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A study of pattern of ocular trauma in paediatric population

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ABSTRACT

Objective
To analyse the cause, demographic data and evaluate the characteristics of ocular injuries in paediatric age group less than 15 years attending our hospital.

Study Design
A hospital based observational cross-sectional study.

Materials and Methods
A detailed history including the demographic data like age, sex, and details regarding the cause, nature, time and place of the injury was obtained. The visual acuity at the time of presentation was recorded. A thorough slit lamp examination of the anterior segment was made. An assessment of the posterior segment with the help of 90 Dioptre lens and Indirect Ophthalmoscope was done. Imaging studies done in needed cases.

Results
A total of 60 patients and 72 eyes were included in our study. Out of which 58.2%(35) were boys and 41.62%(25) were girls. Causes were different in different age group.

Conclusion
Most of the injuries in children were accidental and occurred in unsupervised conditions. Some had resulted in significant visual loss. Therefore, an awareness education and appropriate preventable measures can reduce the ocular morbidity in children.

INTRODUCTION

Ocular injuries in children lead to severe morbidity and visual disability. It is of greater significance in children due to the development of dense amblyopia. This can result in remarkable social, emotional and psychological disability in children. Paediatric ocular injuries account for about 8-14% of total injuries. [1] The pattern of ocular injuries is different from that of adult age group. Young children more than three years are more susceptible to get injured from handler related injuries like fingernails of parents, caretakers or siblings, accidental falls while attempt to walk or climb stairs [1]. Older children due to their independent and adventurous spirit thereby involving them in many unsupervised games and making them more susceptible for injuries due to sports, toys, sharp objects, pencils, stones. This

study has been done to document the nature and cause of ocular injuries in developing countries.

MATERIAL AND METHODS

A tertiary hospital based observational cross-sectional study including all children less than 15 years with ocular injury presenting to ophthalmology department at the Saveetha Medical College during the period of March 2017 to august 2017.

Inclusion Criteria

All children of either sex upto15 years with eye injury.

Exclusion Criteria

Children with congenital anomalies and history of already diagnosed ocular disease and age more than 15 years were excluded from this study.

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A thorough history regarding demographic details like age and sex, cause and mechanism of injury, time of injury, time of presentation to hospital after injury, any systemic injury including head injury, history of vomiting, headache, loss of consciousness were noted. Visual acuity was assessed by Snellen chart for school going children and by picture chart for nonverbal group of children. Vision could not be assessed in children less than one year. Colour vision by Ishihara chart for more than 5year old. Anterior segment examined by slit lamp and Fundus by 90D and indirect ophthalmoscope. Intraocular pressure by applanation tonometry and gonioscopy done in closed globe injury. Imaging studies were done in needed cases. The injury was classified based on the cause, place and nature of injury.

RESULT

Table 1: Age and sex distribution of pediatric ocular injuries

Age group	Boys (in %)	Girls (in %)	Total (in %)
< 1 year	6 (10%)	4 (6.66%)	10
1-5 year	10 (16.6%)	6 (10%)	16
5-10 year	9 (15%)	7 (11.66%)	16
10-15 year	10 (16.6%)	8 (13.3%)	18

Table 2: Cause of injury

Nature of injury	Boys (in %)	Girls (in%)	Total (in %)
Ball/bat	7 (20%)	2 (8%)	14%
Pen /pencil	5 (14.3%)	4 (16%)	15.15%
Toys	2 (5.7%)	3 (12%)	8.85%
Stones	1 (2.85%)	1 (4%)	3.42%
Thermal burns	2 (5.7%)	1 (4%)	4.85%
Assault	3 (8.57%)	4 (16%)	12.285%
Fist and fingernail	1 (2.85%)	-	1.42%
Fire cracker	4 (11.4%)	2 (8%)	9.7%
Wooden stick	2 (5.7%)	1 (4%)	4.85%
Foreign body	1 (2.85%)	1(4%)	3.42%
Sewing needle/ blouse hook	1 (2.85%)	2 (8%)	5.42%
RTA	5 (14.3%)	4 (16%)	15.15%
Slip and fall	1 (2.85%)	-	1.425%

Table 3: Place of injury

Place of injury	Boys (in %)	Girls (in %)	Total (in %)
Home	9 (25.71%)	10 (40%)	32.85%
School	8 (22.85%)	5 (20%)	21.42%
Outdoor	13 (37.14%)	6 (24%)	30.57%
RTA	5 914.28%)	4 (16%)	15.14%

Table 4: Nature of the injury

	Boys (in %)	Girls (in %)	Total (in %)
Periorbital injuries	8 (19.04%)	5 (16.66%)	18.05%
Eyelid injuries	6 (14.33%)	4 (13.33%)	13.88%
Subconjunctival haemorrhage	10 (23.80%)	8 (26.66%)	25%
Corneal FB	1 (2.38%)	1 (3.33%)	2.77%
Corneal abrasion	4 (9.52%)	2 (6.66%)	8.33%
Corneal laceration	2 (4.76%)	-	2.77%
Hyphema	1 (2.38%)	1 (3.33%)	2.77%
Anterior uveitis	6 (14.33%)	4 (13.33%)	13.88%
Lens subluxation	1 (2.38%)	-	1.38%
Vitreous haemorrhage	1 (2.38%)	-	1.38%
Commotiae retina	7 (16.66%)	4 (13.33%)	14.995%
Traumatic optic neuritis	-	1 (3.33%)	1.38%

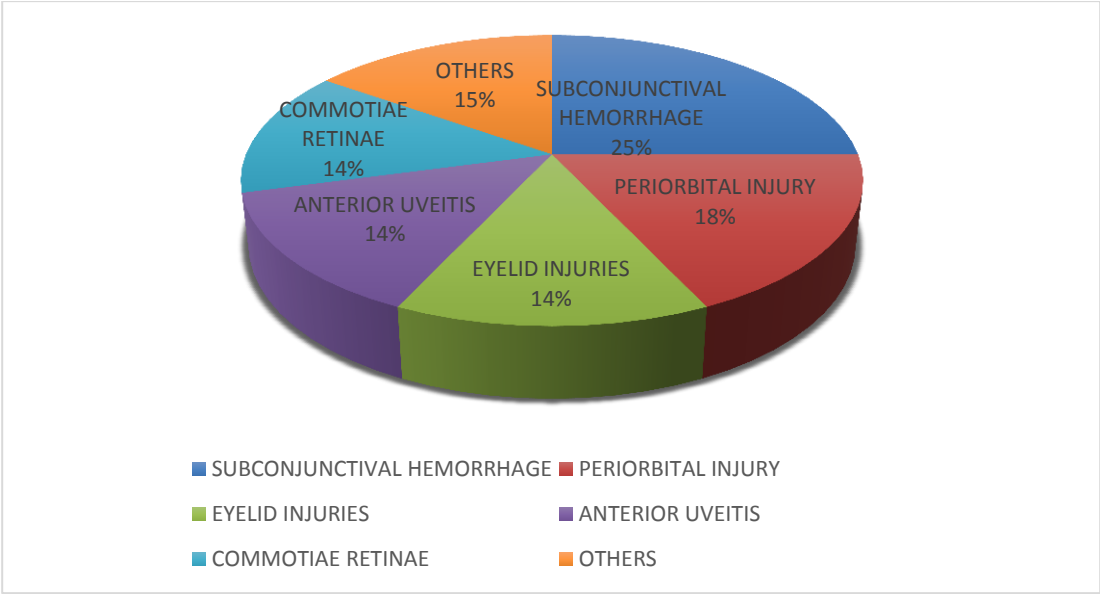

Table 5: Time taken to visit hospital

	Number of eyes	Percentage of eyes
Within 6 hours	40	66.66%
6-24 hours	15	25%
>24 hours	5	8.33%

Table 6: Gender wise comparison

	Unilateral in%	Bilateral in %
Boys	35	7
Girls	25	5

Head injury in the youngest age group is distinct from that occurring in older children or adults because of differences in mechanisms, injury thresholds, and the frequency with which the question of child abuse is encountered. To analyse this, a total of 60 patients with 72 eyes were studied. Out of which 48 had unilateral and 12 had bilateral eye injury. Blunt injuries to the eyes were most common. [3] The injuries were more common in boys (58.2%) than girls (41.62%). 66.66% of the children reported to the hospital in less than 6 hours whereas 25%of them visited the hospital between 6-24 hours and the remaining 8.33% visited after 24 hours. The visual prognosis was better in children who presented early. Road traffic accidents (15.15%), sharp objects (15.15%) and sports (14%) were the most common causes followed by assault (12.285%), fire cracker (9.7%), toys (8.85%), household objects (5.42%), wooden stick (4.85%), thermal burns (4.85%), foreign body (3.42%) and slip and fall (1.425%).

Closed globe injuries were more common than open lobe injuries. [6] Most common presentation of the eye injury were subconjunctival haemorrhage (25%), periorbital injury (18.05%) followed by commotiae retinae (15.27%), eyelid injury (13.88%), anterior uveitis (13.88%), corneal abrasion (8.33%), corneal foreign body(2.77%). The less common findings were lens subluxation (1.38%) and vitreous haemorrhage (1.38%).

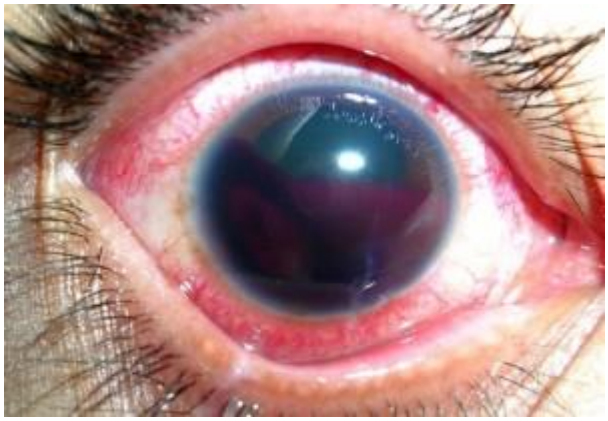

Figure 1: Hyphema

Figure 2: Corneal Tear

Figure 3: Subconjunctival Hemorrhage with Abrasion Over Face

Figure 4: Left Eye Traumatic Mydriasis

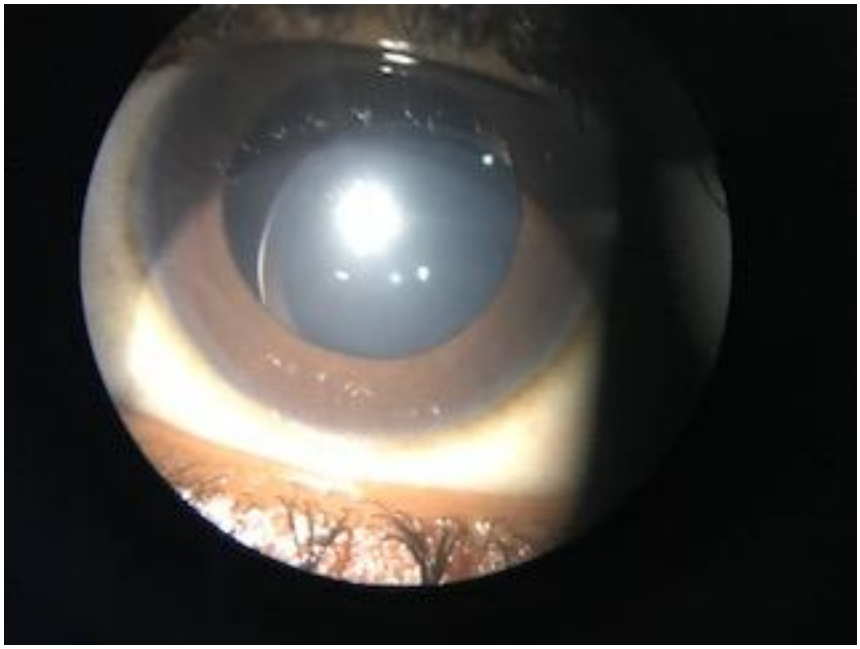

Figure 5: Subluxated Lens

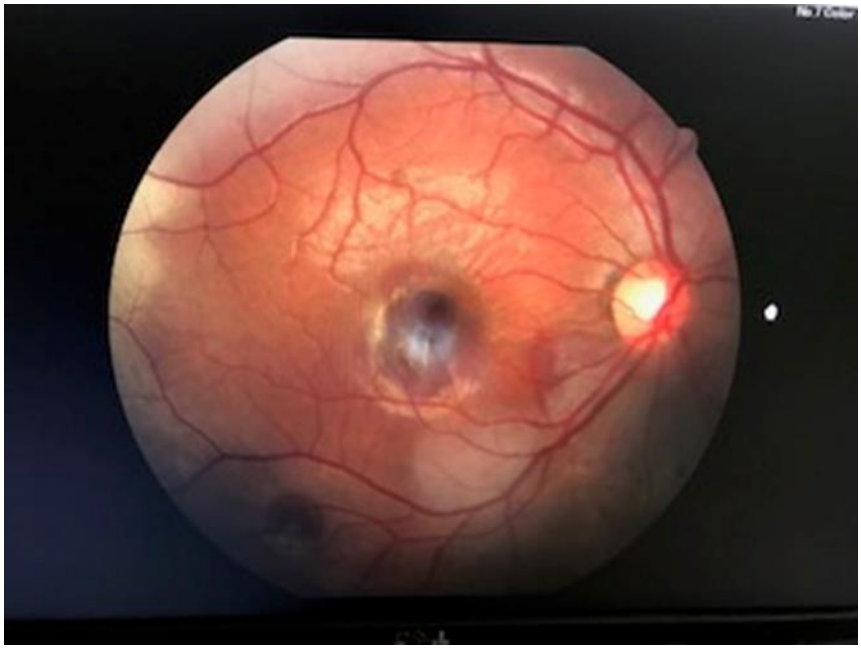

Figure 6: Severe Berlins Edema

CONCLUSION

Ocular injuries are the most common cause for monocular blindness. [2] The causes of injury were different in different age group. The analysis showed that in younger children the handler related injuries, household object injuries and accidental slip and fall were more common whereas in older children sports and outdoor injuries were more. Boys were more injured than girls. In a few the trauma lead to lifelong morbidity due to decreased vision, amblyopia, blindness and deformity. Most of the ocular injuries were preventable and they had occurred in unsupervised conditions. [7]

Therefore, there is a need for high supervision by parents and caretakers at home and school. [3] Also, immediate consultation by the qualified ophthalmologist with no delay can lessen the ocular morbidity. In the end, the changing social context, domestic violence and child abuse should be kept in mind while examining cases of paediatric ocular injuries.

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