Cross-sectional and observational study of paediatric ocular trauma presenting at tertiary eye care centre of Bihar

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Abstract

Introduction: This is an observational study to know causes, clinical features and type of ocular trauma in paediatric age group presented at our institute in a define study periods.

Materials and Methods: Sixty children under age of fifteen, with ocular injury, who presented to emergency services/out-patient department of the Regional Institute of Ophthalmology (RIO), IGIMS Medical College and Hospital, Patna (Bihar) were included. Age, gender, mode of injury, causes of injury, site and type of ocular trauma were recorded.

Results: Age of the children was divided into < 7 year (n=21), 8 year to 12 year (n=19) and 13 to 15 years (n=20). There were 50 (83%) boys and 10 (16%) girls. most of the injury occurred while playing outside (n=40, 66%) compared to home injury (n=20, 33%).

Conclusions: Eye trauma is one of the major causes of irreversible blindness in children that occurs most frequently in playing outdoors. Male children were more frequently affected than female less than 7 years of age. Prevention of complications of ocular injuries may be possible by educating parents and children.

Keywords: Ocular trauma, Paediatric, Open globe, Closed globe.

Introduction

Ocular trauma is one of the well-known causes of visual impairment in young adults and children leading to irreversible blindness. Severe ocular trauma requires prompt treatment by specialists and prolonged follow-up as well as visual rehabilitation which leads to cost burden to the parents and mental stress on children. However, most of the ocular trauma can be prevented by educating the parent, care givers and children.

Juan C. Serrano et al reported approximately 1.6 million people are blind due to ocular trauma, 2.3 million are bilaterally visually impaired and 19 million have unilateral visual loss.[1]

Eye trauma is one the important cause of morbidity and acquired unilateral blindness in paediatric age[2,3] and it accounts for approximately 8%–14% of total injuries in children.[4] Children show larger variation in patterns of ocular injury than adults, so it requires different management protocols. Children less than 3 years age mainly suffer from injuries such as fingernails of parents, caretakers, or siblings etc.[5] Older children have injuries due to sharp objects, toys, pencils, sports, and stones etc.[4] Open-globe injuries requires immediate interventions.[6,7]

Purpose of this study is to collect the data in our apex institute regarding ocular trauma in paediatric population. This study provides new insights into the prevalence, risk factors, clinical feature and causes of ocular trauma.

Materials and Methods

Study Site

Emergency or out-patient department of Regional Institute of Ophthalmology (RIO), IGIMS Medical College & Hospital Patna, Bihar.

Study Duration

12 months (from August 2014 to July 2015)

Study Design

This was a prospective and observational study of 60 cases of age ≤15 years both the sex of eye trauma was consecutively selected for this study fulfilling the all inclusion and exclusion criteria.

Inclusion Criteria

Ocular trauma patients of under 15 years of both gender presenting during the study period.

Exclusion Criteria

1. Patients/ parents refusing to sign the informed and written consent or not admitted in the department will be excluded.
2. Patient not coming to regular follow-up.

At the time of presentation, complete history were taken regarding the cause of injury, nature of injury, place of injury and gap between onset and report to the hospital. Systemic and local ocular examination was done to check visual acuity (if possible), condition of orbit and adnexa, lacrimal sac area, conjunctiva, cornea, sclera anterior chamber, iris, pupil, lens, vitreous cavity, and retina with the help of slit lamp biomicroscopy and indirect ophthalmoscopy. If the patients were too young, examination was done under anaesthesia to find out location and severity of injury. If vitreous is haze and details were

not visible, B - scan ultrasonography was performed to rule out retinal detachment, vitreous haemorrhage or retained intra ocular foreign body. X-ray, CT scan or MRI was advised in cases of orbital injury, restricted ocular movements and in case of road traffic accidents in order to rule out orbital bone fracture as well as retained foreign body.

Results

Out 60 children, 21 were less than 7 years of age, 19 were between 8-12 years and 20 were 13 to 15 years of age. Number of male and female patients was 50 and 10 respectively. Open globe injury is more frequent (33 patients, 55%) than closed globe injury (27 patients, 45%, Table 4). Outside injury is more common (e.g. streets, roads, playgrounds, schools etc.) (n=40, 66%) than home injury (20 patients, 33%).

Table 1: Mode of ocular trauma

Mode of ocular trauma	No. of cases	Percentage
Outdoor playing	29	48%
Domestic accidents	14	23%
Fall	9	15%
Miscellaneous	8	13%

Table 2: Causes of ocular trauma

Causes of ocular trauma	No. of cases	Percentage
Wooden objects	16	27%
Stone	15	25%
Pellet, patakha (crackers)	7	12%
Scissors, knife, wire & hypodermic needle	6	10%
Bat, cricket ball,	4	7%
Miscellaneous causes (finger & pencil etc.)	12	20%

Table 3: Site of ocular trauma

Site of ocular trauma	No. of cases	Percentage
Corneal tear	25	42%
Traumatic hyphaemia	12	20%
Traumatic cataract	6	10%
Corneo-scleral tear	6	10%
Endophthalmitis	3	5%
Vitreous haemorrhage/retinal detachment/choroidal tear	2	3%
Intraocular Foreign Body (IOFB)	2	3%
Conjunctival/corneal foreign body	2	3%
Iridodialysis/ lens subluxation	1	2%
Ruptured/perforated globe	1	2%

Table 4: Type of globe injury

Type of globe injury	No. of cases	Percentage
Open globe injury	33	55%
Closed globe injury	27	45%

Discussion

Ocular trauma is a devastating condition of eye, causing permanent disability to the children. The nature, causes, and mode of ocular injury in our centre were characterized in this study.

In this study, open globe injury was the most common cause of injury. Male children were more affected than female children. This may be because male children are more active in outdoors. Specifically most common cause of injury was wooden objects and most common site of injury was corneal tear.

In this study most common cause of injury was due to wooden objects. Wooden objects are relatively common in our scenario and readily available in the form of play objects-gully danda, arrow, pencil, wooden sticks, etc. Similar study by Saxena et al.[8] revealed bow and arrow to be the commonest object of injury seen in 15.2% of cases, which is less in percentage than the present study.

In this study most common site of injury was corneal tear. Study by Bejiga A.[9] Ariturk et al[10] found that hyphaema is the most common sequelae in blunt trauma and corneal tear in perforating injury.

Conclusion

Most of the ocular traumas occur in school children. Some of the ocular injuries leading to significant visual loss may be due to unsupervised games like arrow and firecracker, Educating parents and children is mandatory to prevent ocular injury.

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Conflict of Interest: None.

Ethical Clearance: Taken.

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