

Research Article

Visual outcome after surgery in traumatic cataract: A study in the Regional Institute of Ophthalmology, Cuttack

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Abstract: Background: Traumatic eye disorders are among the preventable public health problems. Restoration of visual function following surgery for traumatic cataracts is a complex issue. **Objective:** To study the visual outcome after surgical management of traumatic cataract patients. **Methods:** This prospective study was conducted from the month of October 2010 to September 2012 with 92 participants. **Results:** 90.2% cases had pre-operative vision less than 6/60 and 9.8% had better vision in the range of 6/60- 6/24. In 80 % patients with preoperative vision of PL+ and inaccurate PR, visual acuity improved to VA in the range (<6/60- 6/36) and in rest 20% it improved to VA in the range (6/24-6/6) . Those who were having hand movements (HM) and counting of fingers (CF) as preoperative vision, improved to VA in the range (6/24-6/6) in 78% and 79% respectively. Patients having preoperative vision in the range of (3/60-6/24) improved to VA in the range (6/24-6/6) in 100% cases. At 3 months after surgery, 40.2% of total participants improved to VA range (6/6-6/12), 25% improved to (6/18-6/24) and 18.5% improved to (6/36-6/60). **Conclusion:** In traumatic cataract cases, if pre operative vision is good, they will have better visual outcome after surgery.

Keywords: Traumatic cataract, visual outcome.

INTRODUCTION

Eye disorders resulting out of trauma are among the preventable global public health problems. Ocular trauma often leads to traumatic cataract and may contribute to around 40% of monocular blindness and half a million global burden of blindness. Early management of these cases restores good visual function. Outcome of the cataract surgery in traumatic cataract depends on the type of injury and the extent of involvement of other ocular structures (Thylefors, B. 1992; Negrel, A. D. *et al.*, 1990). Traumatic cataract poses a significant medical and surgical challenge to an ophthalmologist. A detailed history, careful examination and a clear management plan can simplify these cases and provide the best possible visual outcome (Sarikkola, A.U. *et al.*, 2005; Kanskii, J.J. 1989). Visual gain following surgery for traumatic cataracts is a complex issue. Electrophysiological and radio-imaging investigations are important tools available in industrialized countries for assessing co-morbidities associated with an opaque lens. Predictors

of visual gain after traumatic cataract surgery would be useful for ophthalmologists in such cases (Hogan, M.J. *et al.*, 1959; Navon, S.E. 1997; Trivedi, R. H., & Wilson Jr, M. E. 2003).

Objective

To study the visual outcome after surgical management of traumatic cataract patients.

METHODS

The study was conducted in Regional Institute of Ophthalmology, SCB Medical College Cuttack as a prospective study from October 2010 to September 2012. All cases fitting to the inclusion criteria and filtered by exclusion criteria during this period were included in the study. Total no of patients enrolled was 92. Patients were selected for the study from the Out Patient Department (OPD).

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Inclusion criteria cases due to mechanical (penetrating & blunt) injuries only were included.

Exclusion criteria all cases with electrical, chemical, ultrasonic, thermal injuries, injuries due to radiation, with grossly damaged eye, with simultaneous posterior segment pathology and intra-ocular foreign body were excluded from this study.

Pre-operative evaluation of patients was done with necessary blood and radiological investigations. As per the evaluation of the patient, various types of surgical options were used to manage the traumatic cataract cases such as: extra capsular cataract extraction (ECCE) with posterior chamber IOL (PCIOL) implantation, small incision cataract surgery (SICS) with PCIOL implantation, small incision cataract

surgery only, Phacoimulsification with PCIOL implantation, scleral fixated IOL implantation (SFIOL) and secondary anterior chamber IOL and PCIOL implantation.

RESULTS AND DISCUSSION

Among the study participants, 81.5% were males and 18.5% were females. Common age groups affected were 28% in the age group of 11-20 years and 35% in the age group of 21-30 years. Penetrating injuries contributed 62% cases, whereas rest 38% was by blunt injuries. Injuries by stick (37%) and stone (24%) were very common and most of them were either at work place (30%) or by violence (24%). Interval between trauma and seeking medical attention was variable. About 46% cases reported to health facility within 48 hours.

Table-1: Preoperative visual status

Visual Acuity	No. of cases (n=92)	Percentage (%)
PL*+ inaccurate PR	5	5.4
PL+ accurate PR**	31	33.7
Hand movements	18	19.6
CF*** at Close range to CF at 2m	19	20.6
3/60 - 5/60	10	10.9
6/60-6/24	9	9.8
TOTAL	92	100

*PL (Perception of light)
 **PR (Projection of rays)
 *** CF (Counting of fingers)

The present study showed, 83 out of 92 patients (90.2%) had pre-operative vision less than 6/60 and only 9 patients had better vision, i.e 6/60- 6/24. Similar observation by Murli K et.al (Murli, K. *et al.*, 1997) showed that, 97.7% patients had preoperative vision less than 6/60 in their series of 137 patients. Dhende PS

(2001) observed that most patients (76%) had pre-operative vision reduced to positive PL and PR. Vijay Lakshmi, P., & Natchier, G. (1988) observed in their study that preoperatively 55 (91.66%) of 60 patients had visual acuity less than 6/60.

Table- 2: Pre-operative visual categories and corresponding post-operative visual outcomes

Preoperative			Postoperative BCVA*				Z-value	P-value
Type of vision	Total		Less improved vision(V/A <6/60 – 6/36		More improved vision(V/A 6/24 – 6/6)			
	No.	%	No.	%	No.	%		
PL+ iPR	5	100.0	4	80.0	1	20.0	1.897	0.058
PL+ aPR	31	100.0	20	64.5	11	35.5	2.284	0.022
HM	18	100.0	4	22.2	14	77.8	3.336	0.001
CF(CR to 2m)	19	100.0	4	21.1	15	78.9	3.515	<0.001
3/60 to 5/60	10	100.0	0	0.0	10	100.0		
6/60 to 6/24	9	100.0	0	0.0	9	100.0		

*BCVA is Best corrected visual acuity

Patients with PL+ and inaccurate PR preoperatively improved to visual acuity(VA) category (<6/60- 6/36) in 80 % and VA category (6/24-6/6) in 20% and the difference between the two post-operative visual outcome categories is statistically not significant(P=0.058). Patients who had PL+ with accurate PR pre-operatively, the vision improved to visual acuity (VA) category (<6/60- 6/36) in 64.5 % and VA category (6/24-6/6) in 35.5% and the difference is statistically significant(P=0.022). Patients having pre-

operative vision as perception of hand movements and better, the percentage of patients moving to more improved post-operative vision (6/24-6/6) was remarkable. The differences in two post-operative visual outcome categories in cases of pre-operative vision as perception of hand movements(HM) and counting of fingers at close range to 2 meters (CF CR to 2m) were found statistically significant (P=0.001 and P<0.001 respectively). All patients having preoperative

vision in the range of (3/60-6/24) improved to VA in

the range (6/24-6/6).

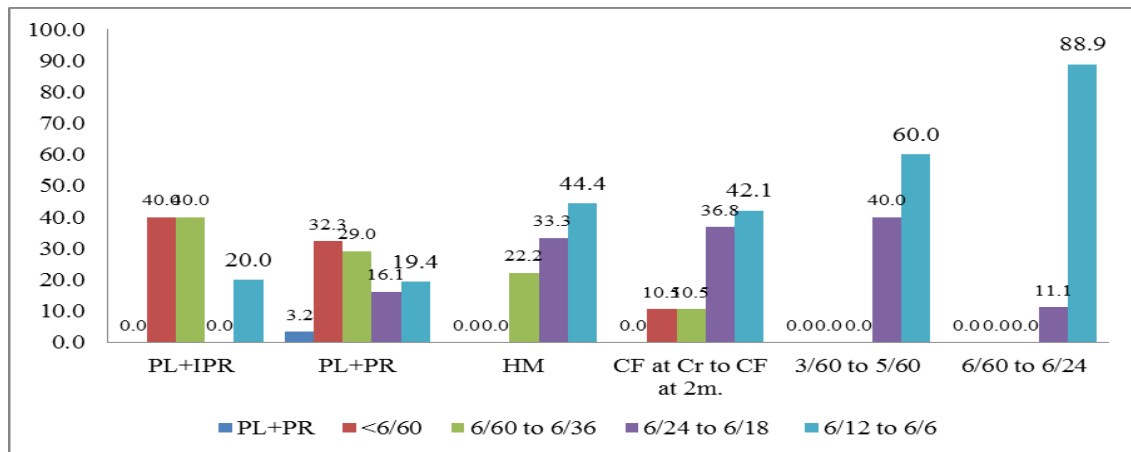


Fig 1: Graph showing pre-operative visual categories changing to different post-operative visual categories (%)

Table- 3: Visual outcome at the end of 3 months

BCVA	No. of cases (n=92)	Percentage (%)
6/6-6/12	37	40.2
6/18-6/24	23	25
6/36-6/60	17	18.5
5/60-3/60	6	6.5
CF at 2M-HM	8	8.7
PL,PR	1	1.1
Total	92	100

At the end of 3 months BCVA in all patients was recorded, 40.2% of total patients had a good vision (6/12-6/6), while 43.5% of total patients had a moderate vision (6/60-6/18) and 16.3% had poor vision (<6/60). There was no improvement of vision in 1.1% cases. Malik KPS, *et al.*, (2000) achieved 6/12 or better vision in 36% cases. Dhende PS (2001) found 6/12 or better vision in 40% cases. However our results are not as encouraging as those of Singh D *et al.*, (1983) who achieved vision 6/18 or more in 83.3% case.

Singh D *et al.*, (1983) studied 61 cases of traumatic cataract and noted final visual acuity of 6/6 to 6/12 in 79 % of cases after surgery. Murali K *et al.*, (1997) noted postoperative visual acuity of 20/60 or better in 74.1% patients after extra capsular cataract extraction (ECCE) with IOL implantation. Synder A *et al.*, (1998) noted that good visual acuity i.e 6/6 to 6/18 was achieved in 71.45% cases after undergoing extra capsular cataract extraction in traumatic cases.

Table- 4: Causes of non-improvement of vision

Cause	No. of cases	Percentage (%)
Amblyopia and squint	2	2.2
Irregular Astigmatism	3	3.3
Central corneal opacity	6	6.5
Dense Posterior Capsular Opacity	2	2.2
Macular edema	1	1.1
Endophthalmitis	1	1.1

Murli K. *et al.*, (1997) found the causes of non-improvement of vision in his series of 134 cases to be amblyopia (7 cases), retinal detachment (7 cases), optic atrophy (1 case) and posterior capsular opacity (55 cases). Dhende PS (2001) found amblyopia (16.6%), irregular astigmatism (13.3%), posterior capsular opacification (6.6%), corneal opacification (9.9%) and posterior segment pathology (6.6%) to be the significant cause of non-improvement of vision.

CONCLUSION

Visual outcome of patients with traumatic cataract after surgery improves in accordance with the pre-operative visual status. Health seeking behavior of the patients suffering from ocular trauma needs to be improved, as only less than half of the patients report to the health facility within two days of trauma. Central corneal opacity, Irregular Astigmatism, Amblyopia and squint are some of the causes of non-improvement of vision from pre-operative status.

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Conflicts of interest: None

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