

PROFILE OF OCULAR TRAUMA IN A TERTIARY EYE HOSPITAL IN ANDHRA PRADESH

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ABSTRACT

BACKGROUND

The aim is to study aetiopathogenesis and various modes of ocular injuries and their management and outcome.

MATERIALS AND METHODS

This prospective study was conducted on 181 patients attending OPD or referred to our hospital with primary diagnosis of ocular trauma. Patients were thoroughly evaluated and treated appropriately.

RESULTS

Out of 181 patients, 114 (62.8%) were male and 67 (37.2%) were female. Average age of patients was found to be 31.6 years. Farmers formed the largest part of patients (23.75%). Most common site of injury was road traffic accidents (28.72%). Maximum number of patients (63.53%) were found to be in 21-40 years age group. 95% of the patients in our study did not use any protective eye wear. Open globe injury was seen in 98 (56%) patients. Traumatic cataract was the most common complication (24.38%). Visual acuity at presentation was found to be significantly associated with final visual prognosis.

CONCLUSION

Extensive health education campaign is necessary to reduce the burden of visual morbidity and ensure prevention and early treatment.

KEYWORDS

Ocular Trauma, Blunt Ocular Trauma, Penetrating Ocular Injury, Perforating Ocular Injury, Intraocular Foreign Body.

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BACKGROUND

Ocular trauma is a significant cause of visual loss, especially in lower socioeconomic strata and underdeveloped countries. The effects of such injuries are much more severe than in any other part of the body, partly because of delicacy of the ocular tissues and partly because a trauma which elsewhere would cause little and temporary inconvenience, can readily result in permanent blindness. Ocular injuries therefore have a huge social and economic impact leading to human unhappiness, economic insufficiency and monetary loss. Ocular trauma is an important cause of preventable monocular blindness and visual impairment in the world.^(1,2,3)

Aim

To study aetiopathogenesis and various modes of ocular injuries, age and sex incidence of ocular injuries, management and outcome of ocular injuries.

MATERIALS AND METHODS

Cases of ocular injuries attending our hospital were studied. Nature of injuries, aetiopathogenesis, age and sex incidence are analysed. Management and outcome were tabulated.

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METHODOLOGY

A prospective study was conducted on all patients attending ophthalmology department from December 2010 to November 2012 with primary diagnosis of ocular trauma and patients referred from emergency department and eye care centres from peripheries were included in the study, which included 181 patients. Trivial injuries like superficial foreign bodies, adnexal injuries without ocular involvement and without visual impairment and operated eyes where the clinical findings are not traumatic in nature were excluded. Children less than five years and unconscious patients who are not cooperative for examination were excluded from the study. Demographic variables of each patient including address, occupation and literacy status were noted. A complete history of the mishap, its nature and place of injury were recorded. Information on whether the patient was using protective eyewear at the time of injury and whether he/she was intoxicated at the time of injury was collected using structured questionnaire. Initial BCVA, eyelid and adnexal injuries, subconjunctival haemorrhage and conjunctival lacerations, presence or absence of corneal or sclera perforation, hyphaema, iris injuries and RAPD were included in the examination.

A detailed workup of all patients including slit lamp biomicroscopy, direct and indirect ophthalmoscopy was done. B-scan was done where media prevented fundus evaluation in closed globe injuries. Intraocular pressure was recorded in all closed globe injuries. Gonioscopy was done in all closed globe injuries. The trauma cases were classified based on standardised Birmingham Eye Trauma Terminology (BETT).⁽⁴⁾ The cases were managed on the basis of standard guidelines,⁽⁵⁾ while some cases were referred to higher centres

for further management. The visual outcome was recorded at the time of discharge. The cases were followed up and complications were recorded. The results thus obtained are analysed, discussed and compared with existing studies in literature.

RESULTS

A total of 206 patients were examined out of which 181 were included in the current study; the remaining 25 were lost in followup. Incidence of ocular trauma was found to be 0.33%. Out of 181 patients, 114 (62.8%) were male and 67 (37.2%) were female (p-value <0.0001). Average age of patients was found to be 31.6 years. Right eye was involved in 91 (50.25%) patients, left eye in 85 (46.96%), while in 5 (2.76%) patients both eyes were involved. Farmers formed the largest part of patients (23.75%), followed by daily wage labourers and students (17.67%) each. Housewives were least commonly affected (3.3%) group. Most common site of injury was road traffic accidents (28.72%), followed by injuries at farm (28.17%). Sports injuries also accounted for a significant number of cases, i.e., 18.78%. Injuries due to fireworks formed a noticeable part of injuries (12%) and most of them were males (74%). Maximum number of patients (63.53%) were found to be in 21-40 years age group (p-value <0.0001). 95% of the patients in our study did not use any protective eye wear. Mechanical injury was most common (96.7%); chemical injuries formed the remaining 3.3%. Open globe injury was seen in 98 (56%) patients, the remaining 77 (44%) patients had closed globe injury. This difference was not statistically significant (p-value 0.1987). 93% had lacerations, while the remaining had globe rupture and/or intraocular foreign bodies. Zone 1 injury was found to be most common (61%) followed by zone 2 (25%) and zone 3 (14%). Subconjunctival haemorrhage (40%) was the most common clinical manifestation followed by traumatic vitreous haemorrhage (28.9%). Other manifestations are listed in table 1.

Type of Injury	No. of Cases	%
SCH	34	40
Intracorneal Foreign body	8	0.96
Conjunctival Lacerations	18	21.6
TR. Mydriasis	6	7.2
Macular Oedema	4	4.81
TR. Hyphaema	23	27.71
TR. Cataract/Subluxation	18	21.6
TR.VH	22	28.91
Orbital Fractures	6	7.2
Orbital Haemorrhage	3	3.6
Optic Nerve Avulsion	1	1.2
Total	83	100

Table 1. Manifestations following Ocular Trauma

Anatomical location of injuries are listed in table 2.

Location	Zone I	Zone II	Zone III	%
Conjunctiva	59	0	0	76.62
Sclera	3	0	0	3.8
Cornea	8	0	0	10.38
AC	0	13	0	16.88
IRIS	0	8	0	10.38
Pupil	0	24	0	31.16

Lens	0	18	0	23.37
CB	0	0	9	11.68
Choroid	0	0	3	3.8
Vitreous	0	0	21	27.27
Retina	0	0	3	3.8

Table 2. Anatomical Location of Injuries

	No. of Cases	%
Corneal Opacity	23	12.70
Blood Staining of Cornea	2	1.10
Adherent Leucoma	5	2.76
Traumatic Cataract	45	24.86
Choroidal Rupture	2	1.10
Vitreous Haemorrhage	19	10.42
Limbal Ischaemia	1	0.05
Retinal Detachment	3	1.65
Sec. Glaucoma	2	1.10
Lagophthalmos/Punctal eversion	3	1.65
Optic Nerve Avulsion	1	0.5
Phthisis	5	2.76
Total	181	100

Table 3. Complications of Ocular Trauma

Scleral involvement was seen in 48.97% of patients. Time interval between injury and ophthalmology consultation was 24 hours or less in 79.5% of cases; within 72 hours in 12.7% and more than 72 hours in 7.73%. Delayed presentation was found to be common in patients from rural areas. Conservative management was advised for 48.61% of patients, while 51.38% underwent surgery. Traumatic cataract was the most common (24.38%) complication, followed by corneal opacity (12.7%), listed in table 3.

Visual acuity at presentation was found to be significantly associated with final visual prognosis (p Value <0.0001). Orbital cellulitis and endophthalmitis were seen in one patient (0.55%) each. Blindness defined as final visual acuity less than 3/60⁽⁶⁾ was seen in 24.3% of the patients.

DISCUSSION

Incidence of ocular trauma in our study was found to be 0.33% compared to 1.6% in other studies.⁽⁷⁾ The difference can be explained by the fact that ours is a hospital based study with a duration of only 2 years. Male patients were significantly more in number than female patients.^{(3),(8),(9),(10),(11),(12),(7),(13),(14)} Right eye was more commonly involved than left eye.⁽⁹⁾ Farmers were the most common occupational group affected⁽¹⁰⁾ whereas labourers, the second most common group in our study constituted most common affected group in some other studies.^{(12),(7),(14)} Road traffic accidents were most common cause of injuries followed closely by injuries at farm. This difference was not clinically significant. Most common age at presentation was found to be in 31-40 years group which correlates with other studies.^{(3),(8),(12)} In the current study, majority of patients are illiterate leading to lack of awareness about the preventive measures and immediate attention to the ocular injury. This corresponds to findings of S Vats et al,⁽³⁾ Singh et al⁽⁹⁾ and S.Krishnaiah et al.⁽¹¹⁾ Another explanation for this is better treatment seeking behaviour in literates. 95% of the patients in our study did not use any protective eye wear, similar to the findings of S. Vats,⁽³⁾ S. Krishnaiah et al.⁽¹¹⁾ 18%

had sports related injury compared to 12% in the study by Barr A et al⁽¹⁵⁾ and the most common sport involved was cricket when compared to football⁽¹⁵⁾ as cricket is more popular in our region. Injuries due to firecrackers were seen mostly in males similar to the observations in other studies.^{(16),(17)} Open globe injuries were found to be more common than closed globe injuries correlating with some other studies⁽⁹⁾ but contradicting some other studies.^{(3),(10)} The reason for this is that ours was a hospital based study that attracted patients with need for emergency repair as compared to other studies that were population based. Zone 1 injury was found to be most common similar to Singh et al.⁽⁹⁾ Cause of injury endophthalmitis was seen in 0.55% cases. S. Krishniah et al⁽¹¹⁾ noted 33.3% of traumatic cataract, 33.33% corneal scars and 8% phthisis. In the present study, anterior segment complications include 12.70% corneal opacities and 24.86% traumatic cataracts. Among the posterior segment complications, vitreous haemorrhage was seen in 10.42%. Retinal detachment was seen in 1.65%, compared to 11.3% in study by Singh et al⁽⁹⁾ and found to be significantly more in open globe injury.⁽⁹⁾ 2.76% of patients had phthisis bulbi. Visual acuity at presentation was found to be significantly associated with final visual prognosis corroborating the study by Esmaeli B et al.^{(18),(19)} No cases of sympathetic ophthalmitis has been encountered during the study period. This can be explained by appropriate management and timely administration of steroids, which prove useful in preventing the dreaded complications.

CONCLUSION

In the light of the consequences of ocular injuries described earlier the following preventive measures have to be taken. They are: 1. Health education camps in schools 2. Media propaganda to prevent injuries from fireworks. 3. Emphasise the need to use protective measures in industrial workers. 4. Prevention of road traffic accidents. 5. Educate the parents to keep the sharp objects away from the children. 6. Check on the vehicle drivers who drive under the influence of alcohol. In our study, delayed presentation is noted from the rural settings, so it is very important to educate the patients regarding health seeking behaviour, because early and meticulous repair will give good results and reduces the visual morbidity.

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