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A Clinical Study of Traumatic Cataract and Associated Ocular Injuries

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Abstract

Introduction: Cataract (opacification of the lens) affects vision in a significant way. Traumatic cataract caused by different modes of ocular trauma contributes adequately to the quantum of cataract blindness. The present study was conducted on patients with traumatic cataract to know the demographic status, mode of injury, type of traumatic cataract and associated ocular injuries in these patients. *Methodology:* Traumatic cataract cases (n=50) attending Ophthalmology OPD at Khaja Bande Nawaz Institute of Medical Sciences (KBNIMS), Kalaburagi were included in the study group, based on the inclusion & exclusion criteria. *Results:* Our study showed that maximum number of traumatic cases were found in the age group of 11-20 years. Majority of the patients were males. Total cataract was the most common form of cataract. 82% of them had visual acuity of < 3/60. Among the associated injuries the corneal injuries were most common. *Conclusion:* Traumatic cataract and its associated ocular injuries constitute one of the important causes of ocular morbidity and visual loss. It is absolutely necessary to take preventive steps to curtail incidence of these severe catastrophes to the minimum.

Keywords: Cornea; Traumatic Cataract; Visual Acuity.

Introduction

Cataract (opacification of the lens) affects vision in a significant way. Senile cataract is the commonest form of cataract causing visual impairment in elderly individuals. Traumatic cataract caused by different modes of ocular trauma also contributes adequately to the quantum of cataract blindness. Cataract is by far the commonest complication causing loss of vision following any type of ocular injury [1]. The special importance of traumatic cataract lies in the fact that it occurs mostly in children & young to middle aged adults who still have a long life span left for them to lead an active & useful life. Moreover, senile cataract is easy to manage as there is no structural disturbance to ocular tissues other than the lens, while in traumatic cataract many of the neighbouring tissues like cornea, sclera, iris, vitreous & retina could have sustained injury related damages. All types of ocular injuries including penetrating & blunt injuries can cause cataract. While planning the management of traumatic cataract, the type of trauma, extent of lenticular involvement & associated damage to other ocular structures should be taken into consideration & this goes a long way in determining the ultimate prognosis [2]. The present study was conducted on patients with traumatic cataract attending Ophthalmology OPD to know the demographic status, mode of injury, type of traumatic cataract and associated ocular injuries.

Aims & objectives

1. To estimate the age and sex distribution of traumatic cataract cases, among those attending the OPD.
2. To correlate the mode of injury & type of traumatic cataract.
3. To study associated injuries to other ocular structures in traumatic cataract cases.

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Materials and Methods

Traumatic cataract cases (n=50), attending the Ophthalmology OPD at KBNIMS constituted the study population.

Inclusion Criteria:

1. Age: all age groups
2. Sex: both male and female
3. Patients having traumatic cataract due to blunt injuries.
4. Patients having traumatic cataract due to penetrating injuries.

Exclusion criteria:

1. Traumatic cataract having previous history of posterior segment lesions like retinal detachment, optic atrophy, macular scar etc
2. Traumatic cataract due to electric shock, radiation & chemical injuries.

Methodology:

Initially, personal data like name, age, sex, occupation, address were recorded followed by a detailed history about the mode of ocular injury, object causing injury and subsequent treatment was obtained. A general systemic examination including examination of associated extraocular injuries, if any was performed. Before assessing ocular injury, visual acuity & pupillary reflexes both direct & consensual & EOM examination for strabismus was done. A thorough anterior segment examination of both eyes with slit lamp bio microscopy was done with a special note regarding the type of cataract, density, subluxation & dislocation of lens. Injuries to other ocular structures were carefully examined. Posterior segment was evaluated with an indirect ophthalmoscope & USG B scan was done when posterior segment could not be visualized. IOP was measured with applanation tonometer.

Results

Table 1 shows the age wise distribution of traumatic cataract cases. The youngest age being 5 years and the oldest being 60 years. The maximum number of cases were found in the age group of 11-20 years (38%). Table 2 depicts the sexwise distribution of traumatic cataract cases. Majority of the patients were males which constituted 68%. Male to Female ratio was 2:1. Table 3 shows the analysis of the type of injury. Penetrating injury accounted for 62% and blunt injury for 38% of the traumatic cataract cases. Table 4 shows the distribution of the presentation of the type of traumatic cataract. Majority of the cases presented with total cataract, others presented with rosette cataract, anterior capsular & sub capsular, posterior sub capsular cataract, absorbed cataract and lamellar cataract. Table 5 shows the visual acuity on presentation. 82% of them had visual acuity of < 3/60 out of which majority had only PL positive & PR accurate visual acuity. In 7 cases visual acuity was 3/60 to < 6/60 and only 2 patients had vision > 6/60. Best corrected visual acuity of the uninjured eye was recorded in all patients and was found to be in the range of 6/6 to 6/12, as all cases in the present series had uniocular injury. Table 6 indicates the associated ocular injuries. In thepresent study (n=50), 18 cases had corneal injuries in the form of scars or opacities. Adherent leucoma, injury to the iris in the form of iridodialysis, sphincter pupillae damage and posterior synechiae were also observed. Posterior segment injury in the form of vitreous hemorrhage

Table 1: Age wise distribution of Traumatic Cataract cases.

Age group (years)	No. of Cases	Percentage
<l0	7	14
l1-20	19	38
21-30	11	22
31-40	4	8
41-50	4	8
>5l	5	10
Total	50	100

Table 2: Sex wise distribution of Traumatic Cataract cases.

Sex	No. of cases	Percentage
Males	34	68
Females	16	32
Total	50	100

Table 3: Mode of Injury Causing Traumatic Cataract

Mode of Injury	No. of cases	Percentage
Blunt	19	38
Penetrating	31	62
Total	50	100

Table 4: Type of Traumatic Cataract

Type of Cataract	No. of Cases	Percentage
Anterior capsular & Sub capsular opacity	2	4
Posterior sub capsular opacity	6	12
Rosette cataract	4	8
Absorbed cataract	3	6
Lamellar cataract	3	6
Total cataract	32	64
Total	50	100

Table 5: Visual Acuity(VA) of the injured eye.

Visual acuity	No. of Cases	Percentage
<3/60	41	82
3/60-< 6/60	7	14
6/60-<6/18	2	4
6/18-6/6	0	0
Total	50	100

Table 6: Associated Ocular injuries

Associated Ocular Injury	No. of patients	Percentage
Corneal injuries	18	36
Adherent leucoma	3	6
Iridodialysis	1	2
Sphincter pupillae tear	5	10
Posterior synechiae	9	18
Vitreous hemorrhage	1	2
Retinal detachment	1	2
Total	38	76

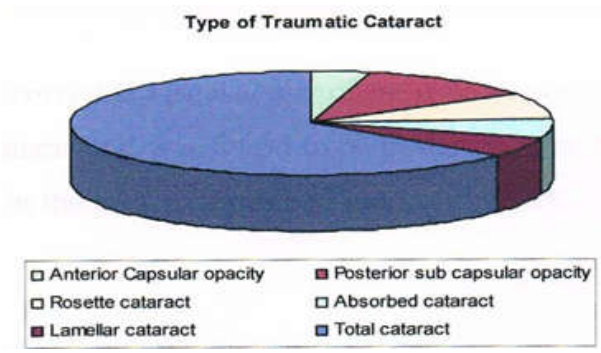
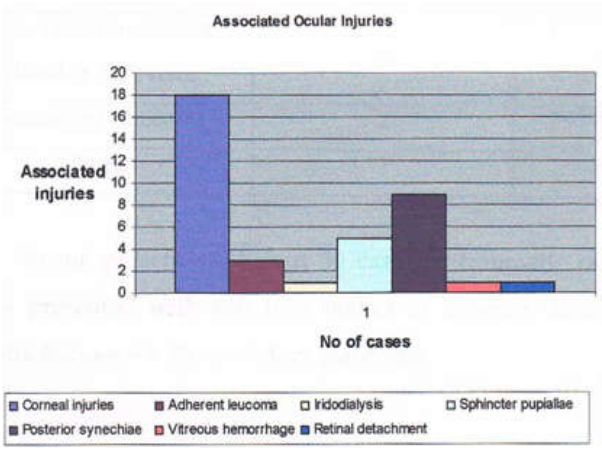


Table 7: Associated Ocular Complications

Associated ocular Complications	No. of cases	Percentage
Lens matter in anterior chamber &. Uveitis	5	10
Secondary glaucoma	2	4
Total	7	**14**



was observed in 1 case that had posterior dislocation of lens and retinal detachment. Table 7 analysis the associated ocular complications with traumatic cataract cases, which included the presentation with soft lens matter in anterior chamber & uveitis and secondary glaucoma.

Discussion

Cataract is by far the commonest complication causing visual loss following ocular injuries of moderate to severe grade. Management of this condition is difficult and prognosis depends on the damage to other structures in the anterior and posterior segment.

1. *Age wise distribution of traumatic cataract:*

In the present study, age wise analysis showed that majority of cases occurred in younger age group 11-20 years (38%). Studies done in different parts of the world showed similar increased incidence of traumatic cataract in the younger age group i.e. 10-30 years [2,3,4,5]. This is because of their greater involvement in outdoor activity, dangerous sports and also their work pattern.

2. *Sex wisedistribution:*

Our study shows a male preponderance of traumatic cataract cases. Studies in India and elsewhere also showed maximum cases in males (75-85%) in comparison to females (15-25%) [5,6]. This could be because men are more exposed to ocular trauma as a result of their occupation and they form the wage earning group.

3. *Mode of injury:*

The relative frequency of blunt and penetrating trauma among the traumatic cataract cases showed penetrating trauma to be the commonest mode of injury. Penetrating injury usually leaves a scar on the cornea & in this study 31 cases showed corneal scars of varied sizes and in different corneal positions.Many studies also report that penetrating injury is more commoner [6,7,8].

4. *Type of cataract:*

Majority of cases in the present study presented with a total cataract. Other forms were posterior sub capsular cataract, rosette cataract, anterior capsular & sub capsular, lamellar cataract and absorbed cataract. In a study of 24 traumatic cataract cases, 10 cases had total cataract, 10 had cortical & 4 had posterior sub capsular cataract [5]. A study showed that people with a history of ocular trauma were more likely to have cortical and posterior sub capsular cataracts [9].

5. *VA of the injured eye.*

It is very important to assess the visual acuity because the success of treatment would be judged from the improvement of vision that is ultimately recorded. The VA of the injured eye in the present study in 82% of the cases was <3/60. The Best Corrected VA of the other eye was also recorded

& it was in the range of 6/6 to 6/12 on Snellen's chart. This was because all thecases included in the present series suffered from uniocular injury. In similar studies the VA in majority of the cases of traumatic cataract was also < 3/60 [2,7]. In another study the preoperative visual acuity in the involved eye in majority of the cases was less than 6/60 [10].

6. Associated Ocular injuries

The visual prognosis in traumatic cataract can be poor because of concomitant injury to other ocular structures. The management of traumatic cataract depends on integrity of posterior capsule, zonular apparatus & associated injury to cornea, uveal tissue & posterior segment. In the present study, associated corneal injuries were more common seen in the form of scar or opacity, which could have affected vision by obstructing the visual axis & causing astigmatism. Next in order were injuries of iris and posterior segment. Similar injuries to cornea followed by injury to iris were also more common in other studies done in India and abroad [5,6].

7. Associated complications with traumatic cataract:

In the present study, lens matter in anterior chamber, due to rupture of anterior lens capsuleand uveitis was seen in 5 cases. 2 cases had lens induced secondary glaucoma.In a similar study by Valentina Lacmanovic et al 3 cases had anterior capsular rupture [5].

Conclusion

Traumatic cataract and its associated ocular injuries constitute one of the important causes of ocular morbidity and visual loss. Its importance is especially significant from the fact that the patients are mostly young in age with a long future life ahead. Most of such injuries which occur during play, travel and working in industry are preventable. Hence parents and authorities should take preventive steps to curtail incidence of these severe catastrophes to the minimum.

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