ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 10 | October - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

CLINICAL PROFILE OF OCULAR AND ADNEXAL INJURIES IN ROAD TRAFFIC ACCIDENT PATIENTS AT A RURAL TERTIARY CARE HOSPITAL IN MAHARASHTRA.

Ophthalmology

Dr. Ananya Sinha* Postgraduate Student, Rural Medical College of Pravara Institute of Medical Sciences, Loni. *Corresponding Author

Dr. Shobhana Jorwekar Assistant Professor, Rural Medical College of Pravara Institute of Medical Sciences, Loni

ABSTRACT

AIM-To evaluate the clinical profile of different types of ocular injuries and functional status of the eye in terms of visual acuity in road traffic accident patients.

METHODOLOGY- We conducted a descriptive, cross sectional, non interventional study, on 175 patients of road traffic accidents with ocular injuries in a period from October 2019 to March 2021. The consent of patients/relatives was taken and the data was studied.

RESULT- In our study 101(57.71%) of cases were males. The right eye was most frequently involved in 106 (60.57%) patients. Most of the cases 172 (98.28%) presented within 24 hrs of injury. The most common age group was 21-30 years (30.28%). There were 134 (76.57%) closed globe injuries and 41 (23.42%) open globe injuries. The commonest manifestation was periorbital edema and ecchymosis in 108 cases (61.71%) followed by subconjunctival haemorrhage in 85 cases (48.57%). The visual acuity ranged from 6/6 to no perception of light.

CONCLUSION-In this study, majority of the injuries were closed globe injuries. Early reporting and immediate medical attention with appropriate surgical or conservative management is important for early visual rehabilitation of the patient. Practising safety measures is the key in preventing ocular injuries and thereby reducing the burden on the individual and also on the socioeconomic and health care resources of the nation.

KEYWORDS

Road traffic accident, ocular injuries, open globe injuries, close globe injuries

INTRODUCTION:

Ocular trauma, once described as the "neglected disorder," has recently been highlighted as a major cause of visual morbidity. [1] Ocular trauma due to road traffic accidents is very common in the rural population due to lack of safety measures and lack of awareness.

It may involve intraocular, extraocular and adnexal structures and ranges from minor contusions or lacerations to globe rupture causing partial or complete visual loss and enormous trauma to the person and the society as a whole. Ocular trauma may involve the eye lids, lacrimal canaliculi, orbital wall, periorbital structures, conjunctiva, cornea, sclera, extra ocular muscles. In some instances there may be prolapse of uveal tissue, vitreous hemorrhage, choroidal hemorrhage and globe rupture. Owing to the delicacy of ocular tissues, delayed presentation worsens the visual outcome of the patient.

The prevalence of ocular trauma in India was reported as 2.4%.[2] Worldwide, there are approximately 1.6 million people blind from eye injuries, 2.3 million bilaterally visually impaired and 19 million with unilateral visual loss.[3]

Ocular trauma is a major cause of preventable monocular blindness and visual impairment in the world. [4] These ocular trauma is often preventable and hence there is a need to increase awareness of this public health concern all over the globe. Preventive measures include mandatory use of safety seat belts, laminated glass windscreens for all vehicles, children restrained in car seats on the back seat, education of the public about observation of road safety rules, wearing seat belts and use of unbreakable plastic spectacles. Clear road signs and markings and guiding traffic and drivers using fluorescent signs clearly visible during darkness are a helpful measure to prevent RTAs [5]. Timely medical or surgical management (as per the case) helps in prevention of ocular morbidity.

The objectives of the study were to classify ocular injuries, assess the functional status of eye in terms of visual acuity.

METHODOLOGY:

After ethics committee approval, a descriptive, cross sectional, non interventional study was conducted on 175 patients with ocular injuries after a road traffic accident, from October 2019 to March 2021 at a Rural Tertiary Care Hospital in Maharashtra.

INCLUSION CRITERIA

A. Patients with ocular injuries after a road traffic accident were included.
B. Patients of either sex were included.
C. Patients giving consent or relatives, if patient is comatose giving consent were included.

EXCLUSION CRITERIA

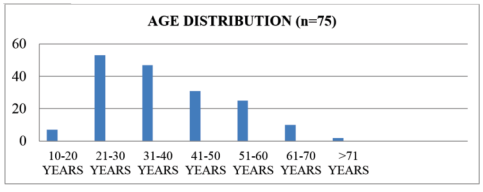
A. Patient reported or brought dead after road traffic accident.
B. Patient with known history of major previous ocular trauma.

Relevant history and examination findings were recorded in a structured proforma as follows:

1. Patient fulfilling inclusion and exclusion criteria were involved in the study.
2. Relevant history was taken from patient or accompanying person.
3. External examination of eyes and adenexa was carried out with torch light/slit lamp.
4. The visual acuity assessment was done with Snellen's chart when possible or finger counting when subject's condition did not permit.
5. Pupillary reactions was noted and fundoscopy was performed by using direct or indirect ophthalmoscope.
6. Findings of radiological investigations like X-ray skull orbit, CT-scan or MR1 wherever required was also be noted.

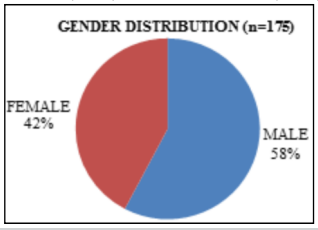
RESULTS:

AGE: The highest incidence of trauma was seen in age group of 21-30 years that is 53 cases (30.28%) followed by 47 cases (26.85%) in 31-40 years age group



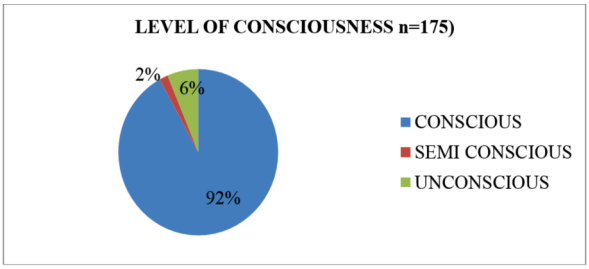
• **GENDER** distribution was as follows:

Out of 175 patients, 101 (58%) were male and 74 (42%) were female.



• **LATERALITY:** The right eye was most frequently involved - 60.57% cases (106 patients), while 16 patients (9.14% cases) had both eye involvement.

• CONSCIOUSNESS:
Most of the patients 161 (92%) presented in a conscious state, 3 (2%) were semiconscious and 11 (6%) were unconscious.



• VISUALACUITY:

Visual Acuity (55.42%)	No. of Patients(n=175)
>6/12	97(55.42%)
6/24 – 6/18	46(26.28%)
FC 1m – 6/24	9(5.14%)
Projection of light – finger counting 1 meter	10(5.71%)
No projection of light	1(0.57%)
Could not be assessed	12(6.85%)

• TYPE OF INJURY:

134(76.57%) closed globe injuries 41 (23.42%) open globe injuries

TYPE OF INJURY	NUMBER OF PATIENTS(N=175)
Lid ecchymosis	108 (61.71%)
Subconjunctival haemorrhage	85 (48.75%)
Lid laceration	80 (45.71%)
chemosis	41 (23.42%)
Conjunctival tear	29 (16.97%)
Corneal laceration	15 (8.57%)
Traumatic mydriasis	14 (8%)
Papilledema	7 (4%)
Iris prolapse	6 (3.42%)
Hyphema	3 (1.71%)
Lens dislocation	2 (1.14%)
Fracture floor	4 (2.28%)
Fracture lateral wall	4 (2.28%)
Fracture medial wall	5 (2.85%)
Restricted ocular movements	2 (1.14%)
Diplopia	2(1.14%)
Berlins edema	3 (1.71%)

DISCUSSION:

Road traffic accidents resulting in ocular trauma is the major cause of avoidable blindness.

Our study shows the clinical profile of ocular and adnexal injuries in Road Traffic Accident patients at a Rural Tertiary Care Hospital in Maharashtra.

The study shows increased incidence of road traffic accidents in males. This may be explained by their increased outdoor activities, rash driving, alcohol abuse and lack of awareness about safety measures. Studies by Puzari et al and Cilino et al had a male female ratio was 4:1 [6][7][8].

The highest incidence of ocular trauma was in the age group of 21-30 years. Although, some studies also describe a bimodal pattern with the first peak in the 25- 30 year age group, and second peak after the age of 70 years[6][7]

Right eye was most frequently involved 60.57% cases, while 9.14% had both eye involvement. According to the Beaver Dam Eye Study [9] both eyes were involved in 15.4%, the right eye in 30.5%, and the left eye in 27.8% of the participants.

Out of the 175 patients having ocular trauma due to road traffic accident 161 (92%) patients presented in a conscious state, 3(2%) patients were semiconscious and 11(6%) were unconscious.

The majority of RTA victims i.e. 172 patients (98.28%) presented within 24 hours of injury. Similar results were found by Shetwi et a and Qi Y et al where the time interval between injury and visit to the clinic was 6h (20.9%), 6-12h (42.4%), 12-24h (20.3%), and greater than 1d (10).[5][10]

Most of the patients presented with visual acuity >6/12 who had sustained ocular adnexal injury, periorbital fracture, subconjuctival hemorrhage, and echymosis. Drastic fall of visual acuity to hand movements and perception of light was seen in 10 patients with injuries like hyphema, dislocation of lens and posterior segment involvement. No perception of light was seen in one patient with globe rupture and lens prolapse. In a study by S Karnath S et al, 54% of patients had visual acuity better than 6/18 and 7% of patients had no perception of light at the time of presentation [11].

Closed globe injuries (76.57%) were more common in our study than open globe injuries (23.42%) similar to the findings reported by Mittal G Arora AS et al , Gully CM et al.[12]and Mishra A et al [13]

Ecchymosis of the lids was the commonest type of ocular injury present in 108 (61.71 %) of cases. Studies by Dawson VK et al [14] and Alam J et al [15] have reported periorbital oedema with ecchymosis as the commonest findings in ocular injuries. Murlidhar et al [16] have reported sub-conjunctival haemorrhage followed by ecchymosis as the commonest findings in ocular trauma cases. The next common injury in this study was subconjunctival haemorrhage in 85 (48.75%) cases followed by eyelid laceration found in 80 (45.71%) cases. In a similar study by Puzari et al found subconjunctival haemorrhage in 83.33 % of cases followed by ecchymosis and lid oedema (78.33%)[6].

Penetrating globe injuries involving the posterior segment were uncommon. Oum BS et al [12] also have similar observations in their respective studies. The eye ball is protected by bony socket and periorbital structures, which are the first structures to take the impact of the injury during road traffic accidents, so they are more frequently injured rather than posterior segment; this might be the probable explanation for the type and distribution of injuries seen in our study.

CONCLUSION:

RTA related ocular trauma though representing small percentage of cases, has significant morbidity associated with it. Ocular injuries due to road traffic accidents are on the rise, due to increasing vehicular traffic, reckless driving and lack of safety measures awareness. Ocular injury, visual impairment and blindness associated with trauma leads to a severe impact on the family as well as the nation's economic status. Immediate medical attention and appropriate surgical or conservative medical management will help in quick visual rehabilitation.

REFERENCES:

1. Parver LM. Eye trauma. The neglected disorder. Arch Ophthalmol 1986;104:1452-3.
2. Katz J, Tielsch JM. Lifetime prevalence of ocular injuries from the Baltimore eye survey. Arch Ophthalmol 1993;111:1564-8.
3. Schein OD, Hibberd PL, Shingleton BJ, Kunzweiler T, Frambach DA, Seddon JM, et al. The spectrum and burden of ocular injury. Ophthalmology 1988;95:300-5.
4. McCarty CA, Fu CL, Taylor HR. Epidemiology of ocular trauma in Australia. Ophthalmology 1999;106:1847-52.
5. Shtewi ME, Shishko MN, Purohit GK. Road traffic accidents and ocular trauma: experience at Tripoli eye hospital, Libya. Community Eye Health. 1999;12:29.
6. Puzari BS, Das RK, Pegu I. A study on ocular injuries following road traffic accidents. Int J Res Med Sci. 2017;5(2):627-30
7. Cilino S, Casuccio A, Di Pace F, Pilliteri F, Cillino G. A five year retrospective study of epidemiological characteristics and visual outcomes of patients hospitalized for ocular trauma in a Mediterranean area. BMC Ophthalmol. 2008;8:6.
8. Das S, Rana M. Patterns of Ocular Trauma Presenting to the Tertiary Eye Care Centre in the Islands of Andaman and Nicobar Delhi J Ophthalmol 2020;30;20-26; Doi http://dx.doi.org/10.7869/djo.540
9. Wong TY, Klein BE, Klein R. The prevalence and 5-year incidence of ocular trauma. The Beaver Dam Eye Study. Ophthalmology 2000;107:2196-202.
10. Qi Y, Zhang FY, Peng GH, Zhu Y, Wan GM, Wang WZ, Ma J, Ren SJ. Characteristics and visual outcomes of patients hospitalized for ocular trauma in central China: 2006-2011. 2015;8 (1):162-168
11. S Karanth S, Soujanya K . Clinical profile of ocular injuries following road traffic accidents in a tertiary care centre. Indian J Clin Exp Ophthalmol 2019;5(4):482-485.
12. Guly CM, Guly HR, Bouamra O, Gray RH, Lecky FE. Ocular injuries in patients with major trauma. Emergency Medicine Journal: EMJ. 2006;23:915-917.
13. Mishra A, Verma AK, Baranwal VK, Aggarwal S, Bhargava N, Parihar JS. The pattern and visual outcomes of ocular trauma in a large zonal hospital in a non-operational role: A 36 months retrospective analysis.J Clin Ophthalmol Res 2014;2:141-144
14. Dawson VK, Dawson M. A clinical study of the pattern of ocular trauma and its visual outcome among road traffic accident cases in a tertiary care teaching institute. J Evid Based Med Healthc 2021;8(03):141-145. DOI: 10.18410/jebmh/2021/27
15. Alam J, Bhattacharjya H, Roy A, et al. Epidemiology and outcome of ocular trauma among the road traffic accident cases attending a tertiary care hospital in Tripura. Int J Med Sci Public Health 2014;3(4):422.

16. Muralidhar P, Chowdary NL. Ocular manifestations in road traffic accidents: a study done at a medical college hospital in South India. Int J Contemporary Med Res 2016;3(8):2337-2339.
17. Oum BS, Lee JS, Han YS. Clinical Features of Ocular Trauma in Emergency Department. Korean J Ophthalmol. 2004;18:70-78