



## POST OPERATIVE COMPLICATIONS IN THE MANAGEMENT OF TRAUMATIC CATARACT IN A TERTIARY CARE HOSPITAL OF ODISHA

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### ABSTRACT

**Background:** Traumatic cataract remains an important cause of visual impairment and physical as well as vocational disability in spite of recent diagnostic and therapeutic advances. **Objective:** To study the post operative complications while treating the traumatic cataract cases. **Methods:** This was a prospective study conducted from October 2010 to September 2012. Total 92 cases were included in the study. **Results:** In 79.3% cases, SICS with PCIOL implantation, in 6.5% ECCE with PCIOL implantation and in 5.4% of cases secondary PCIOL was given as treatment. Common intra-operative problem encountered were un-dilated and distorted pupil (16.3%), positive vitreous pressure (13 %) and posterior capsular tear (10.8%). Striate keratopathy was seen in 17.4% cases, iris pigment deposit in 15-2% and anterior uveitis in 25% cases within 1 week postoperative period. At 6 weeks follow up, Pupillary capture, posterior capsular opacification, and cystoids macular oedema were 7.6%, 6.5% and 7.6% respectively. At the end of three months, posterior capsular opacification was 16.3% and astigmatism was 41.3%. **Conclusion:** While managing the cases of traumatic cataract, complications starting from intra-operative problems to different types of late post-operative complications at different intervals of time may be seen, which have to be managed timely for better out come.

**Key words:** Traumatic cataract, post operative, complications

### INTRODUCTION

Trauma to the eye can be either occupational or accidental. After traumatic injury to the eye, the lens abnormalities can be manifested in the form of loss of transparency or change in position of the original lens. The surgical interventions required for managing the traumatic cataracts vary from case to case. The related complications and the outcomes of surgery also vary according to the type and severity of injury or duration of time after trauma and presentation to the health facility. The prognosis of such cases are determined by the type of trauma, extent of lenticular involvement and associated damage to the ocular structures<sup>1</sup>. The modern diagnostic techniques and surgical procedures have improved the prognosis<sup>2</sup>

The informed choices for surgeries planned after proper counseling of the patient also implies knowledge and acceptance of possible complications related to corresponding surgeries. However, despite the best efforts by the surgeons, some complications are inevitable, which may affect the ultimate visual function.

Cataract remains commonest cause of blindness in India which accounts for 62.6%<sup>3</sup>. The Incidence of traumatic cataracts in the literature varies based on the patient selection and inclusion criteria for each study but the prevalence is 30-65%.<sup>4</sup>

## **OBJECTIVE**

To study the post operative complications while treating the traumatic cataract.

## **MATERIALS AND METHODS**

This was a prospective study carried out from October 2010 to September 2012 in Regional Institute of Ophthalmology, SCB Medical College Cuttack. Total no of patients included in the study was 92. While enrolling the patients in this study from the Out Patient Department (OPD), the cases due to mechanical (penetrating & blunt) injuries only were included and all cases with electrical, radiational, chemical, ultrasonic, thermal injuries, with grossly damaged eye, with simultaneous posterior segment pathology and intra-ocular foreign body were excluded from this study. Evaluation of patients was done prior to surgery, which included routine blood examination such as Complete Blood Count, Fasting and Post Prandial Blood Sugar and Imaging studies. The Imaging studies included: X-ray of skull & orbit (AP view and Lateral view) to detect any orbital wall fracture and intra ocular foreign body, B-scan if posterior segment cannot be visualized, A-scan prior to cataract extraction, CT Scan of orbits for fractures & intra ocular foreign bodies wherever necessary.

## **Surgical Procedures**

### **Primary repair**

Eyes with corneal laceration due to penetrating injury were first repaired with 10-0 nylon or prolene suture and treated with systemic steroids and intravenous antibiotics. Primary aspiration of any free floating lens matter was performed initially wherever required. Any other associated injury like iridodialysis was repaired at presentation. Postoperative management was provided with topical prednisolone acetate (1%) eye drop 1 hourly, Moxifloxacin eye drop (0.5%) 1 hourly and mydriatic-cycloplegic like atropine sulphate (1%) three times a day. Systemic antibiotics and steroids were continued. The patients were followed up till the primary wound healed and the inflammation subsided. They were admitted latter on for planned surgical procedure.

### **Planned surgical procedure**

The patients were admitted in the hospital to be taken up for surgery. The power of IOL was calculated with the help of keratometry and A-scan using SRK-II formula. Wherever A-scan and keratomerty was not possible in the injured eye, it was done in the other eye. Preoperative medication for patients was in the form of tab acetazolamide 500 mg and intravenous mannitol (20%) if required. Topical moxifloxacin was used 2hrly for a minimum of 24 hrs. Pre-operative systemic steroids were used in the presence of uveitis.

### Different types of operations performed

1. Extra capsular cataract extraction(ECCE) with Posterior Chamber IOL(PCIOL) implantation.
2. Small incision cataract surgery(SICS) with PCIOL implantation
3. Small incision cataract surgery only
4. Phacoemulsification with PCIOL implantation
5. Scleral fixated IOL implantation(SFIOL)
6. Secondary Anterior Chamber(IOL) and PCIOL implantation

### RESULTS AND DISCUSSIONS

While managing the cases with different surgical procedures, intra-operative problems and post operative complications at different interval of times were observed and appropriately managed.

**Table-1: Operative procedures performed**

Operative Procedures		No. of cases (n=92)	Percentage (%)
ECCE with PCIOL		6	6.5%
SICS		3	3.3%
SICS with PCIOL		73	79.3%
SFIOL		1	1.1%
Phaco- emulsification with PCIOL		2	2.2%
Secondary IOL implantation	a) ACIOL	2	2.2%
	b) PCIOL	5	5.4%
Total		92	100

Majority of cases (79.3%) had undergone SICS with PCIOL implantation. 6.5% of cases were managed by ECCE with PCIOL implantation because of presence of rigid pupil, pseudo exfoliation in that eye and chronic simple glaucoma in other eye. In 5.4% of cases, secondary PCIOL were given who were left aphakic in previous surgery.

### Post operative evaluation

Initially the patients were followed up every day for the first 2 days of hospital stay. Subsequently the patients were followed up after every 1 week for 1 month, there after every 2 weeks for next 3 months. At each visit the patients were assessed covering the following steps.

- Visual acuity of both eyes & Best corrected visual acuity
- Detailed Slit lamp examination.
- Fundus examination.
- Ocular tension with applanation tonometer

**Table-2: Intra-operative problems encountered during surgery**

Complications	No.of cases (n=92)	Percentage (%)
Shallow Anterior Chamber	5	5.4
Hyphaema	6	6.5
Undilated /distorted pupil	15	16.3
Posterior capsular rupture	10	10.8
Positive vitreous pressure	12	13.0

**Note- More than one finding present in some cases**

The most common problem was un-dilated and distorted pupil (16.3%), which may be due to posterior synechiae, followed by positive vitreous pressure (13 %) and posterior capsular tear (10.8%)

Malik KPS et al.<sup>5</sup> reported in a series of 108 patients of traumatic cataract, an incidence of posterior synechiae in 33.3%, posterior capsular tear in 28.3% and up thrust in 36.6%. Padgul SB et al.<sup>6</sup> observed posterior capsule rupture in 6% of cases. Jyoti Bhuyan et al.<sup>7</sup> noticed intra operative complications like posterior capsular rupture in 10% cases.

**Table -3: Incidence of immediate post-operative complication within 1 week**

Complications	No. of cases(n=92)	Percentage (%)
Striate Keratopathy	16	17.4
Corneal Edema	5	5.4
Iris Pigment Deposits	14	15.2
Uveitis	23	25
Shallow Ant chamber	6	6.5
Hyphema	4	4.3
Secondary Glaucoma	4	4.3

**Note- More than one finding present in some cases**

It was found that 17.4% cases had striate keratopathy. This was one of the earliest complications seen. Out of total 16 cases of keratopathy, 12 cases resolved spontaneously within 5 days. Other 4 cases had moderate to severe keratopathy which were treated by instillation of hypertonic

saline drops (5% sodium chloride) along with steroids. 5 patients (5.4%) had corneal oedema. Corneal oedema in most of the cases appeared due to surgical instrumentation. This however gradually resolved with prompt antibiotic and steroid treatment.

Ashish Deb<sup>8</sup> reported an incidence of 12.5% and Gupta S. K. et al.<sup>9</sup> reported 6% of striate keratitis. Jyoti Bhuyan et al.<sup>7</sup> in their study reported striate keratopathy as immediate post operative complication in 4% patients. Cornea oedema of 5.4% in the present study was lower than that reported by Alexander T.A et al.<sup>10</sup> who had reported corneal oedema in 17.4% cases. Use of visco-elastic substance and microscope, 10-0 sutures etc. have reduced the incidence of corneal oedema in the present study.

Padgul SB et al.<sup>6</sup> observed that 16% of patients had anterior uveitis as early complication. Memon MN et al.<sup>11</sup> encountered anterior uveitis in 48.8% and corneal oedema in 24% patients as major early post-operative complications. In a study by Sofi I A et al.<sup>12</sup> 27.5% uveitis and 10% corneal edema was noted. Akshay J et al.<sup>13</sup> showed uveitis in 48% patients.

The present study found iris pigment deposits on the intraocular lens in 15.2% cases. This pigment deposition probably developed due to undue handling of iris tissue by irrigation tips or the intraocular lens implanted in the sulcus as such. This incidence however was much less than 47.8% reported by Alexander T.A et al.<sup>10</sup>

23 patients (25%) had showed the sign of uveitis and they were managed with local steroids antibiotic and mydriatic drops. The incidence is comparable to the incidence of 24% reported by Nitin Verma et al.<sup>14</sup>

All patients were managed with local steroids, and mydriatics. The patients were also put on systemic steroids in the form of prednisolone 60 mgs to start with and then gradually tapered.

Hyphema was seen in 4.3% cases which got absorbed spontaneously within 5 days. Vats DP et al.<sup>15</sup> had 4.5% cases of hyphema in their series of 23 cases and Jyoti Bhuyan et al.<sup>7</sup> had 2% cases of hyphema in their study.

**Table-4: Postoperative complications detected at 6weeks follow up**

Complications	No. of cases (n=92)	Percentage (%)
Uveitis	2	2.1
Secondary glaucoma	2	2.1
Pupillary capture	7	7.6
Post capsular opacification	6	6.5
Cystoid macular edema	7	7.6

**Note- More than one finding present in some cases**

At 6 weeks follow up, 7.6% cases had papillary capture. They were managed conservatively with occasional mydriatic followed by instillation of pilocarpine in supine position. The papillary capture was not significant enough to hinder vision. Ashish Deb<sup>8</sup> reported papillary capture in 12.5% cases.

The incidence of Posterior Capsular Opacification(PCO) in the present study was 6.5%, which is lower than the incidence reported by Nithin Verma et al.<sup>14</sup> (48%), Kuldeep et al.<sup>16</sup> (29%), Dhende et al.<sup>17</sup>(30%). Nd:YAG laser capsulotomy was done in all that cases. Padgul SB et al.<sup>6</sup> observed that 16% of patients developed PCO as late complication. Memon MN et al.<sup>11</sup> reported that posterior capsular opacity(PCO) was the only late complication seen in 24% patients at 6 months postoperatively. Sofi I A et al.<sup>12</sup> in their study showed clinically significant PCO in 30% cases. Akshay J et al.<sup>13</sup> showed posterior capsular opacification in 24%. Jyoti Bhuyan et al.<sup>7</sup> had reported Posterior capsular opacification was a late post operative complication noted in 20% patients mostly of paediatric age group.

Out of 92 cases 7 cases (7.6%) were found to have cystoid macular oedema(CME). CME with vitreous incarceration were treated with anterior vitrectomy along with steroids and anti-prostaglandin eye drops.

**Table-5: Incidence of delayed post-operative complications detected at the end of 3 months**

Nature of complications	No. of cases (n=92)	Percentage (%)
Pupillary Capture	2	2.1
Posterior Capsular opacification	15	16.3
Decentration of IOL	3	3.2
Astigmatism	38	41.3
Macular edema	1	1.1
Endophthalmitis	1	1.1

**Note- More than one finding present in some cases**

Decentered intraocular lens with appearance of sunset syndrome was reported in 3.2% cases. Subir Sen et al.<sup>18</sup> reported an incidence of 6.8%, Alexander T A et al.<sup>10</sup> reported 6.5% and Gupta et al.<sup>9</sup> reported it to be 9%. Jyoti Bhuyan et al.<sup>7</sup> had IOL decentration in 2% cases.

The decentration could be due to malpositioning of the haptics, one in the capsular bag and another in the sulcus. The patients were advised for surgery for reposition of IOL by rotating the intraocular lens horizontally.

The present study reported an incidence of 41.3% astigmatism which was higher than the incidence of 14% reported by Alexander T.A et al.<sup>10</sup> The incidence reported was close to that

reported by Gupta et al.<sup>9</sup> which was 50%. Akshay J et al.<sup>13</sup> had reported irregular astigmatism in 44% participants. Cases with astigmatism were provided with appropriate cylindrical correction ranging from 1-3 dioptre mostly with 90 degree axis, thus providing optimum visual correction. The cause of astigmatism was the irregularity of anterior surface following repair of perforated corneal injury and due to tight sutures in case of ECCE. Decentered IOLs were the causes of irregular astigmatism. One case (1.1%) was noticed to have endophthalmitis; who was treated with intra-vitreous antibiotics and corticosteroids.

## **CONCLUSION**

While dealing with traumatic cataract cases with different surgical options and follow up, it was observed that intra-operative issues and post-operative complications were seen at different intervals from the day of surgery. As per the appearance of complications, they were being treated simultaneously. With the experience from the above study it may be emphasized that, timely and proper follow-up in the post-operative period in the management of traumatic cataract is very important for better outcome.

**Source of support:** Nil

**Conflict of interest:** none

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