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Dr. Manjula Mangane
Assistant Professor,
Department of Ophthalmology
M.R. Medical College,
Kalaburagi, Karnataka, India

Dr. Vikas Aili
Junior Resident, Department of Ophthalmology, MR Medical, Kalaburagi, Karnataka, India

Corresponding Author:
Dr. Manjula Mangane
Assistant Professor,
Department of Ophthalmology
M.R. Medical College,
Kalaburagi, Karnataka, India

A prospective clinical evaluation and management of traumatic cataract

Dr. Manjula Mangane and Dr. Vikas Aili

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Abstract
Background: Surgically induced astigmatism is the cause of poor postoperative vision even after uneventful cataract surgery.
Aim: The aim was to present the experience in the management of cases of traumatic cataract with special reference to age, sex, type of injury, preoperative status of the eye, associated ocular injury, timing of injury and its effect on the final visual outcome.
Setting: Basaveshwar Hospital, Mahadevappa rampure medical college Gulbarga, Karnataka.
Design: Prospective study.
Material and Methods 35 eyes of 35 patients who underwent surgery for traumatic cataract were included. Specific information were collected and analysed. The patients underwent necessary ophthalmic and systemic investigations and then underwent cataract surgery. The final visual acuity was assessed at the end of 6 weeks.
Statistical Analysis: Non-parametric method (Mann whitney U test).
Results: Majority of the cases were seen in age group 5-14 years with male preponderance. 54% were penetrating trauma and 46% were blunt trauma. Corneal and iris tissue injuries were the most common associated injuries. Final visual acuity was 6/6-6/18 in 43% of patients, 6/24-3/60 in 31% of patients and less than 3/60 in 26% of patients. The most common late complication was PCO. On comparing final visual outcome among adult and paediatric age group, there was no significant difference. The time interval between injury and intervention had no significant effect on final visual outcome.
Conclusions: Patients with traumatic cataract can have an optional or best possible visual outcome depending upon management and complications.

Keywords: Injury, traumatic cataract, time of intervention, cataract surgery, visual outcome

Introduction

Ocular trauma is the leading cause of unilateral blindness all over the world. Traumatic cataract is a common sequelae of ocular injuries in adults and children. The incidence of ocular injuries varies in different parts of the world. Any prevention strategy requires knowledge of causes of injuries, which may enable more appropriate targeting of resources toward preventing such injuries. For both eye trauma victims the society bears a large potentially preventable burden.

The method used to evaluate the visual outcome in eyes managed for traumatic cataracts and senile cataracts are similar, but the damage to ocular tissues owing to trauma may compromise the visual gain in eyes treated surgically for traumatic cataracts. Hence, the success rate may differ between eyes with these two types of cataract.

Extent of associated damage to anterior and posterior segment, time of intervention, operative and post-operative complications go a long way in determining the ultimate prognosis. The type of trauma, extent of lenticular involvement and associated secondary rise of intraocular pressure are factors of paramount importance which could dictate the exact time of management of cataract.

Based on lenticular opacity, the cataracts are classified as total, membranous, white soft, and rosette type. When there is no clear lens matter between the capsule and nucleus, the cataract was defined as total. When the capsule and organised matter are fused and formed a membrane of varying density, it is defined as a membranous cataract. When loose cortical material is found in the anterior chamber together with a ruptured lens capsule, the cataract is defined as white soft. A lens with a rosette pattern of opacity is classified as a rosette type cataract.

Management of traumatic cataract that results form either blunt or penetrating ocular trauma needs special consideration because of associated injury to ocular and periorbital structures. It is important to study the effect of time interval between injury and first intervention, as the morphology of traumatic cataract is influenced by this interval.

The present study presents the experience in the management of cases of traumatic cataract with special reference to age, aetiology, preoperative status of the eye, time of surgery following trauma, type of surgery and final visual outcome.

Materials and Methods

The cases admitted in the ophthalmology ward of BTGH for cataract surgery will be considered under the study according to preformed proforma and assessed accordingly. Informed and written consent will be taken. The patients will be followed up on day 7, day15, day 30 postoperatively.

Inclusion Criteria

1. All patients who present to the Ophthalmology Department with traumatic cataract due to mechanical injuries.
2. Patients willing for surgery and regular follow-up

Exclusion Criteria

1. All other types of cataract other than traumatic cataract due to mechanical Injuries such as:

- Cataracts due to injuries other than mechanical like radiation cataract, electric cataract.
- Complicated cataract.
- Active uveitis
- Congenital or developmental cataract.
- Age related cataract.

2. Ocular injuries without cataract.

3. Traumatic cataract associated with pre-existing ocular diseases

Preoperative Assessment

1. History

a) Patients were registered with their name, age, sex and address

b) Relevant history from the patients was taken regarding

- Diminution of vision and associated complains like pain, redness, watering etc with duration.
- Nature of trauma and associated ocular damage.

Time lapse between the occurrence of trauma and institution of treatment recorded.

2. Examination

a) A comprehensive general examination of all patients was done to rule out any systemic illness.

b) ocular examination:

- Visual acuity (unaided and aided)
- Retinoscopy (where possible)
- Detailed anterior segment examination under diffuse illumination and slit lamp microscopy.
- Tonometry by Schiotz tonometer.
- Syringing for patency of lacrimal apparatus.
- Limbal ring x-ray in cases with IOFB for exact localization.
- USG-B Scan to rule out posterior segment pathology.
- Kerotometry to determine preoperative astigmatism and A-scan to determine power of IOL to be implanted.

3. Surgical procedures undertaken prior to cataract surgery Corneal or scleral tear-tear repair done as soon as possible under LA or GA and cataract surgery postponed for at least 1 month. However, in some cases simultaneous cataract extraction was done and secondary implantation done at a later date.

4. Management of Traumatic Cataract

Depending on condition of lens and status of capsule and zonules

Type of cataract surgery can be of:

-Irrigation and aspiration
-Anterior capsulectomy + irrigation and aspiration
-Lens extraction and vitrectomy
-Phacoemulsifcation
-SICS
-ICCE
-ECCE
-ECCE + membranectomy

5. Follow up

All patients were regularly followed up at first, second, fourth, sixth post operatively weeks. Parameters recorded were-

- Visual acuity (unaided and aided).
- Retinoscopy and best corrected visual acuity by subjective test.
- IOP with Schiotz tonometer.
- Detailed anterior segment evaluation with Slit lamp.
- Any complications like PCO, iris atrophy etc recorded. Grading of PCO done.
- Keratometry for post-operative astigmatism.
- Posterior segment evaluation done by direct and indirect ophthalmoscope.

Results

In the current study majority of the cases were seen in 5-15 years with a male preponderance.

Table 1: Age Distribution

Age	No. of patients	Percentage%
0-15	14	40%
15-24	11	31%
25-34	3	9%
35-44	5	14%
>45	2	6%

Table 2: Sex Distribution

Sex	No. of patients	Percentage %
Male	25	71%
Female	10	29%

54% were penetrating trauma and 46% were blunt trauma. Wooden stick was the most common object causing trauma

Table 3: Type of injury

Type of injury	No. of patients	Percentage %
Penetrating	19	54%
blunt	16	46%

Table 4: Objects causing trauma

Objects causing trauma	No. of patients	Percentage %
Wooden stick	17	49%
Hand and fist	3	8%
Plastic	3	8%
Metallic	6	18%
Fire cracker	1	3%
RTA	1	3%
Acid	1	3%
Brick and stone	3	8%

Associated ocular injuries

Associated ocular injuries go long way in determining the ultimate visual prognosis in cases of traumatic cataract. Corneal and iris injuries were the most common associated injury.

Table 5: Associated Ocular Damage

Associated Ocular Damage	No. of patients	Percentage
Corneal (corneoscleral) tear	19	54%
Injury to iris	10	28%
Zonular disruption	02	06%
Corneal opacity	02	06%
Old RD	01	03%

Type of surgery

Depending on the condition of the eye, the type of surgery done were SICS with PCIOL, SICS with PCIOL and lens extraction with anterior vitrectomy

Table 6: Type of Surgery

Type of Surgery	No. of Eyes	Percentage
SICS with PCIOL	32	91%
SICS with ACIOL	01	3%
Lens extraction with Ant. vitrectomy	02	6%

Final visual outcome compared among adult and paediatric groups

On comparing final visual outcome among adult and pediatric group, there was no significant difference statistically with a p value of 0.658.

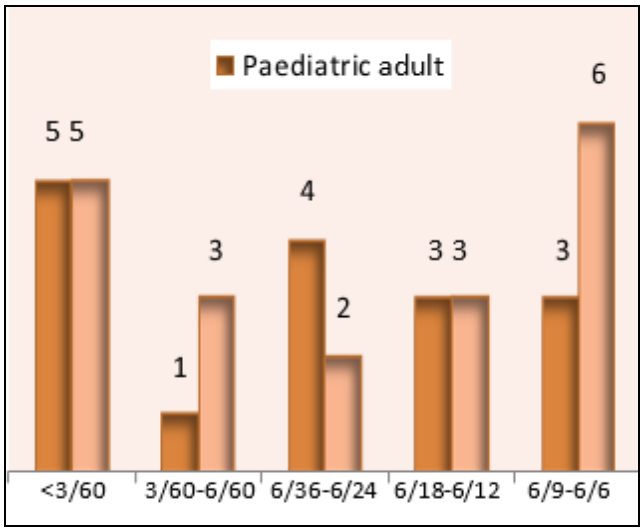


Fig 1: Final visual outcome compared among adult and pediatric group (bar chart)

Effect of time interval between injury and cataract surgery

The time interval between injury and intervention had no significant effect on final visual outcome.

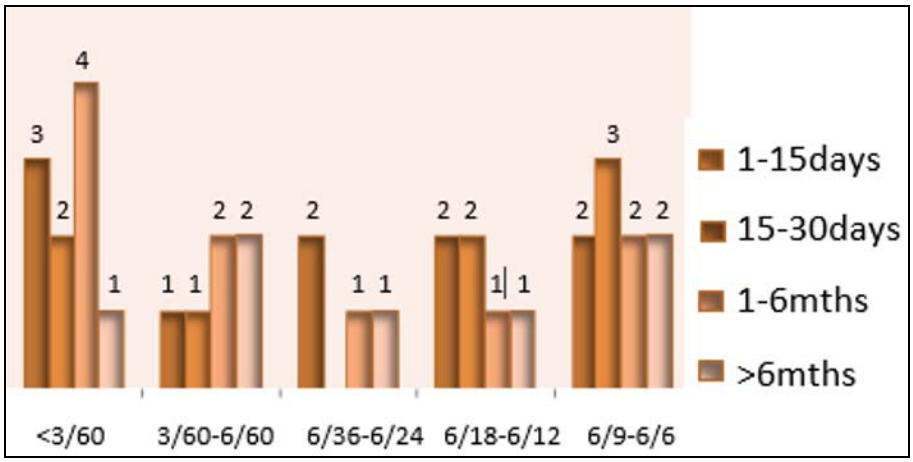


Figure 2: Effect of time interval between injury and cataract surgery (bar chart)

Probability=0.986

Final visual outcome:

The final visual outcome was 6/6-6/18 in 43% of patients, 6/24-3/60 in 31% of patients and less than 3/60 in 26% of patients

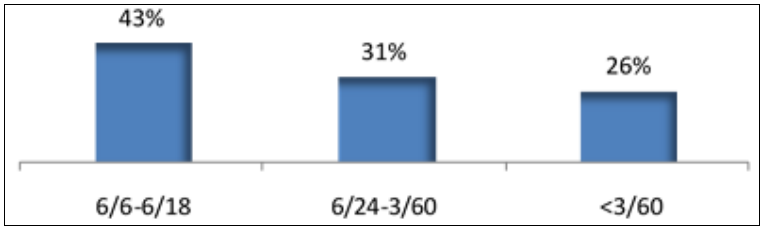
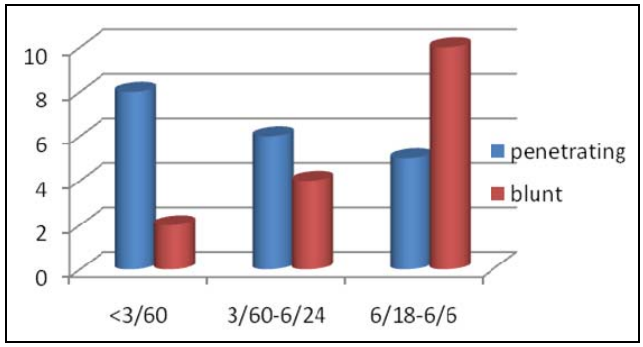


Fig 3: final visual outcome (bar chart)

Comparision of visual outcome between penetrating and blunt injury

In our study though the visual outcome was better in blunt injury, the difference was not statistically significant



Probability value 0.066

Fig 4: Comparison of visual outcome between penetrating and blunt injury.

Discussions

- This study included 35 cases of traumatic cataract managed at MYH, Indore.
- Male preponderance was found with a male to female ration of 1:2.5. It is due to involvement of males in sports and outdoor activities
- Zaman *et al* stated that majority(50-64%) of traumatic cataract patients ranged between 5-15 yrs which is consistent with the present finding i.e cases ranged between 1-15yrs
- On comparing our study with different studies regarding regarding the incidence of blunt and penetrating injury, our study is same with other three studies i.e penetrating injury has a higher incidence.

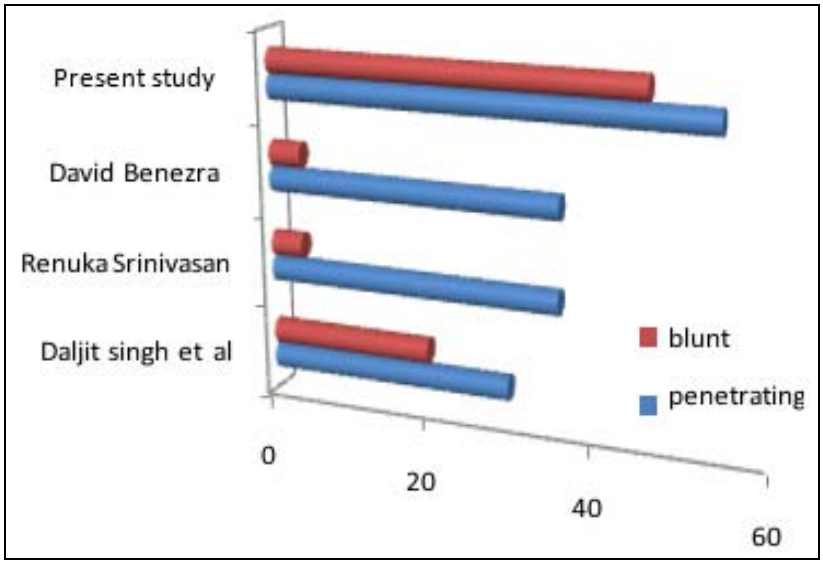


Fig 5: Comparison of incidence of type of injury with other studies (bar chart)

On comparing the effect of time interval between injury and intervention on the final visual outcome with different studies, our conclusion i.e timing of intervention has no effect on the visual outcome is same with most of the studies except for the study which was conducted by mehul and co-workers in which they found a significant effect on visual outcome.

Table 7: Comparison of effect of time of intervention with other studies.

Other Studies	Effect of time interval between trauma and intervention on visual outcome
Wos and Mirkiewicz Sieradzka	No effect
Behbehani *et al*	No effect
Mehul and co-workers	Has significant effect
Present study	No effect

- The major postoperative complication encountered on 1st postoperative day were ant. uveitis and C. odema which responded to medical therapy
- The commonest late postoperative complication was PCO Gain *et al* concluded that postoperative visual acuity depends on complications. The main cause of no improvement in VA in the present finding was due to central corneal opacity and high astigmatism
- 32 patients were fitted with PCIOL, and one with ACIOL and two patients were left aphakic.

Conclusion

In conclusion, in our study males were predominantly affected by traumatic cataract because of their nature of work and outdoor occupation. The age group of 5-25 years formed the core group of people to get traumatic cataract.

Though, in our study most of the patient were fitted with PCIOL and one with ACIOL, newer surgical techniques like PCIOL with capsular tension ring and sclera fixation IOL and other newer technique can be done in complicated cases like zonular dehiscence and/or posterior capsular rupture. The final visual outcome showed good result however the final visual outcome depends upon the extent of associated ocular injuries. Effective Intervention and management are the key points in preventing monocular blindness due to traumatic cataract.

References

1. *Gogate, Sahasrabudhe.* Causes, epidemiology and long term outcome of traumatic cataract in children in rural area. Indian Journal of Ophthalmology, 2012.
2. Visual outcome of traumatic cataract in paediatric age group. European Journal of Ophthalmology, 2012.
3. Use of intraocular lens in children with traumatic cataract in South India. British Journal of Ophthalmology Aug, 1998.
4. IM Bhatia, Panda A, Sood NN. Management of Traumatic Cataract. Indian Journal Of Ophthalmology 1983
5. Namrata G Abdulkar, Mukherjee. Visual recovery after managing traumatic cataract. Indian Journal of Ophthalmology, 2013.
6. Visual outcome after primary IOL implantation for traumatic cataract.
7. Pakistan Journal of Ophthalmology, 2011.
8. Mehul A Shah, Shreya A Shah. Morphology of traumatic cataract: does it play a role in final visual outcome. BMJ Open, 2011.
9. Effect of interval between time of injury and timing of intervention on final outcome in cases of traumatic cataract. Europeon Journal of Ophthalmolgy, 2011.
10. Visual recovery and predictors of visual prognosis after managing traumatic cataract in 555 patients. Indian Journal of Ophthalmology
11. Mariya Nazish Memon. Visual outcome of unilateral traumatic cataract, Journal of the College of Physicians and Surgeons Pakistan, 2012.
12. Mir Zaman. Sofia Iqbal. Frequency and visual outcome of traumatic cataract, JPMI, 2006.