

Clinicoepidemiological Study on Traumatic Cataract

Mousumi Krishnatreya¹, Kabindra Deva Sarma²

ABSTRACT

Introduction: Ocular trauma is one of the important cause of acquired monocular blindness in the world. Both penetrating and concussion injuries can cause cataract. With these rationale a hospital base cross sectional study was carried out at the Regional Institute of Ophthalmology, Guwahati with the objective to know the profile of patient presenting with traumatic cataract, to study the mode of presentation and type of injury causing it and to know the associated ocular morbidities of traumatic cataract.

Material and Methods: All the patient admitted for traumatic cataract in Regional Institute of Ophthalmology during the study period were taken for the study. history was taken in a pre designed pre tested proforma for all 48 patient got during the period. Ocular examination was also done.

Results: Maximum number of traumatic cataract were among male patient (66%) and children below 10 years are mostly (27.08%) affected. Maximum (58%) numbers of traumatic cataract were due to blunt ocular trauma. Wooden stick was the commonest object causing both blunt as well as penetrating ocular injuries. it was observed that cornea involvement, anterior capsular tear, posterior synechia, subluxation or dislocation, uveities, raised IOP etc are some of the common morbidities associated with traumatic cataract.

Conclusion: Maximum numbers of patients were children and they were mostly related to unsupervised activities. As corneal involvement is one of the common morbidities associated with traumatic cataract early reporting and adequate follow up need to be emphasized to the masses.

Keywords: Ocular trauma, traumatic cataract, morbidities, blunt injury, penetrating injur

INTRODUCTION

Ocular trauma is regarded as one of the most important public health problem worldwide. It is the single most important cause of acquired monocular blindness in the world. Approximately 1.6 million people in the world become blind as a result of ocular injury. Around 40% of monocular blindness may be related to ocular trauma.^{1,2} cataract formation is a sequel after trauma.

A traumatic cataract may develop after various type of ocular insult including blunt and penetrating trauma. Other rare causes of traumatic cataract include infrared energy, ionizing radiation and ultraviolet radiation.³ Mode of injury in children is mostly domestic injury most commonly during playing at home or school. Sports and work related eye injuries most commonly occur in young adults followed by injuries related to accidents because of involvement of children in high risk sports without supervision or without employing protective measures.⁴

Developments of cataract during the early life leads not only to visual impairment due to the cataract itself, but also to amblyopia. Any significant stimulus deprivation during the

amblyogenic age can profoundly affect the further visual development.

Both penetrating and concussion injuries can cause cataract. The visual prognosis of traumatic cataract depends upon the type of ocular trauma, extent of lenticular involvement and associated damage to the ocular structure. However regarding the time of intervention of cataract surgery it has been emphasised that for a better prognosis the treatment should be completed within a year after initial surgery in case of adult and it is better to complete the treatment within six months in children.⁵

With these rationale this study was done with the objective to know the profile of patient presenting with traumatic cataract, to study the mode of presentation and type of injury causing traumatic cataract and to know the associated ocular morbidities of traumatic cataract.

MATERIAL AND METHODS

Ethical clearance was taken from institutional ethical committee of Gauhati Medical College and hospital in the meeting held on 19th nov.2013.

Study Design: This is a hospital base cross sectional study carried out at the RIO (Regional Institute of Ophthalmology), Guwahati from June 2013 to May 2014

Study population: All the traumatic cataract patient (with inclusion criteria) admitted for traumatic cataract in RIO during this period (june2013-may 2014) were taken for the study. A total number of 48 patient got during the period.

Inclusion criteria

Patient of age group 6-60 years of both male and female The patient who are diagnosed as having unilateral traumatic cataract by history, clinical findings and investigations.

A total number of 48 patient got during these period and meticulous history was taken in a pre designed pre tested proforma. Examination was done by using torch light in diffuse illumination, A thorough slit lamp examination was done to examine the eyelids, conjunctiva, sclera, cornea, anterior chamber, pupils, iris and lens. Intraocular pressure measurement was done using Goldmann applanation tonometry where applicable. Informed consent of the pateints was taken before starting the study.

¹Associate Professor, Department of Community Medicine, ²Assistant Professor, Department of Ophthalmology, Gauhati Medical College and Hospital, Guwahati, Assam, India

Corresponding author: Dr Mousumi Krishnatreya, Associate Professor. Department of Community Medicine.Gauhati Medical College, Guwahati. Assam, India

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STATISTICAL ANALYSIS

The Data collected was compiled, tabulated and subjected to statistical analysis wherever applicable. Statistical significance test like Chi-square test was employed where appropriate. The analysis was done in computer using MS excel package and SPSS11.5 software.

RESULTS

Out of 48 cases, 32 were male and 16 were female. Maximum number of cases found is in the age group of below 10 years. (27.08%) (Table-1).

It was observed that maximum (58%) number of traumatic cataract were due to blunt ocular trauma. It was also observed that in case of blunt trauma female suffered more (62.5%) than male (56.25%) whereas in case of penetrating trauma male suffer more (43.75%) than female (37.5). But this association between sex and type of trauma was not statistically significant (Table-2).

Wooden stick was the commonest object causing both blunt

Age (years)	Male (%)	Female (%)	Total (%)
<10	9 (28.13)	4 (25)	13 (27.08)
11-20	3 (9.37)	1 (6.25)	4 (10.53)
21-30	2 (6.25)	3 (18.75)	5 (13.16)
31-40	6 (18.75)	2 (12.5)	8 (16.67)
41-50	5 (15.63)	5 (31.25)	10 (20.83)
51-60	7 (21.87)	1 (6.25)	8 (16.67)
Total	32 (100)	16 (100)	48 (100)

NB: parenthesis indicate column wise percentage

Table-1: Age and Sex wise distribution of traumatic cataract

Type of trauma	Male (%)	Female (%)	Total (%)
Blunt	18 (56.25)	10 (62.5)	28 (58)
Penetrating	14 (43.75)	6 (37.5)	20 (42)
Total	32 (100)	16 (100)	48 (100)

df=1, $X^2=0.9974$, $p>0.05$, NB: parenthesis indicate column wise percentage

Table-2: Type of trauma causing traumatic cataract

Object causing injury	No	Percentage%
Stick	21	43.75%
Wire/ iron nail	6	12.5%
Stone	5	10.42%
Toy	4	8.33%
Hand	4	8.33%
Needle	3	6.25%
Fruit	3	6.25%
Other	2	4.17%
Total	48	100

Table-3: Distribution of cataract according to the type of object causing injury

Type of injury	Soft cataract	Total cataract	Rosette cataract	Total
Blunt	0	22 (59.45%)	5 (100%)	27 (56.25%)
Penetrating	6 (100%)	15 (40.54%)	0	21 (43.75%)
Total	6 (100%)	37 (100%)	5 (100%)	48 (100%)

NB: Parenthesis indicate column wise percentage

Table-4: Morphology of traumatic cataract according to type of injury

as well as penetrating ocular injuries. (44%). Wire or iron nail comes as second important object in ocular trauma (12%) (Table-3).

It was observed from the study that 59% of total cataract is due to blunt trauma where as 41% of total cataract is due to penetrating trauma. All the 6 cases of soft cataract was due to penetrating trauma and all the 5 cases of Rosette cataract was due to blunt trauma. These difference of type of trauma and morphology of traumatic cataract was found statistically significant (Table-4).

From table-5 it was observed that 38% of patient presented with corneal involvement along with traumatic cataract. Beside cornea involvement, anterior capsular tear, posterior synechia, subluxation or dislocation, uveities, raised IOP etc are some of the common morbidities associated with traumatic cataract. It was also observed that only 4% of patient suffering from iris injury along with the cataract.

DISCUSSION

The present study showed that majority of cases (26%) occurred in below 10 years of age. This is most probably because children are more active and commonly meet with accident during playing. Lack of adult supervision is also responsible for trauma. Daljith singh⁶ also showed similar observation in their study

It was observed that traumatic cataract were more among male patient (66%). Man seem to be more exposed to ocular trauma because they spend most of their time in outdoor activities. Bhatia CM, Panda A and Sood NN (1982)⁷ in their study found similar observation. and Krishnamachari M, (1997)⁸ also observed similar male preponderance in their study. Shah MA, Shah SM (2011)⁹ and Memon MN (2012)¹⁰ observed around 71% and 75.6% male involvement respectively in their study.

It was evident from this study that blunt trauma was the commonest mode of injury. Around 58% patient gives the history of blunt trauma where as 42% had penetrating trauma. Other studies showed similar pattern of type of trauma were Blum M (1996)¹¹ (57.4%), Brar GS et al (2001)¹² (55%).

Out of total 48 patient 21 patient (44%) had injury with wooden stick or bamboo during work or play. study done by Krishnamachari M, (1997)⁸ and Memon MN (2012)¹⁰ found that 54.7% and 44% patient had stick injury respectively in their study. These finding comply with the present study.

Present study showed that 37 patient (78%) had total cataract, 6 patient (12.5%) had soft cataract and 5 cases had rosette cataract. A statistical significance was also observed in type of trauma and morphology of the cataract. similar observations was also found by Krishnamachari M, (1997).⁸ But Shah MA, Shah SM (2011)⁹ found soft cataract in majority (60%) of cases.

Out of 48 cases of traumatic cataract 18 patient (37.5%)

Morbidities	Number	Percentage %
Corneal involvement	18	37.5%
Ant.capsular tear with lens mater in AC	10	20.83%
Posterior synechia	8	16.67%
Dislocation/ subluxatio	7	14.58%
Uveities	5	10.42%
Raised IOP	4	8.33%
Irish injury	2	4.17%

Table-5: distribution of ocular morbidities associated with traumatic cataract

presented with corneal involvement in the form of scars, opacity or sealed corneal wound. posterior synechiae was observed in 7 (14.5%) patient. Uveities in 5 (10.4%) cases, raised IOP in 4 (8.3%) cases and observed by Blum M (1996),¹¹ Daljith singh,¹ Krishnamachariy M, (1997),⁸ and Loncar VL, Petric I (2002)¹³

CONCLUSION

Maximum number of patients were children and they were mostly related to unsupervised activities. Adult supervision and awareness can reduce the occurrence of ocular trauma in children. The commonest mode of injury was found to be the blunt trauma and maximum had injury with wooden stick or bamboo during work or play. So awareness and careful attitude of people can reduce the trauma. As corneal involvement is one of the common morbidities associated with traumatic cataract early reporting and adequate follow up especially in children suffering from traumatic cataract need to be emphasized to the masses.

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