



“A RETROSPECTIVE STUDY OF OCULAR MANIFESTATIONS OF TRAUMA IN A TERTIARY CARE HOSPITAL”

Ophthalmology

Dr. Kiranmai M.	M.S. (Ophthal), Assistant Professor, Dept. of Ophthalmology, Siddhartha Medical College, Vijayawada
*Dr. G. Madhavi Latha	M.S. (Ophthal), Assistant Professor, Dept. of Ophthalmology, Siddhartha Medical College, Vijayawada *Corresponding Author
Dr. Vijitha V.S.	M.S. (Ophthal), Senior Resident, Dept. of Ophthalmology, Siddhartha Medical College, Vijayawada

ABSTRACT

Introduction: Ocular trauma is an important and common cause of blindness and disability in developing countries. Ocular injuries have significant socio-economic implications. Considering the importance of the ocular trauma and its implications the current study has been taken up to describe the several manifestations of ocular trauma presenting to a tertiary care hospital.

Method: A retrospective study of 132 case-records of patients attending Government General Hospital, Vijayawada, Andhra Pradesh.

Results: In our study it was noted that ocular trauma is more common in males and young adults. Accidents were the most common mode of injury. A large number of patients had adnexal involvement with a significant number of closed globe injuries and a few sight-threatening manifestations.

Conclusion: Ocular manifestations of trauma can be varied ranging from ecchymosis to sight-threatening traumatic optic neuropathy and even occipital infarction. A detailed ophthalmic evaluation is important to diagnose and treat preventable causes of blindness.

KEYWORDS

Eye trauma, Ocular trauma, Retrospective study, India.

1. INTRODUCTION

Ocular trauma is an important cause of blindness and disability in developing countries (1). Trauma to the eye is very common in the developing countries (2).

Ocular injuries can vary from mild periocular injuries with no significant sequelae to grave injuries resulting in irreversible loss of vision. Ocular injuries have significant socio-economic implications (3). Injuries involving the cornea and lens usually require immediate intervention to prevent permanent disability. On the other hand, retinal or optic nerve injuries carry a poor prognosis (4).

Considering the importance of the ocular trauma and its implications the current study has been taken up to describe the several manifestations of ocular trauma presenting to a tertiary care hospital.

2. MATERIAL AND METHODS

This was a retrospective study of 132 case records of patients attending emergency and out-patient services in Government General Hospital, Vijayawada, Andhra Pradesh. Details of ocular manifestations were obtained from a proforma filled at the time of presentation.

3. RESULTS

Demographic factors

A total of 132 case records were analysed retrospectively. Males were more commonly affected than females (60.6% vs 39.4%). Ocular injuries were most common in the age group of 20-40 years (59.1%).

Table 1: Age and gender distribution of ocular trauma patients

Age group (years)	Number (%)	Males (%)	Females (%)
<20	10 (7.5%)	6 (7.5%)	4 (7.7%)
20-40	78 (59.2%)	48 (60%)	30 (57.7%)
>40	44 (33.3%)	26 (32.5%)	18 (34.6%)
Total	132	80	52

With respect to mode of injury accidental injuries (27.3%) were most common followed by occupational injuries (56.8%). A small number of cases were a result of assault (15.9%). Among children the most common mode of injury was accidental trauma at school or play.

Taking occupation into consideration, ocular injuries were most prevalent in labourers (31%) and drivers (17.4%) and least common in home-makers (3.7%). Occupational injuries were largely seen in daily-

wage labourers (two-thirds) at construction sites or factories. Causes of accidental injuries included road traffic accidents (45.4% of 132 trauma patients), self-fall, fall of foreign bodies, injuries sustained while playing, domestic accidents, etc. Assaults were more common in labourers and unemployed followed by students and home-makers.

Table 2: Occupation and mode of injury in ocular trauma patients

Occupation	Total Number	Accidental	Occupational	Assault
Labourers	41 (31%)	11	24	6
Driver	23 (17.4%)	20	1	2
Vendors	20 (15.1%)	16	4	0
Unemployed	18 (13.6%)	11	0	7
Student	15 (11.4%)	12	0	3
Farmer	10 (7.5%)	3	7	0
Homemaker	5 (3.7%)	2	0	3
Total	132	75 (56.8%)	36 (27.3%)	21 (15.9%)

Ocular manifestations

102 patients had uniocular manifestations and 30 patients had bilateral involvement. In 57 of 102 patients right eye was involved and 45 of them had left eye involvement. The most common ocular manifestations of trauma were lid ecchymosis, abrasions and subconjunctival haemorrhage. Other common manifestations included corneal foreign bodies, lid lacerations, orbital fractures, traumatic uveitis and traumatic mydriasis.

Posterior segment manifestations were less common which included Berlins edema, retinal breaks and choroidal rupture. One case of bilateral cortical blindness due to occipital infarction following trauma was observed.

Table 3: Ocular manifestations in patients with ocular trauma

Clinical Feature	Number (%)	Clinical Feature	Number (%)
Orbital Fracture	10 (7.5%)	Traumatic mydriasis	18 (13.6%)
Lid ecchymosis	86 (65.1%)	Iridodialysis	2 (1.5%)
Lid laceration	12 (9%)	Traumatic uveitis	28 (21.2%)
Lid abrasions	64 (48.4%)	Secondary glaucoma	3 (2.7%)
Ptosis	26 (19.7%)	Traumatic cataract	3 (2.7%)

Sub conjunctival hemorrhage	67 (50.7%)	Subluxation of lens	2 (1.5%)
Conjunctival laceration	3 (22.%)	Vitreous hemorrhage	8 (6%)
Corneal foreign body	27 (20.5%)	Berlins edema	14 (10.6%)
Corneal abrasion	19 (14.4%)	Retinal tear	4 (3%)
Chemical injury	7 (5.3%)	Choroidal rupture	1 (0.7%)
Open globe injury	3 (2.7%)	Traumatic optic neuropathy	5 (3.8%)
Hyphaema	4 (3%)	Occipital infarct	1 (0.7%)

4. DISCUSSION

This study was aimed at describing the various manifestations of eye injuries presenting to Govt. General Hospital, Vijayawada from January 2017 to June 2017.

Demographic factors

Amongst the 132 records studied 80 (60.6%) were males and 52(39.4%)were females. Other studies have shown a similar distribution of 1.5:1 (5-9) This difference is probably due to outdoor activities in which males are more commonly involved (3). However, in a similar study in Indian scenario a male: female distribution of 10:1. (10) The difference could also be due to the sample size variations.

Maximum number of injuries were noted in the age group 20-40 years (59.2%). This finding is similar to an observations made by Vats et al in an Indian study where 44.8% of trauma patients were within an age group of 16-39 yrs (5). Studies conducted in Iran reported the maximum prevalence of referrals between the age of 25-30 years. (11)

Our study shows a good number of ocular injuries in the age group of less than 20 years (7.5%). However, this was a lesser fraction as compared to studies conducted by Vats et al and Titiyal et al in India (5,10).

Accidents being most common mode of injury, with road traffic accidents responsible for a large majority of them. This was in concordance with the study conducted by Titiyal et al, in which road traffic accidents, sports playing & recreational activities and occupational in 54(32.7%), 42(25.5%) and 33(20%) were the main causes respectively. (10)

In terms of occupation, construction workers and daily-wage labourers were most commonly affected. Education and preventative methods at working environments and schools may be helpful in reducing the morbidity (11). Accidents were the most common mode of injury followed by occupational injuries and assault. It is known that young men are more likely to sustain ocular trauma as a result of occupational hazards (11). In most studies ocular trauma is reported to occur most often at work (12-16). Thus improving working conditions and safety can help in reducing such injuries. Poon et al. concluded that outdoor workers have higher chance of sustaining ocular injuries (17). Other studies from India, Singapore as well as Australia drew similar conclusions (12-20).

Ocular manifestations

22.7% of the patients had bilateral ocular involvement. No significant difference was noted in laterality of involvement. This is in agreement with a study conducted by Titiyal et al. Both the eyes were involved in 5.1% of their patients. (10)

In our study, 2.7% sustained open globe injuries, 4.5% had optic nerve injury or neurological damage, 40% had patients had closed globe injury and 52.8% of patients had adnexal involvement alone.

A study conducted by Mishra et al showed a similar distribution of closed globe and open globe injuries, 86.4% and 13.6% of respectively (21). In contrast to this, study conducted by Titiyal et al showed a large proportion (45.4%) of open globe injuries. (10)

The most common ocular manifestations of trauma were lid

ecchymosis, abrasions and subconjunctival haemorrhage. Other common manifestations included corneal foreign bodies, lid lacerations, orbital fractures, traumatic uveitis and traumatic mydriasis. A study conducted by Titiyal et al showed similar results with the most common presentation being subconjunctival haemorrhage (15.3%). Other manifestations (13.6%) as reported in their study were laceration wounds involving the conjunctiva, cornea and sclera. (10)

Posterior segment manifestations were less common which included Berlins edema, retinal breaks and choroidal rupture. We also observed a rare case of bilateral cortical blindness due to occipital infarction following trauma.

To conclude, ocular manifestations of trauma can be varied ranging from subtle ecchymosis to sight-threatening injuries such as traumatic optic neuropathy and even occipital infarction. A detailed ophthalmic evaluation is important to diagnose and treat preventable causes of blindness.

5. REFERENCES

1. Alishir AA, Saeidi Far MR, Pakdel F, Farshadi M. Comparative study of the rate and causes of eye injuries in patients admitted to Shahid Mohammadi hospital in Bandar Abbas during 1998- 1999 and 2004-2005. Medical Journal of Hormozgan University. 2007; 11(3): 195-200.
2. Jahangir T, Hafeez Butt H, Hamza U, Tayyab H, Jahangir S. Pattern of Presentation and Factors Leading to Ocular Trauma. Pak J Ophthalmol. 2011; 27(2): 96-102.
3. Karbakhsh DM, Mansouri M, Salimi J, Khaji A, Zareei MR. e pattern of assault-related eye injuries in forensic medicine clinic, Farabi Hospital, 1992. Scientific Journal of Forensic Medicine. 2003; 9(30): 69-74 (Persian).
4. Nikeghbali AA. Iranian Society of Ophthalmology president. 1389; Available at: URL:<http://WWW.madomsalari.com/template1/NEWS.aspx?NID=10091>.
5. Vats S, Murthy GVS, Chandra M, Gupta SK, Vashist P, Gogoi M. Epidemiological study of ocular trauma in an urban slum population in Delhi, India. India J Ophthalmol. 2008; 56: 313-316.
6. Maltzman BA, Pruzon H, Mund ML. A survey of ocular trauma. Survey of ophthalmology. 1976; 21(3): 285-290.
7. Liggett PE, Pince KJ, Barlow W, Ragen M, Ryan SJ. Ocular trauma in an urban population. Review of 1132 cases. Ophthalmology. 1990; 97(5): 581.
8. Tielsch JM, Parver L, Shankar B. Time trends in the incidence of hospitalized ocular trauma. Archives of ophthalmology. 1989; 107(4): 519.
9. Glynn RJ, Seddon JM, Berlin BM. e incidence of eye injuries in New England adults. Arch Ophthalmol. 1988 Jun; 106(6): 785-789.
10. Titiyal GS, Chandra Prakash, Gupta S, Joshi V. Pattern of Ocular Trauma in Tertiary Care Hospital of Kumaon Region, Uttarakhand. J Indian Acad Forensic Med. April-June 2013, Vol. 35, No. 2 ISSN 0971-0973
11. Balaghafari A, Siamian H, Aligolbandi K. Ocular Trauma: 2 Years Retrospective Study in Sari, Iran. Materia Socio-Medica. 2013;25(4):230-232. doi:10.5455/ msm. 2013. 25.230-232.
12. Gharraee H, Mousavi M, Rouhkhakhshaei M, Ghaem Pnah A. A Study of the Complaint of Patients Coming to the Emergency Ward of Khatam-ol-Anbia Eye Hospital Mashhad. Medical Journal of Mashhad University of Medical Sciences. 2010; 53(1): 26-32.
13. Mac Ewen CJ, Baines PS, Desai P. Eye injuries in children: the current picture. Br J Ophthalmol. 1999; 83: 933-936.
14. McCarty CA, Fu CL, Taylor HR. Epidemiology of ocular trauma in Australia. Ophthalmology. 1999; 106: 1847-1852.
15. Rofail M, Lee GA, O'Rourke P. Prognostic indicators for open globe injury. Clin Experiment Ophthalmol. 2006; 34(8): 783- 786.
16. Soyul M, Demircan N, Yalaz M, Isiguzel I. Etiology of pediatric perforating eye injuries in Southern Turkey. Ophthalmic Epidemiol. 1998; 5(1): 7-12.
17. Poon AS, Ng JS, Lam DS, Fan DS, Leung At. Epidemiology of severe childhood eye injuries that required hospitalization. HKMJ. 1998; 4: 371-374.
18. Li Wern Voon, Jovina See, Tien Yin Wong. e epidemiology of ocular trauma in Singapore: Perspective from the emergency service of a large tertiary hospital. J commun Eye Health. 2001; 15: 75-81.
19. Mc Cart CA, Taylor HR. Epidemiology of ocular trauma in Australia. Ophthalmology. 1999; 106(9): 1847-1852.
20. Nirmalan PK, katz J, Tielsch JM, Robin AL, ulasiraj RD, krishnadas R, et al. Ocular trauma in rural south Indian population: the Aravind comprehensive eye survey. Ophthalmology. 2004; 111(9): 1778-1781.
21. Mishra et al. The pattern and visual outcomes of ocular trauma in a large zonal hospital in a non-operational role: A 36 months retrospective analysis. Journal of Clinical Ophthalmology and Research. 2014 vol2: issue 3 page 141-4.