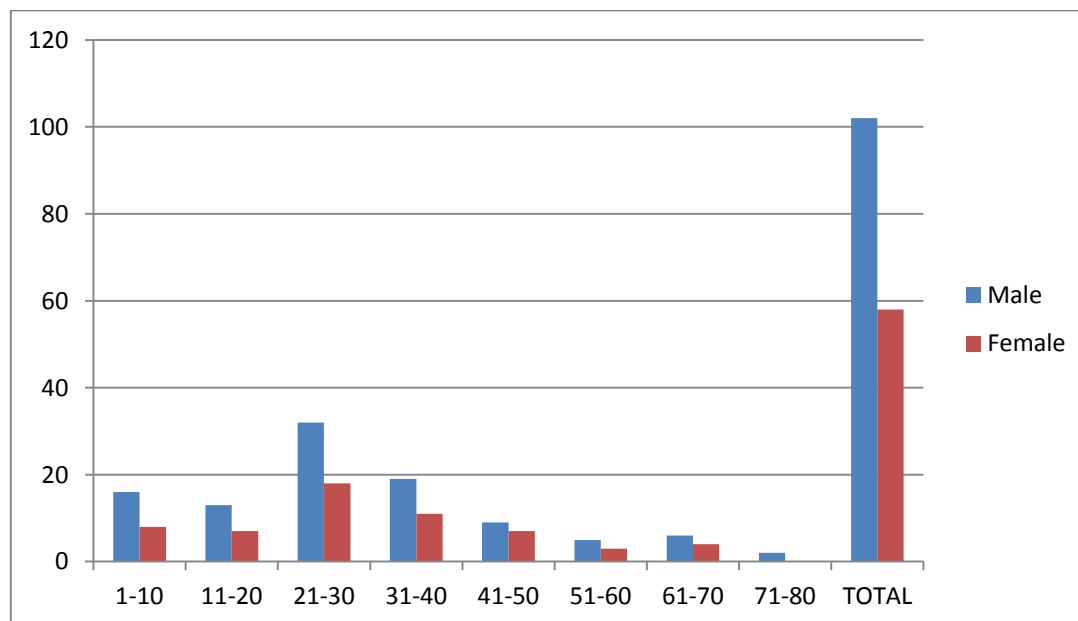


Figure 1 - Age and Sex Distribution in Study Cases

Table 2-Etiological Factors for the Ocular Injury in the Study Cases

STONE	10
HOOK	4
BULL HORN	4
GOAT HORN	6
SCREW	8
WOODEN STICK	8
FOREIGN BODY	40
FALL	4
FINGER	10
IRON WIRE	6
SUGARCANE LEAF	16
WELDING PROBE	4
THORN	4
STEEL FURNITURE	2
METAL PIPE	4
RTA	8
GUM	4
CHUNA	4
INSECTICIDE	8
COLOUR	4
BURNS	2

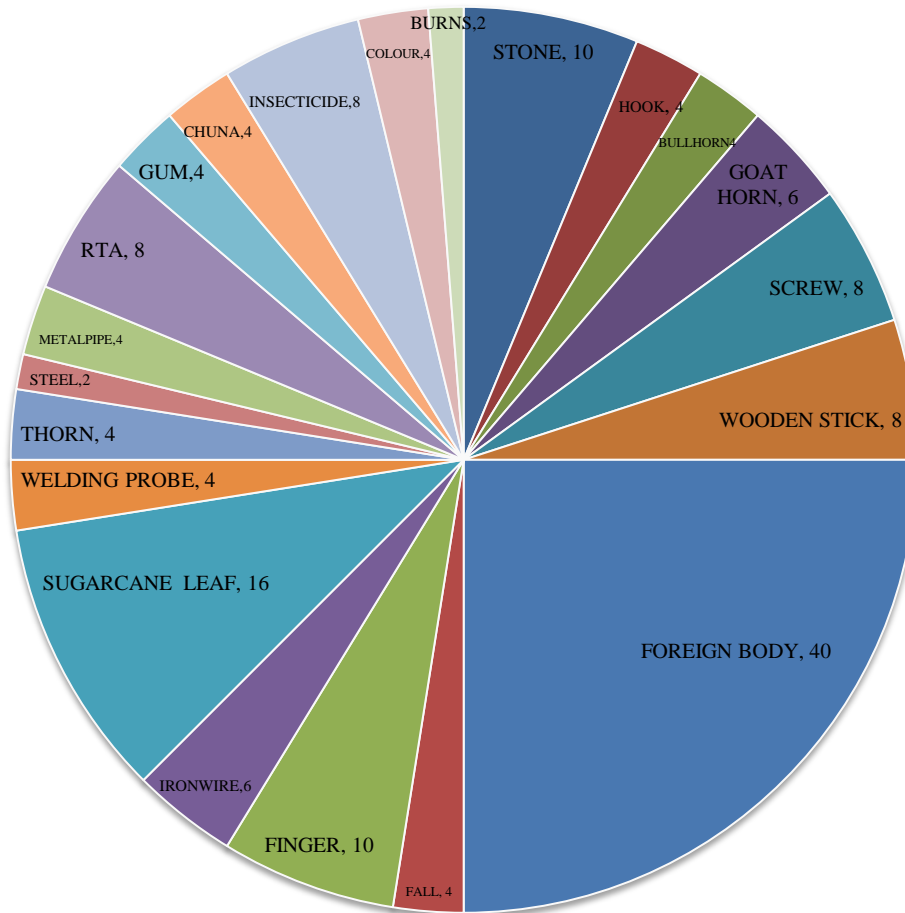


Figure 2- Etiological Factors for the Ocular Injury in the Study Cases

Table 3-Clinical Profile in all Study Cases

CLINICAL PROFILE (DIAGNOSIS)	NO. OF CASES
CORNEOSCLERAL TEAR	16(10%)
CORNEAL TEAR	22(13.75%)
IRIS PROLAPSED	22(13.75%)
EOFB	24(15%)
LID LACERATION	6(3.75%)
CONJUNCTIVAL TEAR	2(1.25%)
CLOSE GLOBE TRAUMATIC CATARACT	8(5%)
OPEN GLOBE TRAUMATIC CATARACT	4(2.5%)
CORNEAL ABRASION	8(5%)
CORNEAL FB	12(7.5%)
CONJUNCTIVAL FB	20(12.5%)
CHEMICAL EYE INJURY	16(10%)
TOTAL	160

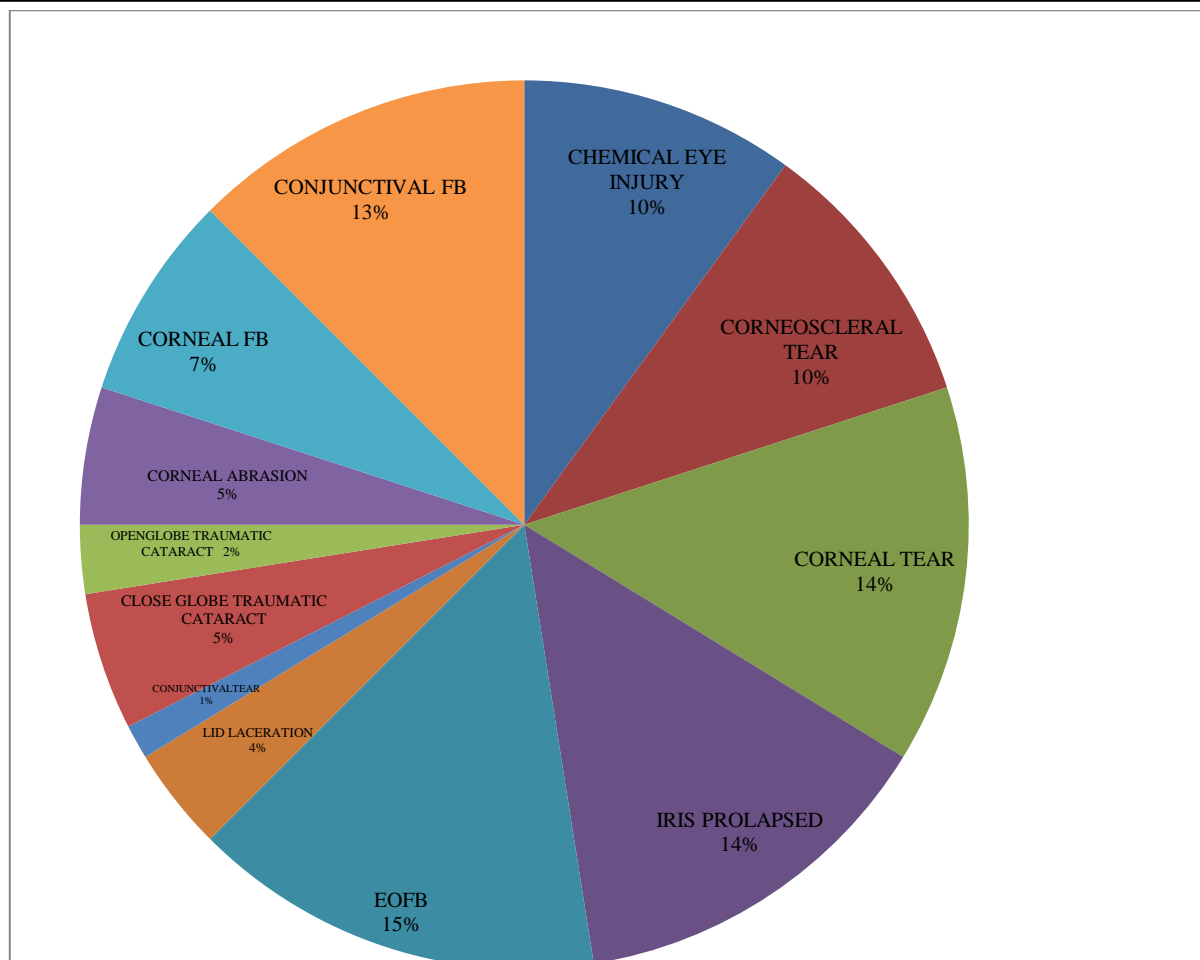


Figure 3--Clinical Profile in all Study Cases

Table 4- Time Interval between the Occurrence of Ocular Trauma and Treatment (Medicine/Surgery)

LESS THAN 6 HRS	90(56.25%)
MORE THAN 6hrs	70(43.75%)

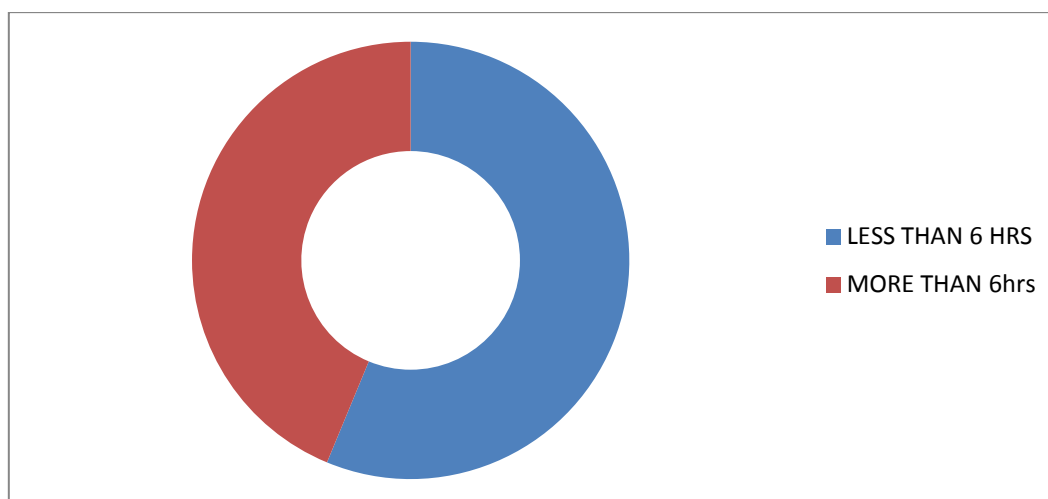
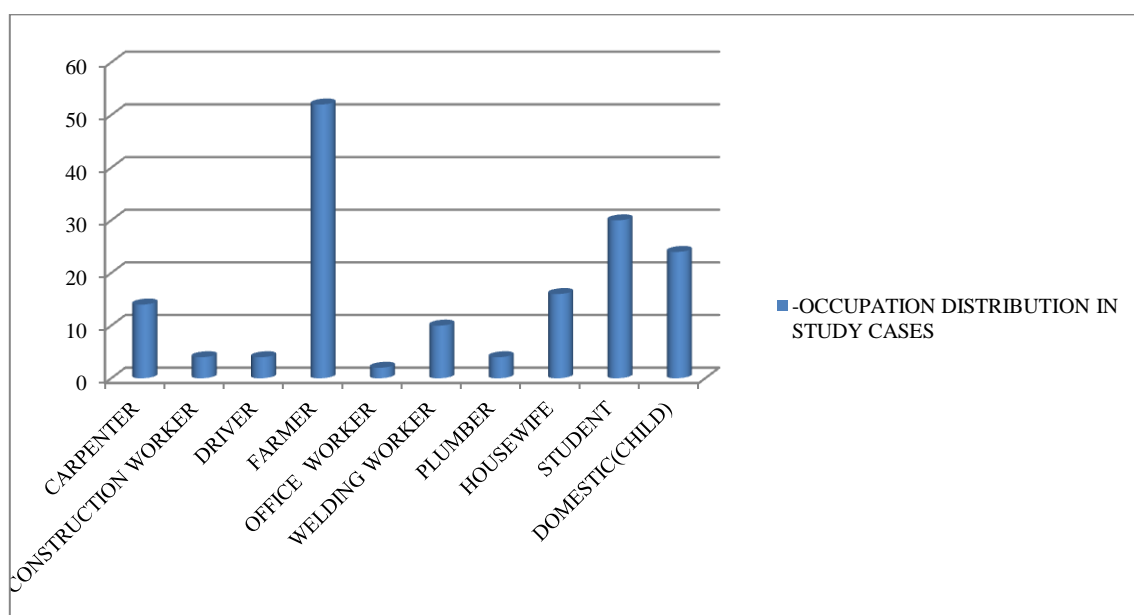


Figure 4 - Time Interval between the Occurrence of Ocular Trauma and Treatment (Medicine/Surgery)

Table 5- Distribution of Occupation in Study Cases

CARPENTER	14
CONSTRUCTION WORKER	4
DRIVER	4
FARMER	52
OFFICE WORKER	2
WELDING WORKER	10
PLUMBER	4
HOUSEWIFE	16
STUDENT	30
DOMESTIC(CHILD)	24

**Figure 5 -** Distribution of Occupation in Study Cases**Table 6-Type of Injury**

	CHEMICAL	MECHANICAL	THERMAL	TOTAL
CLOSE	18(11.25%)	74(46.25%)	2(1.25%)	94(58.75%)
OPEN	0(0%)	66(41.25%)	0(0%)	66(41.25%)
TOTAL	18(11.25%)	140(87.5%)	2(1.25%)	
GRAND TOTAL	160			

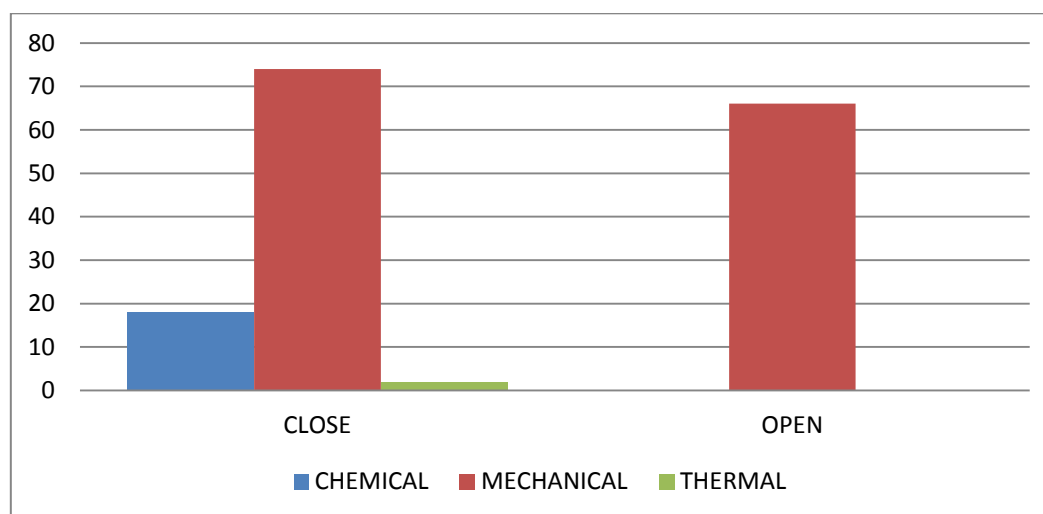
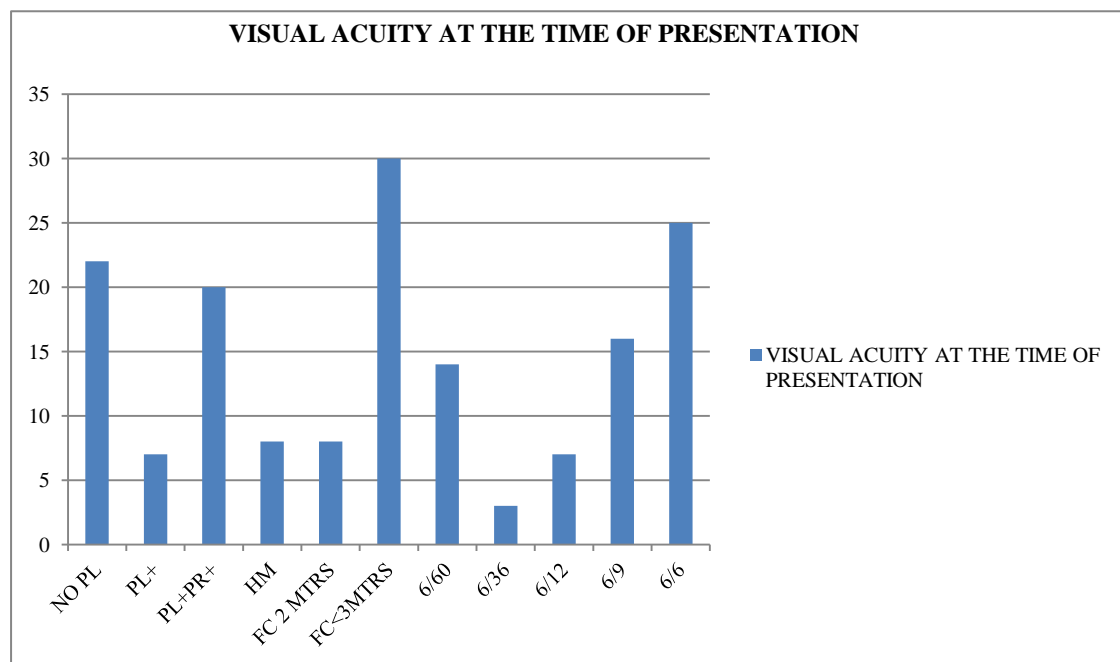
**Figure7-Type of Injury**

Table 7 –Visual Acuity at the Time of Presentation

NO PL	22
PL+	7
PL+PR+	20
HM	8
FC 2 MTRS	8
FC<3MTRS	30
6/60	14
6/36	3
6/12	7
6/9	16
6/6	25

Figure 8 - Visual Acuity at the Time of Presentation**Table 8 -Visual Outcome**

6/6	44
6/9	33
6/12	7
6/18	6
6/24	12
6/36	6
6/60	16
FC<3MTR	8
PL+PR+	4
No PL	22

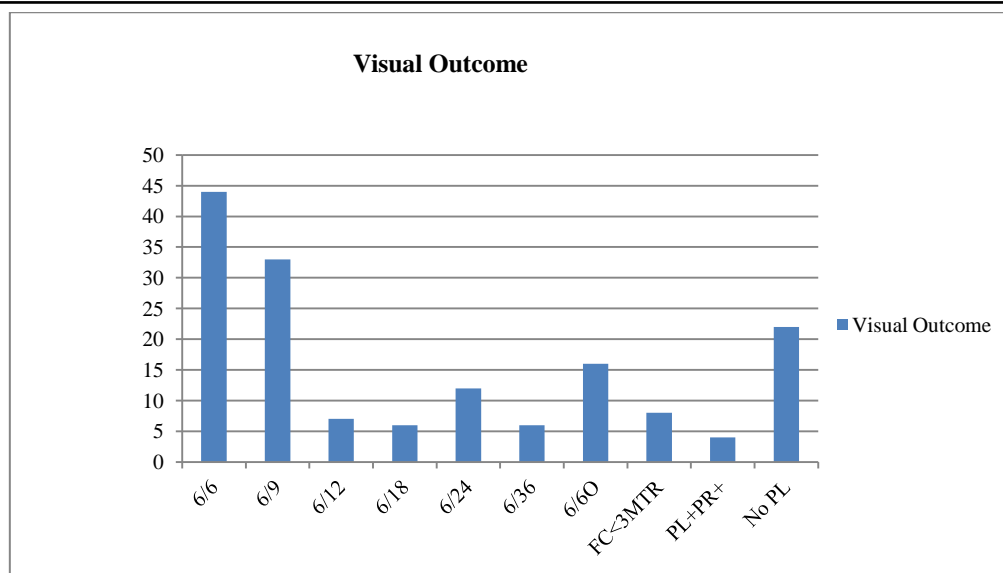


Figure 9 – Visual Outcome

Discussion

Ocular trauma is a major cause of mono-ocular blindness and visual impairment throughout the world. In our study we found higher incidence of eye injuries in males. The explanation of this could be the greater risk, occupation and stimulus to aggressiveness given to male in almost all societies and better access to health services. It is possible that the lower incidence among women may be due to their poorer access to care. Similar results were shown in other studies.^[15] We also found that the ocular injuries were common in second and third decade of life.^[20] Increased incidence of ocular injuries among young can be explained by their frequent social and outdoor activities at work places like fields in our rural area. Close globe injuries (58.75%) predominated in our study. Other studies also showed that closed globe injuries were six times higher than open globe injuries.^[16] Our analysis showed higher incidence of close globe injuries as compared to the study by Mohamad Dilawar.^[3] Ocular injuries especially those occurring during agricultural activities were more common in our study. Similar results of ocular trauma leading to blindness due to agricultural work or domestic activities were shown by P R Sthapit et al.^[8] As against the studies conducted in UK, South Korea and Turkey show that factory and workplace accidents are more common probably attributable to growing

industrialization in those regions.^[19] Among the etiological factors, trauma due to foreign body (25%) mostly agricultural in nature like sugarcane leaf, insecticides, stone, etc. accounted for maximum number of cases in our study. As against study of JUDO showed violence's the commonest cause for ocular injury.^[7] In this study 90 patients (56.25%) reported within 6 hrs of trauma. In study conducted by Dr.Purnima only 15.2% patients presented within 6 hrs of injury.^[8] In our study the presenting visual acuity was FC<3mtrs in 30 patients (18.75%) and final visual acuity was 6/6 in 44 patients (27.5%).As against final visual acuity of $\geq 20/40$ was shown in 41% of the patients by M. Dilawar et al. 3P R Shapith has shown, the presenting visual acuity better than 6/12 in 94 cases (83.92%) and VA of <3/60 in three cases (2.67%). In our study 22 patients had final visual acuity of No PL(13.75%).Similarly Asaminew T et al showed 21.1% of the ocular injuries with blinding outcome i.e., visual acuity <3/60.1613.2% patients had a blinding outcome with visual acuity less than 6/12 in injured eye. Better final visual outcome in our study may be because of early referral of patients to the hospital and timely appropriate interventions.

Conclusion

Mechanical and agricultural ocular injuries are commonly seen in males from rural area. Visual

outcome remains good in those who reveal hospital treatment within 6 hrs especially in close globe mechanical injuries.

Acknowledgement

Authors dually acknowledge the ICMR for selecting this research project for the short term studentship, the valuable contribution of the department of ophthalmology, directorate of research and all the patients for their support and participation in this study.

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