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# The Visual Outcome of Primary Intraocular Lens Implantation in Traumatic Cataract Patients

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**Abstract:** ***Background:*** *Trauma to the eye can cause other ocular issues in addition to cataract development. Both blunt trauma and penetrating trauma can result in traumatic cataract development. Young people, particularly boys, are more prone to trauma and have traumatic cataracts more frequently. Because media opacity increases the likelihood of amblyopia in youngsters, timing of surgery is crucial for visual rehabilitation. Several studies have shown that in cases of traumatic cataract, early evacuation of the cataract combined with IOL implantation leads to satisfactory vision.* ***Aim:*** *To evaluate the visual result of primary intraocular lens implantation combined with cataract extraction for traumatic cataracts resulting from blunt and penetrating ocular traumas.* ***Methods:*** *This prospective study includes 30 patients with traumatic cataract at a tertiary hospital situated in maharashtra, ranging in age from 5 to 50. The study was conducted between August 2023 and January 2024, over a duration of six months. The histories of these 30 patients were carefully recorded, including the trauma's etiology, duration, and related ocular injuries. Complications during and after the procedure were recorded. Following the procedure, the visual prognosis was recorded.* ***Result:*** *The final visual acuity, or best corrected visual acuity, was evaluated after three months in all 30 patients of traumatic cataract surgery. 17 cases (56.66%) had final visual acuity of 6/6–6/12, 9 cases (30%) had final visual acuity of 6/18–6/36, and 4 cases (13.3%) had final visual acuity of less than 6/60.Good visual outcomes were observed in 30 patients of traumatic cataract in this investigation, which were treated by cataract extraction and primary intraocular lens implantation.* ***Conclusions:*** *It has been noted that primary IOL implantation and traumatic cataract extraction provide favorable visual outcomes, preventing amblyopia and divergence of the eyes.*

**Keywords:** Traumatic cataract, Primary intraocular lens, Visual outcome

## 1. Background

In India, cataracts account for the majority of blindness cases (62.60%). Roughly 29% of pediatric cataracts are caused by traumatic cataracts. Ocular trauma is a significant contributor to visual loss, and the development of cataracts after trauma is a significant contributor to visual loss following ocular trauma. Blunt or penetrating ocular trauma, electric shocks, ionizing radiations like x-rays, and non-ionizing radiations like infrared and ultraviolet light can all result in traumatic cataracts. Young adults and children are more likely to experience trauma and are more likely to develop traumatic cataracts. Unilateral aphakia becomes an issue when a traumatic cataract requires lens removal, even if the opposite eye is typically unaffected. Only to a limited extent may contact lenses and spectacle correction aid in the development of binocular vision. Because media opacity increases the risk of amblyopia in youngsters, the timing of surgery is crucial for visual rehabilitation. Several studies have shown that in cases of traumatic cataract, early cataract lensectomy combined with primary intraocular lens implantation leads to satisfactory eyesight.

This study was conducted at a Tertiary health care centre in Maharastra in order to evaluate the potential for visual rehabilitation in patients with traumatic cataracts induced by blunt and penetrating ocular injuries after cataract extraction and primary intraocular lens implantation.

## 2. Materials and Methods

This prospective study includes 30 patients with traumatic cataract ranging in age from 5 to 50. The study was conducted between August 2023 and January 2024, over a duration of six months. Snellen's chart was used to quantify our primary outcome, which was visual acuity at three to six months. Surgery performed within two weeks following the incident was considered early surgery. Age, gender, preoperative and postoperative visual acuity at three to six months postoperatively, and reasons for suboptimal surgical result were all recorded.

**Inclusion criteria:**
All patients within age group of 5 years to 60 years having traumatic cataract due to blunt and penetrating ocular injuries.

**Exclusion criteria:**
All the cases of traumatic cataract having complex posterior segment injury on clinical examination or investigation, secondary glaucoma, retained intraocular foreign body.

Traumatic cataract due to electric shocks, ionizing radiations like X-Rays, non- ionizing radiations such as infrared and ultraviolet light.

Cases in which intraocular lens could not be placed primarily after cataract extraction.

## 3. Results

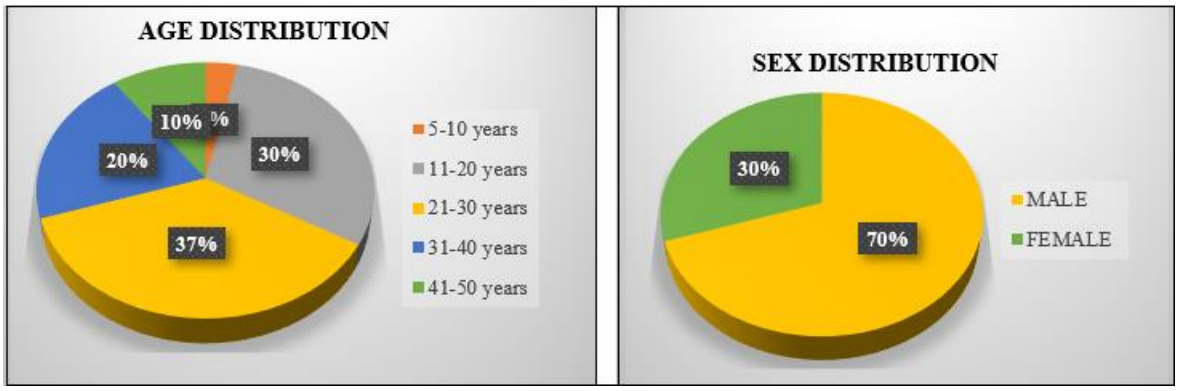


**Figure 1.1 and 1.2:** Age & Sex Distribution

Out of 30 cases of traumatic cataract, age group ranged from 5-60 years. All the patients had unilateral injury. There was no significant preponderance. Maximum number of cases were seen in younger age group i.e. 21 cases (70%) were seen between 5-30 years of age. Male preponderance was seen, out of 30 cases of traumatic cataract, 21 cases (70%) were males whereas females accounted for 9 cases (30%) with a male to female ratio of 3:1.

The highest number of cases had history of trauma with penetrating injury 22 cases (73.33%) followed by blunt trauma in 8 cases (26.67%). Penetrating injury was seen more in people of rural areas, working in fields. Stick or thorn were the major objects causing injury. The type of cataract seen was mainly total lens opacity in 27 cases, although rosette shaped
cataract is described frequently in literature, in this study it was seen only in 3 cases. Traumatic cataract was seen to be associated with other ocular injuries like corneal injuries (64.70%), iris injuries (23.53%), adherent leucoma and posterior synechiae (11.76%).

In 7 cases (23.33%), the preoperative visual acuity was PL/PR. In 19 cases (63.33%), the preoperative visual acuity was perception of hand movements. In 3 cases (10%), the preoperative visual acuity was counting fingers. In 1 cases (3.33%), the preoperative visual acuity was 6/60. Visual acuity of other eye was recorded in all patients and was found to be within the normal range.

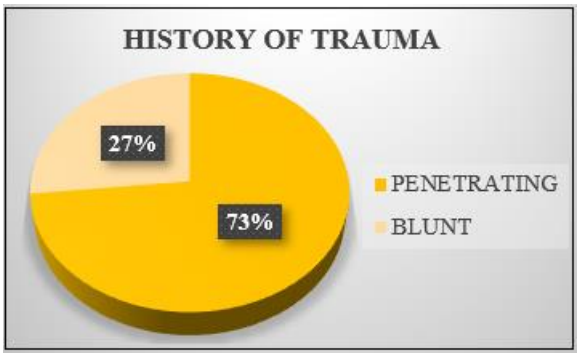


**Figure 1.3:** History of Trauma to Eye

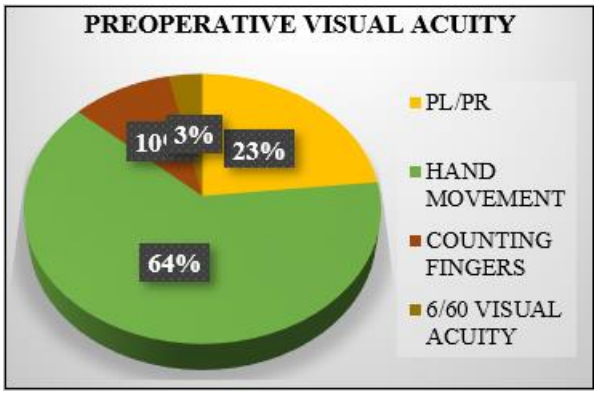


**Figure 1.5:** Preoperative Visual Acuity

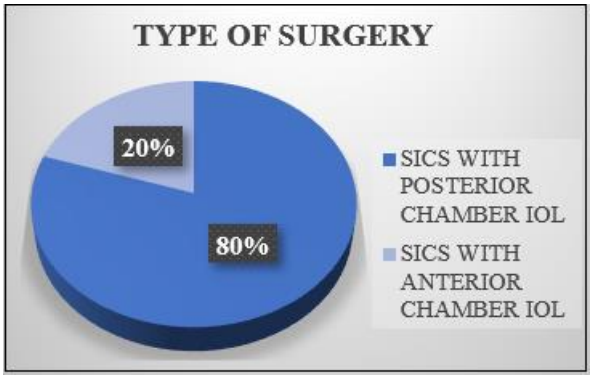


**Figure 1.6:** Patients Underwent Surgery

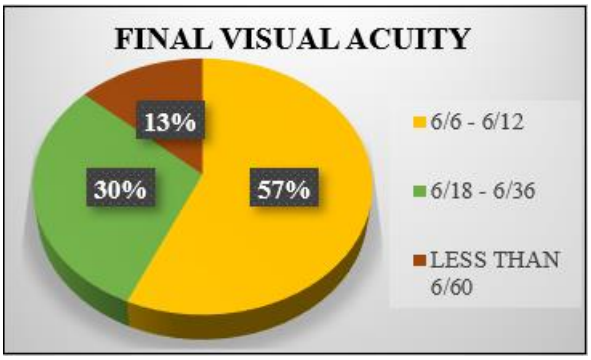


**Figure 1.7:** Final Visual Acuity Evaluated After 3 Months

Twenty-four cases underwent SICS with posterior chamber IOL implantation. six cases underwent SICS with anterior chamber IOL implantation. Postoperative complications such as striate keratopathy, shallow anterior chamber, uveitis, hyphema and PCO were observed. These postoperative complications were managed with appropriate topical antibiotic and steroid eye drops. The final visual acuity, or

best corrected visual acuity, was evaluated after three months in all 30 patients of traumatic cataract surgery. 17 cases (56.66%) had final visual acuity of 6/6–6/12, 9 cases (30%) had final visual acuity of 6/18–6/36, and 4 cases (13.3%) had final visual acuity of less than 6/60.

## 4. Discussion

Accidental trauma can occur to anyone at any age and in many different forms, but young people appear to be particularly susceptible. Traumatic cataract and damage to other ocular structures are frequent outcomes of ocular trauma. When a cataract develops, the lens must be removed, and uniocular aphakia results from not having intraocular lens implantation.

In children who have not yet developed binocular single vision, correcting uniocular aphakia with spectacles does not aid in the development of binocular single vision; contact lenses only partially alleviate the problem. In cases of traumatic cataract, good vision can be achieved through the excision of the cataractous lens and primary implantation of an intraocular lens thanks to advancements in technology and intraocular lenses. After a penetrating or blunt eye injury, one of the most common complications is the development of traumatic cataract. According to ophthalmic literature, the risk of getting cataracts after trauma ranges from 1% to 15% of all ocular injuries.

The final visual prognosis is determined by the type of trauma, the degree of lenticular damage, and any accompanying damage to other ocular structures. Trauma accounts for 14% of pediatric cataract cases in India. An examination of cases by age revealed that most of them happened in the younger age range of 11 to 30 years. This is a result of the study participants' increased participation in risky sports and outdoor activities as well as their employment habits. Wooden sticks were the cause of most injuries.

## 5. Conclusion

Corneal scarring obstructing the visual axis and posterior capsular opacification were the important cause for poor visual outcome. Spectacle correction does not help in developing binocular vision and contact lenses are helpful to certain extent only. Traumatic cataract extraction and primary intraocular lens implantation is a well-established procedure for visual rehabilitation. The type of trauma, extent of lenticular involvement, associated damage to ocular structure go a long way in determining the ultimate visual prognosis with improved technology and increasing popularization of IOL, the problem of binocular vision will be solved and thus we can prevent the traumatic eye from being amblyopic and divergent.

## References

[1] Cillino S, Cassiccio A, Di Pace F, et al. A five-year retrospective study of the epdemiological characteristics and visual outcomes of patients hospitalized for ocular trauma in a meditteranean area. BMC Ophthalmol. 2008; 22: 8:6.

[2] Reddy A, Ray R, Yen K. Surgical intervention for traumatic cataracts in children: Epidemiology, complications, and outcomes. Journal of American Association for Pediatric Ophthalmology and Strabismus. 2009; 13: 170-4.

[3] Blum M, Tetz MR. Treatment of traumatic cataract. Jr of Cataract and Refract Surg, 1996 April; 22.

[4] Krishnamachari M, Rati V, Gupta J, Management of traumatic cataract in children. Jr of Cataract and Refract Surg, 1997; 23(1); 681- 87.

[5] Moisseiev J, Segev F, Harizmann N et al. Primary cataract extraction and intraocular lens implantation in penetrating ocular trauma. Ophthalmology, 2001; 108:1099-1103.

[6] Dante J, Pieramici and Leonard M. A mechanistic approach to ocular trauma. Optm Clinics of North America, 1995; 8 (4): 569-87.

[7] Lane SS, Koppeitz LA, Lindquist TD et al. treatment of phacolytic glaucoma with ECCE. Ophthal, 1998; 95: 749-53.

[8] Alisacohen, Peter S, Hershand Jan A, Fleishman. Management of trauma induced cataract. Optm Clinics of North America, 1995; 8 (4): 633-46.