



## Evaluation of Ocular Trauma at a Rural Tertiary Centre

### KEYWORDS

Ocular Trauma, Open globe injury, Closed globe injury, Ocular trauma Score.

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**ABSTRACT** Ocular Trauma has been found to be an important cause of Ocular morbidity. Ocular injuries result in unusual socioeconomic loss as hospitalisation and emergency treatment is required.

*Purpose* – To study the clinical profile and Visual outcome of Ocular trauma cases presented to a rural tertiary Government hospital. A retrospective review of 71 patients of Ocular trauma presented to the opd and casualty in a year from June 2011-June 2012. We analysed the common age of patients prone for trauma, the type of trauma, the cause of trauma, the treatment rendered and the visual outcome. 11 -30 yrs aged Males were more prone for trauma. Road traffic accidents and injury while playing remained common reasons of trauma. 59 (83.09 %) patients required hospitalization. 67 (94.36%) patients showed significant improvement in Vision.

*Conclusion* – Younger age patients need to take protective precautions against various injuries. Early consulting to the Ophthalmologist and early referral important. Prompt and proper comprehensive treatment must to save vision.

### Introduction

Trauma to eye and its adnexa is a leading cause of visual morbidity and a preventable cause of unocular blindness. It requires hospitalisation and emergency treatment, hence leads to considerable socioeconomic loss in a productive age group.

**Purpose** - To study the clinical profile and Visual outcome of Ocular trauma cases presented to a rural tertiary Government hospital. A retrospective review of patients of Ocular trauma presented to the opd and casualty in a year from June 2011-June 2012. We analysed the common age of patients prone for trauma, the type of trauma, the cause of trauma, the treatment rendered and the visual outcome. This study would be helpful to plan strategic measures for prevention and management of Ocular injuries.

**Methods and Materials** – One year retrospective study of patients of Ocular trauma presenting to OPD and Casualty of Department of Ophthalmology, at SBH Government Medical Hospital, Dhule, a rural tertiary care centre catering to poor socioeconomic patients.

Patients of Physical Trauma were included. Chemical burns were excluded.

Patients of Ocular trauma having any pre-existing eye pathology were excluded.

Complete history of injury, time of injury, nature of injury as to how it occurred, when, any treatment taken were noted. Co-existing Life threatening injuries were ruled out.

Both eyes were examined. Photographs were taken, documented.

A thorough eye examination done using Slit lamp, Fundus exam, BCVA done. Patients underwent USG B scan and CT scan wherever required as to when media was hazy and Fundus details not seen. Gonioscopy done where required.

According to the injury, patients were hospitalized and treated medically and Surgically. Wound washed and cleaned thoroughly. Lid tears were sutured urgently in two layers keeping in mind, the general surgical principles.

Corneal Foreign bodies were removed meticulously and cornea sutured with 10-0 nylon as required, under Peribulbar block. Anterior chamber formed.

Lens if cataractous removed and IntraOcular Lens implanted. Conjunctiva and scleral wound sutured with 8-0 silk as required. Patient referred to Vitreo-retinal surgeon if needed. Postop treatment given taking into account the infection and inflammation. Systemic antibiotics and anti-inflammatory given. Visual outcome at 1 month follow up noted. Follow-up was done at weekly and then monthly till 6 months and 6 mthly for a year.

### Observations-

We treated 71 patients of Ocular Trauma from June 2011 to June 2012.

Maximum Patients were Males and 66 (92.95%) were between the age group of 11-30 years.

Percentage of patients presenting on the same day of injury was 58 (81.69%)

**Table 1: Age Of Patients**

0-10 years	0
11-20 years	23
21-30 years	43
31-40 years	4
41-50 years	0
51-60 years	1
61-70 years	0
71 years and above	0

**Table 2: Sex of Patients**

Male	68
Female	2

**Table 3 :Cause Of Injury**

Road Traffic Accident	36
Fall/ Injury	4
Blunt trauma,Fist,Tennis ball.	12
Penetrating injury- wooden stick	6
Fireworks blast	1
Assault	10
IOFB	2

**Table 4: Time of presentation**

Within 2 days	58
2-7 days	11
7-14 days	2

The most common cause of injury was Road traffic accidents, followed by sports activities, and assaults.

The various clinical presentations are shown in Table 5.

The most common presentation was Lid lacerations , Corneal lacerations.

**Table 5: Clinical Presentation**

Corneal Foreign body	11
Corneal laceration	12
Scleral tears	5
Conjunctival tear	4
Iridodialysis	2
Subluxated/ Dislocated lens	2
Lid / canalicular laceration	26
Vitrous Hmz	6
IOFB	2
RD	4
Blow out Fracture	6
Autoevisceration	2

Eye injuries were classified using the standardized international classification of Ocular trauma (Birmingham Eye Trauma Terminology) Fig.1.

We saw 50 Closed globe injuries and 21 Open globe injuries.

Patients were classified into categories taking into consideration Ocular Trauma Score as described in Table.6

**Table 6: Ocular Trauma Score**

Variables	Raw Points
Initial Vision	60
No pl / Eucleation/evisceration	70
PL?HM	80
1/60-5/60	90
6/60-6/15	100
6/12	-23
Rupture	-17
Endophthalmitis	-14
Perforating injury	-11
RD	-11
RAPD	-10

2 (2.81 %) patients showed OTS Score Category 1 ( Raw points 0-44) showed a bad visual prognosis.

41 (57.74%) patients showed OTS Score Category 5 (Raw points 92-100) showed a good visual prognosis.

**Table 7 : OTS – Ocular Trauma Score.**

Raw Points	Category- No.of patients	Final Visual Acuity
0-44	2	no pl
45-65	2	3/60
66-80	12	6/60
81-91	14	6/36
92-100	41	6/12

13 Patients were managed medically,

58 Patients were managed surgically,

Cornea and sclera were surgically sutured.

Vitreoretinal intervention was required in 6 cases and the patients were referred.

Table 8. shows Visual acuity at presentation and Visual outcome.

59 (83.09 %) patients required hospitalization.

67 (94.36%) patients showed significant improvement in Vision.

Score (92-100) Category 5 patients definitely showed good visual improvement.

41 (57.74%) patients achieved a Vision of 6/12 or better.

**Table 8: Visual acuity at presentation and Final Visual outcome**

Visual Acuity	At presentation	Final Visual Outcome
6/12	30	41 (57.74%)
6/12-6/60	11	14 (19.71%)
6/60- 3/60	17	12 (16.90%)
<3/60	8	2 (2.81%)
PL	4	0
No PL	2	2 (2.81 %)

Complications seen were Corneal opacity, Traumatic cataract, Endophthalmitis.

**Discussion**

Ophthalmic Trauma is a major public health problem and immediate and comprehensive care is mandatory for all Ocular trauma patients.<sup>3</sup>

Several studies have been carried out to study ocular injuries similarly.<sup>1,3,4,7,8</sup>

Our study was carried out in a rural setup, where poor socio-economic status and ignorance affected the time of presentation to the hospital and the infection rate.

Most of our patients affected were in the young economically productive age group and had ocular injuries mostly due to Road Traffic Accidents due to alcoholic abuse or due to poor road conditions or not wearing helmets. Sports activity without protection resulted in remaining injuries.

We classified the injuries using the standardized International Classification of Ocular trauma (Birmingham Eye Trauma Terminology) into Open Globe and Closed Globe Injuries.<sup>10</sup>

21 patients had Open Globe injury, by definition are injuries with a full thickness defect in cornea and / sclera. Closed globe injuries were said to be better<sup>1,3</sup> than Open globe. Penetrating were better than perforating injuries. Closed globe injuries were more common.<sup>8</sup>

Closed globe injuries presented as Hyphaema, Corneal striae, Iridodialysis, Vossius ring on anterior capsule lens, Lens subluxation or dislocation, angle recession, Retinal breaks and Retinal detachment.

Orbital floor Fracture was seen in assault and tennis ball injury.

Surgical procedures carried out for our patients ranged from Lid repair, Removing a corneal foreign body, Suturing of Corneo-scleral wound, Lens extraction and IOL implantation, and Evisceration. Posterior segment setup was not available at our centre, hence patients of Retinal Detachment and Intraocular Foreign body were referred for the same.

Ocular Trauma Score (OTS) categorised the injured eyes by four parameters mainly Type of injury based on mechanism of trauma, Grade – based on visual acuity at presentation., Pupil-presence of Afferent Pupillary defect and Zone - based on extent of injury i.e how far posterior from the limbus. OTS provides the ability to prognosticate the outcome of injury.<sup>5</sup>

2 (2.81 %) of OTS Score Category 1 ( Raw points 0-44) showed a bad visual prognosis.

41 (57.74%) of OTS Score Category of 5 (Raw points 92-100) showed a good vision prognosis.

Young age, Contusion, Early referral and a Good vision on presentation signalled a better outcome. Poor prognostic Factors being Presence of Afferent Pupillary Defect, Large > 10 mm laceration, Vitreous Haemorrhage and Retinal Detachment and presence of Intraocular Foreign body.<sup>5</sup> The incidence of Endophthalmitis is higher in patients in a rural setup, and due to delay in primary wound closure.

67 (94.36%) patients in our study showed a significant improvement in Vision.

### Conclusion

The eye remains a high risk organ for Ocular injuries resulting in considerable visual impairment. Most of such injuries are preventable, a better understanding of the etiology and epidemiology of injuries has a vital importance in planning for reduction of their prevalence.

It is reassuring that immediate presentation to the eye clinic may improve the prognosis.

Comprehensive Management offers less expensive, earlier visual rehabilitation, hence posterior segment setup must be made available at all tertiary centres.

Community education about dangerous effects of drunken driving must be stressed.

Increased awareness about parents, teachers education regarding supervision while playing sports and wearing a protective gear and steps for first aid must be emphasised.

Fig.1.Types of OcularInjuries

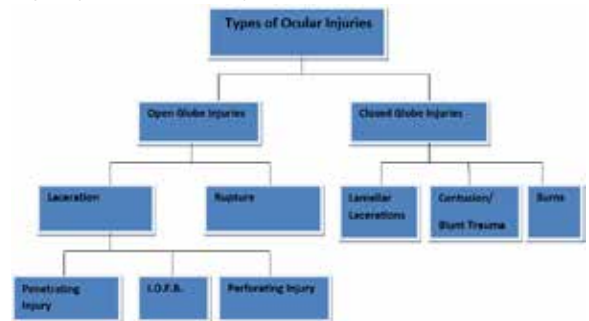


Fig. 2 (LE) Wooden stick Corneal injury



Fig. 3 ( RE) Autoevisceration



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