

A Study of Clinical Profile and Visual Outcomes of Patients with Traumatic Cataract

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Abstract:

Introduction: Traumatic cataracts cause severe vision loss and blindness in the general population and are related with a wide range of ocular traumas. The present study was conducted to study the clinical profile of traumatic cataract patients.

Materials and Methods: A prospective observational study was carried out in the department of ophthalmology at Regional Eye Hospital, Visakhapatnam. A total of 50 patients were examined. Relevant clinical history, demographic data and visual acuity at time of presentation and post-operatively after 6 weeks were recorded.

Results: It was observed that the age of the patients ranged from 4-60 years Most common affected age group was 11-20 years. 33 cases (66%) were reported in male population whereas 17 cases (34%) were female patients. 32 cases (64%) had traumatic cataract due to open globe injury and 18 cases (36%) had due to closed globe injury. wooden stick injury is the most common mode of injury accounting for 30% of the cases.

Conclusion: Traumatic cataracts cause severe vision impairment, psychological suffering, and a significant financial burden. To prevent vision loss in traumatic cataract patients, a better understanding of these injuries is needed. Appropriate health education and early prevention are essential among the population.

Keywords: Traumatic cataract, Visual outcome, Ocular trauma.

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Introduction

Ocular trauma is the leading cause of monocular blindness worldwide. Traumatic cataract occurs as a result of abrupt acceleration caused by the impact of blunt or piercing force. It is the most common complication of an eye injury.[1] The treatment of traumatic cataract is determined by the patient's visual acuity upon presentation, age, and the occurrence of other ocular structure abnormalities.[2]

Ocular trauma is considered to account for approximately 40% of monocular blindness.2 Trauma causes cataracts to progress. A traumatic cataract can develop in response to a variety of ocular injuries, including severe and penetrating trauma. Rare causes of traumatic cataract include infrared energy, ionizing radiation, and UV radiation.[3]

Domestic injury is the most common sort of injury in children, and it occurs most often while they are

playing at home or school. Young individuals are the most common victims of sports and work-related eye injuries, followed by accidents caused by children participating in high-risk sports without supervision or protective equipment.[4]

Cataracts can be induced by either penetrating or traumatic traumas. The visual prognosis of traumatic cataract is dictated by the type of ocular trauma, the degree of lenticular involvement, and any ocular structural damage. The timing of intervention has been emphasized: for a better prognosis, cataract surgery should be undertaken within a year of the initial treatment in adults and within six months in children.[5]

The present study was conducted to study the clinical profile & visual outcomes of traumatic cataract patients.

Materials and Methods

This is a descriptive hospital-based study of 50 patients with traumatic cataract who presented to the outpatient department of Ophthalmology at Regional Eye Hospital, Visakhapatnam between January 2022 and December 2023. After obtaining informed consent from all patients and parents in the case of children, pertinent clinical history and demographic characteristics, type of trauma, nature of injury, causative factor for trauma, and activity at the time of injury were recorded. The injury was categorized according to ICD ocular trauma classification as open or closed globe based on whether the eye coats punctured or not. Snellen's chart was used to measure visual acuity during the presentation. The anterior segment was thoroughly examined using a slit lamp, and intraocular pressure was measured using a noncontact tonometer.

B-scans and X-rays were conducted based on the kind and severity of the injury to rule out any

remaining intra-ocular foreign bodies and to evaluate the posterior segment. Intraocular lens (IOL) power was calculated, and when that was not possible, other uninvolved eye biometry was used. All patients underwent manual small incision cataract surgery, with intraocular lenses placed whenever possible. All patients were followed up on a weekly basis for six weeks, and visual acuity was measured.

Statistical analysis: Data was analysed using SPSS version 20 (IBM, USA) and the outcome was presented in the form of tables with percentages.

Results

In the present study we analyzed 50 cases of traumatic cataract. It was observed that the age ranged from 4- 60 years with mean age of 21.4213.63 years (Table 1). Most common affected age group was 11-20 years. 33 cases (66%) were reported in male population whereas 17 cases (34%) were female patients as shown in Table 1.

Table 1: Distribution based on demographics

Gender	No of patients (n)	Percentage (%)
Male	33	66
Female	17	34
Age Group		
< 10 years	8	16
11-20	20	40
21-30	12	24
31-40	3	6
41-50	3	6
>50 years	4	8

We observed 32 cases (64%) had traumatic cataract due to open globe injury and 18 cases (36%) had due to closed globe injury as shown in Table 2

Table 2: Distribution of patients based on nature of injury

Nature of Injury	No of patients (n)	Percentage (%)
Closed globe	18	36
Open Globe	32	64
Total		

Table 3: Activity while Injury

Mode of Injury	Frequency (n)	Percentage (%)
wooden stick	15	30
Fall	6	12
Pen/Pencil	2	4
Ball	5	10
Physical assault	4	8
Iron particle	3	6
stone	3	6
Fire cracker	3	6
Thorn	3	6
Road traffic accident	2	4
Bull horn	2	4
Knife/scissors	2	4

We observed wooden stick injury is the most common mode of injury accounting for 30% of the cases. Visual acuity, at presentation, was severely low in almost all the cases and about only 12% of the cases gained more than 6/60 vision after six weeks (Table 4 and 5)

Table 4: Pre-operative visual acuity

Visual acuity	No of patients (n)	Percentage (%)
PL + - HMCF	18	36
HMCF - 3M FC	26	42
3M FC - 6/60	4	8
>6/60	2	4

Table 5: Post-operative Visual acuity

Visual acuity	No of patients (n)	Percentage (%)
PL + - HMCF	8	16
HMCF - 3M FC	20	40
3M FC - 6/60	16	32
>6/60	6	12

Discussion

Males were more affected than females in this study because they are more interested in sports and outdoor activities. Similar results were reported by Abdul Rahim Aldina et al, Poonam N. Kalyanpad et al, and Menon MN et al [6, 7, 8].

In the current study, the majority of patients (68%) had traumatic cataracts caused by open globe injuries, as opposed to closed group injuries (32%). Ying Q et al discovered that open globe damage was responsible for 73.8% of traumatic cataracts [9].

Joshi et al found that 48% of patients had been injured with a wooden stick.[10] In our study, wooden stick injury was the most common mechanism of injury at 31%, as the bulk of the patients were from agricultural backgrounds.

We evaluated the visual outcomes of open and closed globe injuries and discovered that closed globe injuries have a superior visual outcome than open globe injuries. Other studies with similar results include Ahmad Nadeem Aslami et al. and Ying Q et al. [11,12].

Brar et al. reported similar findings in pediatric traumatic cataract patients. This could be attributed to increased vision-threatening consequences from open globe injuries [13].

Conclusion

Traumatic cataracts cause significant vision impairment, psychological discomfort, and financial strain. To prevent vision loss in traumatic cataract patients, a better understanding of these injuries is needed. Appropriate health education and early prevention are essential among the population

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