



Research Article

A HOSPITAL BASED RETROSPECTIVE STUDY ON PREVALENCE AND PATTERN OF OCULAR TRAUMA

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ABSTRACT

Aim: The present hospital based retrospective study was undertaken to evaluate the prevalence and pattern of ocular trauma.

Materials and Methodology :All 400 patients with ocular trauma was taken for study. Old trauma cases who came for followups up were excluded from the study. Visual acuity testing, slit lamp biomicroscopy, funduscopy and intraocular pressure measurement (except in open globe injury) were performed in all the trauma patients. Data were collected from clinical records in a standard data collection format which included age, sex, place, data of trauma, visual acuity, cause, type and nature of injury, clinical presentation etc.

Results: Trauma was seen among all age group. Males were more affected than females and most cases were unilateral. Majority of cases reported within 24 hours of injury with variable degree of visual impairment and with various clinical presentations.

Conclusion: Closed globe injury and eyelid injury were the commonest trauma. Road traffic accident and work place injuries are frequent causes of ocular trauma. Awareness about this preventable ocular hazard among mass population is the need of the hour.

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INTRODUCTION

Ocular trauma is a leading cause of preventable monocular blindness worldwide and is a serious public health concern in developed and developing countries [1]. In a research programme for the prevention of blindness, the World Health organization (WHO) estimated that 55 million eye injuries occur yearly, of which 7,50,000 people require hospitalization [2]. Though eye is protected by lids and orbital margin still there is high incidence of blindness due to ocular trauma. No age is immune for ocular trauma. Likewise no part of the eyeball or orbit is immune for getting traumatized leading to visual disability [3]. Ocular injury occurs in three forms: open globe, closed globe and adnexal injuries. Open globe injuries are one of the most common emergencies in ophthalmologic clinics and require immediate operation [4]. The age distribution for serious ocular trauma is bimodal with the maximum incidence in young adults and a second peak in the elderly [5]. The most frequent causes of injuries are outdoor activities related, work related or sports related in men and home related and outdoor activities related in women [6]. Eye injury occurs frequently in India and constitutes a major health problem like in other developing countries [7]. Like other medical emergencies, ocular trauma being also an ocular emergency, it needs immediate attention and intervention. Out of all types of ocular emergencies, ocular trauma is far the commonest, constituting nearly 75% of all ocular emergencies [8].

MATERIALS AND METHODS

The present retrospective study was undertaken amongst the ocular trauma patients who attended at Eye out patient dept. (OPD) and emergency unit of Regional Institute of Ophthalmology, Gauhati Medical College, Guwahati for a period of one year to evaluate the prevalence and pattern of ocular trauma among the eye injury patients. It was also aimed to determine the demographic picture of ocular trauma patients. There were 400 cases of ocular trauma out of total 28,602 eye patients in eye OPD and emergency unit during the period. The incidence of ocular trauma was calculated from the above data. Every ocular trauma patient was selected for the study. Only those old ocular trauma cases who came for follow up were excluded from the study. Those patients with bilateral ocular trauma, the records of the worse eye was taken for study (there were 6 bilateral cases and among them, in 4 patients left eye was more injured and in 2 patients right eye was more injured). The visual acuity of all patients were recorded and thereafter they were subjected to slit lamp biomicroscopy and ophthalmoscopy. Intraocular pressure was measured in all eyes except in open globe injuries. Data were collected from clinical records available in OPD record unit which include age, sex, place and data of trauma; other details included the laterality of ocular trauma, visual acuity, time of presentation, cause and nature of injury and clinical presentation of the trauma using a structured data collection format. It was edited, cleaned, checked for completeness and cross checked for accuracy.

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RESULTS AND OBSERVATIONS

This retrospective study consisted of 400 patients with ocular trauma. Beforehand we determined the incidence of ocular trauma among all the eye patients attending Eye OPD and emergency unit in a period of one year. The results and observations are presented below:-

Incidence of Ocular Trauma Among eye Patients Attending Eye OPD

Table 1 Incidence of ocular trauma

Total no.of eye patients	28,602
No. of patients with ocular trauma	400
Incidence of ocular trauma	1.40%

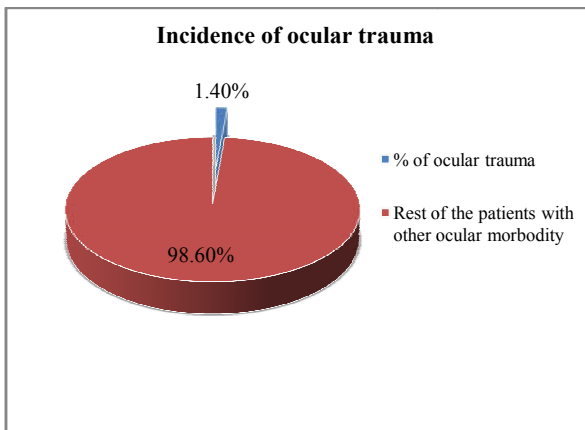


Figure 1

The above table and figure present the incidence of ocular trauma in our hospital based retrospective study.

Distribution of ocular trauma among different age group

Table 2 Age distribution

Age group in years	Number	Percentage
≤20	100	25%
21 -40	230	57.50%
41-60	60	15%
>60	10	2.50%

The maximum number of ocular trauma cases were in the age between 21-40 years (57.50%) and minimum numbers were seen in the age group of above 60 years (2.50%).

Distribution Ocular Trauma Among Males and Females

Table 3 Gender distribution

Gender	Number	Percentage
Male	340	85%
Female	60	15%

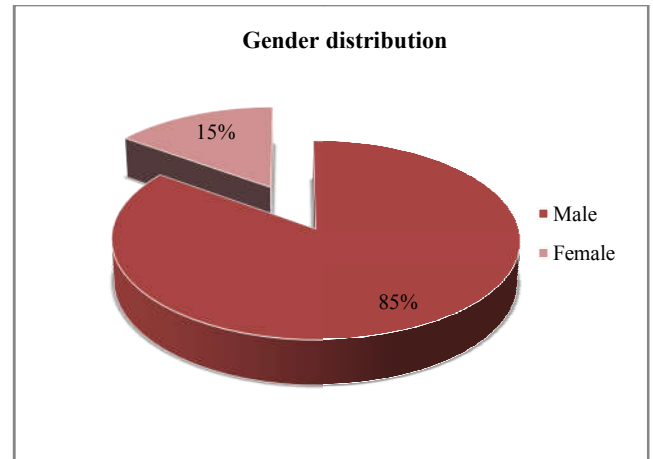


Figure 2

The ocular trauma was found to be much more prevalent among males (85%) than females (15%).

Laterality of ocular trauma (involved eye)

Table 4 Laterality of ocular trauma

	Number	Percentage
Right eye	190	47.50%
Left eye	204	51.00%
Both eyes	6	1.50%

Left eye was involved more (51.00%) than right eye (47.50%) Both eyes are involved only in 1.50%.

Distribution of Patients According to the Visual Acuity at the time of Presentation at Hospital

Table 5 Distribution of patient

Visual acuity	Number of patients	Percentage
6/6 – 6/12	266	66.50%
6/18 – 6/36	82	20.50%
6/60 –FC	36	9.00%
PL present	12	3.00%
PL absent	4	1.00%

FC = Finger counting
PL = Perception of light

The maximum number of patients (66.50%) had visual acuity between 6/6 – 6/12 whereas 1.00% patients had no perception light.

Distribution of Ocular Trauma based on Aetiology

Table 6 Aetiology

Cause	Number	Percentage
Road traffic accident (RTA)	80	20%
Work place injury	80	20%
Fall down	70	17.50%
Assault	50	12.50%
Games and sports	28	7%
Ocular Foreign Body	68	17%
Others	24	6%

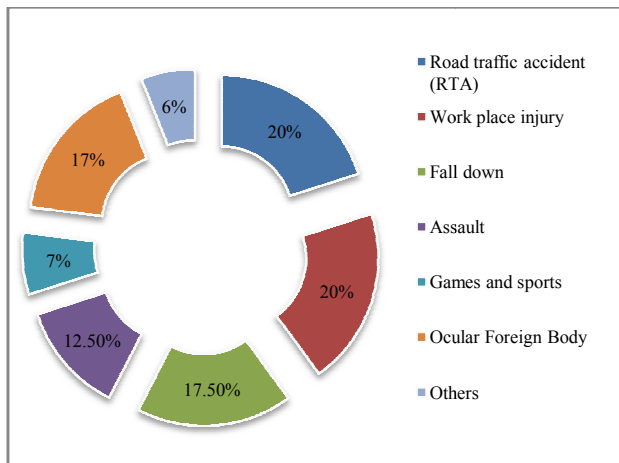


Figure 3

Maximum number of ocular trauma occurred from RTA (20%) and work place injury (20%) whereas others (injury from finger nail, scissor, wood, burn) accounted for only 6%.

Time of Presentation of Ocular Trauma Cases at Hospital

Table 7 Time of presentation

Time of Presentation	Number	Percentage
<24 hrs	156	39%
24 – 48 hrs	104	26%
>48 hrs – 1week	100	25%
>1 week	40	10%

Most of the cases (39%) attended at Eye OPD or emergency unit before 24 hrs while 10% of cases attended lately (after 1 week).

Distribution of Type of Ocular Injuries

Table 8 Type of injury

Type of injury	Number	Percentage
Extraocular Foreign Body	74	18.50%
Closed globe injury	156	39.00%
Open globe injury	52	13.00%
Ocular adnexal injury (Lid and conjunctiva)	104	26.00%
Ocular Burn	14	3.50%

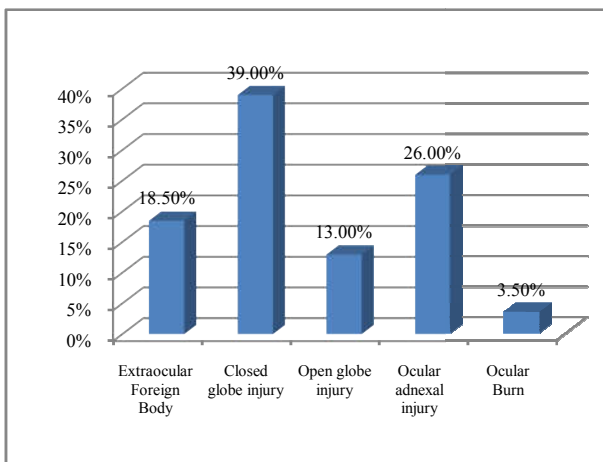


Figure 4

Closed globe injury were prevalent maximally (39%) and ocular burn accounted minimally (3.50%).

Clinical Presentation of Ocular Injury Among the Patients

Table 9 Clinical presentation

Clinical of Presentation	Number	Percentage
Conjunctival injury	28	7%
Lid injury	120	30%
Subconjunctival Haemorrhage	70	17.50%
Ecchymosis	26	6.50%
Hyphaema	12	3.00%
Corneal abrasion and oedema	50	12.50%
Traumatic mydriasis	6	1.50%
Impacted corneal Foreign Body (Extraocular)	36	9.00%
Intraocular Foreign Body (IOFB)	4	1.00%
Iris prolapse	10	2.50%
Corneal laceration	20	5.00%
Scleral rupture	14	3.50%
vitreous Haemorrhage	4	1.00%

Maximum number of ocular trauma had lid injury (30%) followed by subconjunctival haemorrhage with 17.50% and corneal abrasion with 12.50%.

Medicolegal Status of Ocular Trauma Cases

Table 10 Medicolegal statu

Medico legalstatus (ML)	Number	Percentage
ML cases	60	15%
Non ML cases	340	85%

The above table shows that Non ML cases were found to be more than ML cases.

DISCUSSION

In our hospital based retrospective study, the incidence of ocular trauma was observed to be 1.40%. Dongre M.B *et al* in their study of 200 patients with ocular trauma out of total 23,000 ophthalmic patients during the study period and the incidence of ocular trauma on calculation was found to be 0.86% which is lower than our finding [9]. Similar findings were found by S.K. Khattry (2004) in which crude incidence of ocular trauma was 0.51 per 1000 population at risk per year [10]. In findings of Govind Singh Titiyal *et al* also, ocular trauma accounted for 1.03% among their study population. [11]

The present study found the maximum number of ocular trauma cases in the age group between 21–40 years (57.50%) and minimum cases (2.50%) were detected above 60 years of age. Dr.Hendge Ramchandra Dattatray *et al* in their study observed the prevalence of ocular trauma to be 25% in between 21–30 years and 38% in between 31–40 years, documented by graphical representation (line diagram) which on addition is found to be 63% (25% +38%) in the age between 21 – 40 years [12] and is comparable to our study. Male preponderance was noticed in our study which is similar to other studies as shown below:-

Different study	Gender distribution	
	Male	Female
(i) JC Nelson –Imoru <i>et al</i> , 2014 [13]	71.30%	28.70%
(ii) Govind Singha Titiyal <i>et al</i> , 2013 [11]	90.90%	9.10%
(iii) Dr.Hendge R. Duttatray <i>et al</i> , 2016 [12]	77%	23%
Present study	85%	15%

As regards the eye involved in ocular trauma, left eye was more involved (51.00%) than right (47.50%) which is similar to findings of Dr.Hendge R. Duttatray *et al* [12] showing left eye involvement in 62% and right eye involvement in 35% . On the contrary,ParriMuralidhar *et al* (2016) [14] found that right eye injury was more frequent (60%) than left eye (40%).

The highest number of ocular trauma cases (66.50%) in our study had visual acuity in between 6/6-6/12 and only 1% had no perception of light at presentation. This corroborates with the finding of Dr.Hendge R. Duttatray *et al* [11] in which maximum number of ocular injury cases (56.66%) had vision in between 6/6-6/12 at presentation while no case with perception of light was noticed. But Avinash Mishra *et al* (2014) observed maximum patients (45.80%) had visual acuity in between 6/12-6/60 [15]. In the present study, maximum number of ocular injury occurred from RTA (20%) and work place (20%) while injury from finger nail,scissors, burnetc. accounted for only 6%.Dr.HendgeR. Duttatray *et al* also documented higher incidence of ocular injury from RTA (36.66%) and occupational (26.66%) than from other circumstances.Dr.Pinaki Sengupta*et al* also observed that work place injury was highest (41.06%) among others [16].

Most of the trauma cases (39%) attended our Eye OPD within 24 hrs while 10% cases come as late as after 1week. In AvinashMistra *et al*'s study also, majority of patients (83.6%) presented within 24 hours of injury [15].Closed globe injury were found to be more frequent (39%) than other traumas while ocular burn were least (3.50%) in our study finding. This is again similar to Dr.Hendge R. Duttatray *et al*'s observation with closed globe injury accounting for 83.33% (highest among all types of injury) [11]. Closed globe injuries were also commonest (72.2%) in Dr. Pinaki Sengupta'sfinding [16].In the present study, lid injury was the commonest presentation (30%) at Eye OPD among all ocular trauma followed by subconjunctival haemorrhage (17.50%) and corneal abrasion (12.50%). Lid laceration also accounted for 30% of all ocular trauma cases and subconjunctival haemorrhage was commonest (60%) in findings of Dr. H. R. Duttatray *et al*'swork [11]. Lastly in our study, non medicolegalcases (ML) were more (85%) than medicolegal cases (ML)(15%). This is similar to findings of Dr. H.R. Duttatray *et al* with 75% non ML cases and 25% ML cases [11].

CONCLUSION

Ocular trauma is a major cases of preventable ocular morbidity, monocular visual impairment and blindness throughout the globe which is needs special attention and prompt intervention for prevention and optimal recovery from ocular damage. It is prevalent among all age group with a male preponderance which is probably due to more outdoor activities of males than females. Ocular injury are mostly unilateral and shows more involvement of left eyes. Vision of the traumatised eye at time of presentation ranged from normal visual acuity to blindness and majority of the patients reported for treatment within 24 hours of injury. The most common type of the ocular trauma is the closed globe injury and majority of the patients presented with eyelid trauma and subconjunctival haemorrhage Road traffic accident and work place injury are the commonest causes of ocular injuries and this warrants the need for strict enforcement of traffic rules and industrial safety protocols. Safety procedures such as wearing

seat belts in driving, protective goggles in welding, supervising children while playing etc. should be advocated through media.Awareness about this preventable ocularhazard and a healthy working environment would definitely do a great job in preventing ocular trauma. All secondary and tertiary care hospitals must have a well equipped ocular trauma clinic with trained personal.

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