

**Original article:**

## **Analysis of Complications and Postoperative Visual Outcomes of Cataract Surgery at a Tertiary care Centre**

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Date of Submission: 05 February 2010, Date of Acceptance: 18 March 2010

### **ABSTRACT**

**Background:** Cataract remains the leading cause of blindness in India. The present study was conducted to assess complications and postoperative visual outcomes of Cataract Surgery.

**Material and Methods:** In this study 200 patients who underwent uneventful SICS with PCIOL implant were followed up. IOL power was accurately estimated. Visual acuity, anterior segment and fundus findings were recorded at each postoperative visit upto 6 weeks and in some cases upto 3 months.

**Results:** 60% patients examined, vision was from 6/9 – 6/60 and less. The most common early complication that occurred on 1st postop day upto 1st week was irregular pupil, pupillary capture of IOL in 12% cases followed by striate keratopathy (10%), residual lens matter (10%), anterior uveitis, TASS, pupillary membrane (10%). The most common cause of subnormal vision in the study was astigmatism seen in 60.5% cases followed by untreated Posterior capsular opacity seen in 8% patients. Good outcome was seen in 92% patients, borderline outcome was seen in 3% patients and poor outcome was seen in 5% patients.

**Conclusion:** The present study concluded that the most common early complication that occurred on 1st post-op day upto 1st week was irregular pupil, pupillary capture of IOL. The most common cause of subnormal vision in the study was astigmatism. Good outcome was seen in 92% patients, borderline outcome was seen in 3% patients and poor outcome was seen in 5% patients.

**Key words:** Cataract Surgery, Striate Keratopathy, Astigmatism.

### **INTRODUCTION**

Cataract is the leading cause of blindness and cataract extraction is the most common intraocular surgery performed worldwide.<sup>1</sup> The main emphasis of the National Program for Control of Blindness (NPCB) in India was on cataract blindness control.<sup>2</sup> As a result, the number of cataract surgeries performed increased from 1.2 million/year in 1992 to 3.86 million/year in the year 2003.<sup>3</sup> In the “Vision 2020: The Right to Sight” initiative the target was to perform 21.1 million cataract surgeries during 2002-07 with 80% intraocular lens implantation.<sup>4</sup> Cataract blindness is particularly important in India where 81% of blindness and severe visual impairment is due to cataract with one study showing an estimated 3.8 million people becoming blind from

cataract annually.<sup>5</sup> The outcome of cataract surgery for an individual or for a defined population is therefore as important as measuring the quantity of surgical operations performed. The outcome of cataract surgery can be measured through postoperative level of visual acuity, ability to function, quality of life, and economic rehabilitation.<sup>6</sup>

Since the patients' visual satisfaction, vision related quality of life, ability to function in daily activities and their overall productivity mainly depend on the visual outcome, the World Health Organization (WHO) recommends that poor (best corrected visual acuity [BCVA]  $<6/60$ ) or borderline (BCVA  $<6/18$ ) visual outcomes after cataract surgery should not be  $>10\%$  to  $20\%$ .<sup>7</sup>

The present study was conducted to assess complications and postoperative visual outcomes of Cataract Surgery.

## **MATERIALS AND METHODS**

The study was conducted in the Department of Ophthalmology, Kamineni Institute of Medical Sciences, Narketpally, Nalgonda, AP (India) to assess complications and postoperative visual outcomes of cataract surgery during a 1 year period. Informed consent was taken from the patients. A pre-operative evaluation of the eye including the visual acuity was done. Slit- lamp grading was done for nuclear cataract (nuclear color NO, nuclear opalescence NC), cortical cataract (C) and posterior subcapsular cataract (P) as per the Lens Opacities Classification System III (LOCS III).<sup>8</sup>

Keratometry and a scan ultrasound were carried out to determine the required dioptric power of the intraocular lens (IOL). Traumatic cataracts and cataracts associated with corneal lesions, glaucoma, hypertension, diabetic mellitus and other ocular comorbidities were excluded from the study. Operations on cataract are carried out under operating microscope and by using disposable microsurgical instruments. The selected patients having senile cataract were operated with a 5.5 to 6 mm corneo-scleral tunnel incision and using a continuous circular capsulorrhexis (CCC) procedure. All patients who underwent uneventful manual small incision cataract surgery with posterior chamber intraocular lens implant (SICS+ IOL) were selected for this study. Operated patients were assessed on a slit-lamp biomicroscope on the 1st day after surgery and again during the 1st week, to review cornea, surgical wound, anterior chamber and implanted lens. Steroid, antibiotic, cycloplegic-mydratic and anti-inflammatory eye drops were used for 2 to 6 weeks after surgery.

At follow ups, the eye was examined for-post operative complications and the presenting vision was recorded by Snellen's chart and with pinhole to determine the best corrected visual acuity (BCVA). At the 6-week follow-up, besides correcting the refractive error, patients who had persisting post-operative complications were advised to come for further follow-up and management till 3 months. All patients with vision less than 6/18 with any underlying cause that was amenable to treatment were referred for treatment including Nd:YAG laser posterior capsulotomy. The visual outcome was assessed with presenting visual acuity or best corrected visual acuity (BCVA) on Snellen's chart and measured at the follow ups starting from at least 1st week to 6 weeks and more after the surgery. The visual outcome of cataract surgery standards set by WHO are: Good outcome is defined as 6/6 – 6/18, Borderline outcome as  $<6/18$  – 6/60, Poor outcome having BCVA  $<6/60$ .<sup>9</sup> The data collected were entered in Tables and analysed.

**RESULTS**

A total of 200 cases were included in the study. 55% were male patients and 45% were females. On the 1st postoperative day, 40% patients had a near normal presenting vision of 6/6 - 6/9 for distance and had quiet eyes with no complications. In the remaining 60% patients examined, vision was from 6/9 – 6/60 and less. The most common early complication that occurred on 1st postop day upto 1st week was irregular pupil, pupillary capture of IOL in 12% cases followed by striate keratopathy (10%), residual lens matter (10%), anterior uveitis, TASS, pupillary membrane (10%). Table 2 shows the uncorrected presenting vision at 6 weeks postoperatively. Normal distant vision of 6/6 was seen in 22.5% patients. The most common cause of subnormal vision in the study was astigmatism seen in 60.5% cases followed by untreated Posterior capsular opacity seen in 8% patients. Good outcome was seen in 92% patients, borderline outcome was seen in 3% patients and poor outcome was seen in 5% patients.

**Table 1: Complications on 1st post-op day to 1st week**

Complications	N (%)
No complications	80(40)
Striate keratopathy	20(10)
Corneal edema	16(8)
Anterior uveitis, TASS, pupillary membrane	20(10)
Residual lens matter	20(10)
Macular edema	16(8)
Irregular pupil, pupillary capture of IOL	24(12)
Acute onset endophthalmitis	2(1)
Intraocular hemorrhage with secondary glaucoma	2(1)

**Table 2: Uncorrected presenting vision at 6 weeks postoperative**

Visual acuity	N(%)
Normal distant vision	45(22.5%)
Uncorrected astigmatism	121(60.5%)
Uncorrected myopia	6(3%)
Uncorrected hypermetropia	2(1%)
Untreated Posterior capsular opacity	16(8%)
Pseudophakic bullous keratopathy	4(2%)
Cystoid macular edema	2(1%)
Infective endophthalmitis	2(1%)

**Table 3: Postop visual outcomes at 6 weeks to 3 months after cataract surgery**

Visual outcomes	Percentage
Good outcome	184(92%)
Borderline outcome	6(3%)
Poor outcome	10(5%)

## DISCUSSION

Cataract is the leading cause of blindness in India. The management of cataract will remain surgical extraction until preventive methods are developed to reduce the progression of lens opacification. One of the accepted ways to increase uptake of cataract services is by extending ophthalmic care facilities to the rural areas through mobile eye units, thereby providing cataract surgical services close to where the majority of the people live. There is little published information on the outcome of cataract surgery in eye camps although several authors have reported their experiences with various methods of conducting camps.<sup>10-15</sup>

A total of 200 cases were included in the study. 55% were male patients and 45% were females. On the 1st postoperative day, 40% patients had a near normal presenting vision of 6/6 - 6/9 for distance and had quiet eyes with no complications. In the remaining 60% patients examined, vision was from 6/9 – 6/60 and less. The most common early complication that occurred on 1st postop day upto 1st week was irregular pupil, pupillary capture of IOL in 12% cases followed by striate keratopathy (10%), residual lens matter (10%), anterior uveitis, TASS, pupillary membrane (10%). Table 2 shows the uncorrected presenting vision at 6 weeks postoperatively. Normal distant vision of 6/6 was seen in 22.5% patients. The most common cause of subnormal vision in the study was astigmatism seen in 60.5% cases followed by untreated Posterior capsular opacity seen in 8% patients. Good outcome was seen in 92% patients, borderline outcome was seen in 3% patients and poor outcome was seen in 5% patients. The only report from Liberia, by Frucht-Pery and Feldman, on cataract surgical outcomes in patients with leprosy, showed that a visual acuity of 20/200 or better was achieved in 65% of patients. However, this study was published more than 25 years ago, included only 43 eyes and the surgical technique used was intracapsular or extracapsular cataract extraction.<sup>16</sup>

In a study comparing 50 patients with diabetes and 50 patients without diabetes undergoing cataract surgery, Ivancic et al found that the most common postoperative complications in diabetic patients were inflammatory reactions and bleeding, postoperative keratopathy, anterior uveitis with posterior synechiae, and opacification of the posterior capsule.<sup>17</sup> In a study from rural Africa, there was no difference in the incidence of complications and procedures between anterior chamber and posterior chamber intraocular lenses.<sup>18</sup>

In a study in rural China, Liu et al reported that visual function ( $P = 0.197$ ) and satisfaction with surgery ( $P = 0.796$ ) were not related with ocular comorbidities.<sup>19</sup>

## CONCLUSION

The present study concluded that the most common early complication that occurred on 1st postop day upto 1st week was irregular pupil, pupillary capture of IOL. The most common cause of subnormal vision in the study was astigmatism. Good outcome was seen in 92% patients, borderline outcome was seen in 3% patients and poor outcome was seen in 5% patients.

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