



Original Research Article

A study of ocular trauma in geriatric population at a tertiary care eye hospital in South India

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ABSTRACT

Purpose: To assess the prevalence of ocular trauma and extent of visual loss in geriatric patients at a tertiary care eye hospital in South India.

Materials and Methods: A cross-sectional study was conducted on patients aged above 60 years, of both genders, who presented to the ophthalmology OPD of a tertiary care eye hospital, with history of ocular trauma. The study period was of 3 months. The patients underwent a detailed interview and standardized ocular evaluation. An eye was considered blind due to trauma if best corrected visual acuity for distance was worse than 3/60 due to trauma. Patients with preexisting low vision in the affected eye were excluded in the study.

Results: Of the 50 patients included in the study, 30 patients (60%) gave a history of self-inflicted injury. 28 patients (56%) had blunt trauma to the eye, and the rest had penetrating injury. 42 patients (84%) belonged to lower socioeconomic status; 38 patients (76%) were males and the rest females. 24 patients (48%) had an acute onset of presentation (<24 hours).

Conclusion: Though majority of the trauma resulting in blindness occurs during childhood, geriatric population also needs extra care and attention due to associated co morbidities. Ocular trauma in geriatric population is being increasingly recognized as a significant public health problem worldwide.

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1. Introduction

Ocular trauma refers to any sort of injury to the eye. The injury could be due to mechanical trauma (blunt or penetrating), chemical agents, or radiation (ultraviolet or ionizing). Ocular trauma is the leading cause of preventable vision loss in children and adults. Ocular trauma is one of the causes of visual impairment and accounts for a reasonable percentage of patients presenting as ophthalmic accident and emergency cases to the hospital. It constitutes an important cause of visual morbidity worldwide and has a significant socioeconomic impact. Ocular trauma is known to be the leading cause of monocular blindness.^{1,2} 7-45% of cases of monocular blindness are due to ocular trauma.³⁻⁶

Ocular trauma is an ophthalmic emergency and hospitalization due to it is a health issue. Ocular trauma

is a public health problem which is preventable; this mandates the need for increasing awareness among the general public. This study aims at providing information on the epidemiology, pattern and magnitude of ocular injuries in geriatric population at a tertiary eye care centre.

2. Materials and Methods

A cross-sectional study was conducted on all patients aged above 60 years, who had presented to the outpatient department of a tertiary care eye hospital, with history of ocular trauma. The study was conducted for duration of three months. Patients of both sexes irrespective of their socioeconomic status were included in the study. Patients who were unstable or non-cooperative were excluded from the study. Patients with preexisting low vision in the affected eye were excluded in the study.

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The patients underwent a detailed interview and complete ocular evaluation and further management. Visual acuity of the patient at the time of presentation was recorded using Snellen's visual acuity chart. Pupillary reaction was noted. Detailed evaluation of the patients with slit lamp biomicroscopy, fundus examination with indirect ophthalmoscope with 20D lens was done wherever possible. In cases of media opacity where fundus visualization was difficult, B scan ultrasonography was performed. Patients who were suspected to have intraocular foreign body and fractures of the orbital walls underwent computed tomography scan. Patients requiring surgical intervention were admitted in the hospital and managed surgically after obtaining informed consent. Postoperative visual acuity of the patients was recorded. The results were analyzed and tabulated.

3. Results

The following results were obtained on the hospital based survey of ocular trauma in geriatric population. An eye was considered blind due to trauma if best corrected visual acuity for distance was worse than 3/60 due to trauma. 50 eyes of 50 patients were included in this study. Out of them, 30 patients (60%) gave a history of self-inflicted injury. 28 patients (56%) had a history suggestive of blunt trauma to the eye, and the rest of the patients had a history indicative of penetrating ocular injury. 42 patients (84%) belonged to lower socioeconomic status. 38 patients (76%) were males and the rest females. 24 patients (48%) had an acute onset of presentation (<24 hours). Majority of patients were managed conservatively. Of the 44% patients who required surgical intervention, the various surgical procedures that were performed included lid repair with or without canalicular tear repair, corneal tear repair, scleral tear repair, intravitreal antibiotics wherever necessary, and retinal surgery for conditions like retinal detachment. In cases of traumatic optic neuropathy, patients were admitted and intravenous methyl prednisolone was given. Visual acuity assessment was performed following the surgical management.

Following conservative or surgical management, 25 patients (50%) showed an improvement in visual acuity compared to that at presentation, 20 patients (40%) had no change in visual acuity compared to preoperative status, whereas 4 patients (8%) showed further deterioration in visual acuity in the early postoperative period. 1 patient (2%) had absence of light perception.

Findings of this study revealed that domestic accidents, especially as a result of accidental fall, are the most prevalent cause of ocular trauma in geriatrics. This correlates with the findings of Andreoli et al., who had reported fall as the most common mechanism of injury in geriatric population.⁷ Also a study by Hannan et al., found that the majority of eye trauma cases in patients aged 75

years and above resulted from low fall.⁸

4. Discussion

Ocular trauma is a term given to an injury to the eye that occurs because of direct blow to the eye. Ocular trauma is an important cause of visual morbidity. The magnitude varies from periorbital ecchymosis to penetrating eye injuries. One out of every twenty patients seen by an ophthalmologist is a case of ocular trauma⁹ Appropriate clinical diagnosis, systematic workup, and potentially vision-saving interventions rely on in-depth knowledge of anatomy of the eye and predicted patterns of ocular injury. The initial step of evaluation of such cases includes screening for potential life-threatening injuries. Patients who have sustained trauma to the face and neck should have a proper trauma survey to exclude any imminently harmful life-threatening injuries. It is then safe to proceed to a detailed evaluation of the eye and surrounding structures.

The comprehensive physical exam of the eye includes numerous aspects: visual acuity, visual fields, eversion of eyelids, extraocular movements, papillary reaction, slit lamp biomicroscopic examination of cornea and anterior chamber, intraocular pressure measurement, and fundoscopic examination. The importance of assessing and documenting visual acuity needs utmost importance.

The elderly represents a unique, yet neglected ocular trauma population. Trauma is quite a serious problem for the elderly, and advancing age is a significant risk factor for patient mortality.

The study shows increased incidence of ocular trauma due to road traffic accidents in males. This may be explained by their tendency for increased outdoor activities, driving rashly and abuse of alcohol. About one-third of people over age 65 years fall each year, and the frequency of falls increases markedly with advancing age.¹⁰ Complications from falls are the leading cause of death from injury in persons over age 65. Hip fractures are common precursors to functional impairment, nursing home placement, and death. Apart from musculoskeletal problems, reduction in peripheral vision, decrease in transparency of ocular media in geriatric population, age related sclerosis of the lens, constriction of pupil in senility, weakness of extraocular muscles (resulting in sluggish eye movement) etc. are situations which predispose the elderly to accidental falls. Falls is very significant as a cause of ocular trauma in geriatrics.¹¹ In the present study, 24 patients (48%) had an acute onset of presentation (<24 hours). Ignorance regarding availability of health facilities, delayed referral, poverty, illiteracy could be the some of the reasons for late presentation amongst majority of patients. According to Das et al. significant delay in seeking medical care is reported in developing countries including India.¹²

The importance of ocular trauma is its long term effect on an individual's final visual outcome. Some traumas have

immediate effects on vision in penetrating injuries; some have effects on mental well-being of patients, and some cause financial burden to the patient’s family.

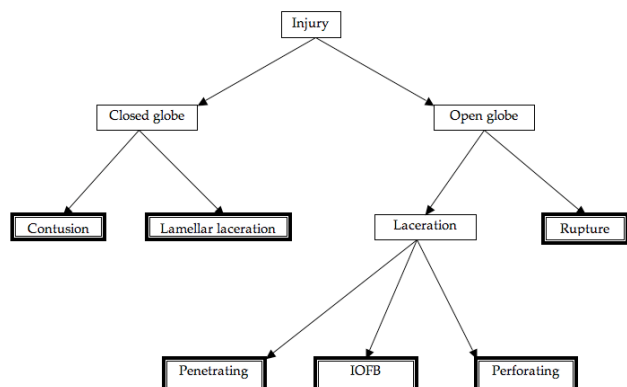


Fig. 1: BETTS. The double-framed boxes show the diagnoses that are used in clinical practice

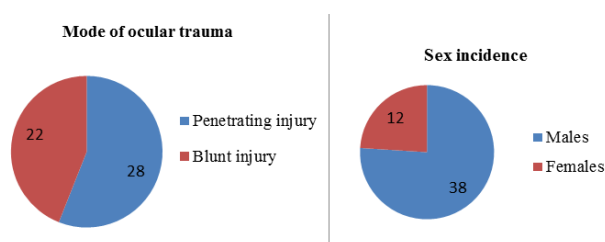


Fig. 2:

5. Conclusion

Ocular injuries of severe magnitude can result in ocular morbidity, which may have a huge economic impact on the individual and their family, and the further consequences of the injury are also significant. Ocular trauma is thus a preventable public health issue. Though majority of the trauma resulting in blindness occurs during childhood, geriatric population also needs extra care and attention due to associated co morbidities.

There exists the need for emergency referral services, trained and well-equipped ophthalmologist who can assess the extent and manage ocular injuries on an emergency basis, visual rehabilitation and low visual aid services at the facility, and follow up services which are of utmost importance in these cases. On the contrary, other factors like unsafe roads, carelessness and rash driving, and driving under the influence of alcohol intoxication are some of the reasons leading to road traffic accidents, which are the common etiologies in ocular injuries. Therefore primary prevention includes avoidance of alcohol abuse, wearing protective helmets with eye shields, proper infrastructure including

maintenance of roads and enforcing road safety standards must be implemented to avoid ocular morbidity due to these accidents.

Ocular trauma in geriatric population is being increasingly recognized as a significant public health problem worldwide. Nature and mechanism of ocular trauma was found to be a strong determining factor of post traumatic visual outcome.

6. Source of Funding

None.

7. Conflict of Interest

None.

References

1. Schein OD, Hibberd PL, Shingleton BJ, Kunzweiler T, Frambach DA, Seddon JM, et al. The Spectrum and Burden of Ocular Injury. *Ophthalmol.* 1988;95(3):300-5.
2. Négrel AD, Thylefors B. The global impact of eye injuries. *Ophthalmol.* 1998;5(3):143-69.
3. Koval R, Teller J, Belkin M. The Israeli Ocular Injuries Study. A nationwide collaborative study. *Arch Ophthalmol.* 1988;106(6):776-80.
4. Jackson H. Bilateral blindness due to trauma in Cambodia. *Eye (Lond).* 1996;10:517-20.
5. Thylefors B. Epidemiological patterns of ocular trauma. *Aust N Z J Ophthalmol.* 1992;20(2):95-8.
6. Nirmalan PK, Katz J, Tielsch JM, Robin AL, Thulasiraj RD, Krishnadas R. Ocular trauma in a rural south Indian population: the Aravind Comprehensive Eye Survey. *Ophthalmol.* 2004;111(9):1778-81.
7. Andreoli MT, Andreoli CM. Geriatric Traumatic Open Globe Injuries. *Ophthalmol.* 2011;118(1):156-9.
8. Hannan EL, Waller CH, Farrell LS, Rosati C. Elderly Trauma Inpatients in New York State: 1994-1998. *J Trauma Acute Care Surg.* 2004;56(6):1297-1304.
9. Alam J, Bhattacharjya H, Roy A, Das M. Epidemiology and outcome of ocular trauma among the road traffic accident cases attending a tertiary care hospital in Tripura. *Int J Mes Sci Public Health.* 2014;3(4):422-4.
10. Nirmalan PK, Katz J, Tielsch JM, Robin AL, Thulasiraj RD, Krishnadas R. Aravind Comprehensive Eye Survey. Ocular trauma in a rural south Indian population: the Aravind Comprehensive Eye Survey. *Ophthalmol.* 2004;111(9):1778-81.
11. Bonne S, Schuerer DJ. Trauma in the older adult: epidemiology and evolving geriatric trauma principles. *Clin Geriatr Med.* 2013;29(1):137-50.
12. Das D, Gupta S. Epidemiology and pattern of motorcycle accident related ocular injuries in a rural tertiary care hospital in eastern India. *Indian J Clin Exp Ophthalmol.* 2016;2(4):341-5.

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