



## Post-Operative Visual Outcome in Cases of Pre-Senile Cataract at a Tertiary Care Centre

<sup>1</sup>Dr. Jyotika Mishrikotkar, <sup>2</sup>Dr. Karan Thakkar, <sup>3</sup>Dr. Snehal Thakre, <sup>4</sup>Dr. Sarika Gadekar

<sup>1</sup>Professor and HOD, <sup>2</sup>Post Graduate Student, <sup>3</sup>Professor, <sup>4</sup>Professor, Department of Ophthalmology, MGM Medical College and Hospital, Aurangabad, Maharashtra, India

**\*Corresponding Author:**

**Dr. Karan Thakkar**

MGM Medical College and Hospital, N-6 CIDCO, Aurangabad, Maharashtra, 431003, India

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

### Abstract

**Purpose:** To assess the Post-operative Visual Outcome in Pre-Senile Cataract at a Tertiary Health Care Centre.

**Methods:** A retrospective observational study was performed in pre-senile cataract patients who underwent Cataract surgery between June 2021 to May 2022.

**Results:** Mean age of Pre-senile Cataract was 43.25 years with Female: Male ratio of 1.3:1. Study showed that around 64% of patients presented with severe visual acuity at the time of presentation. After surgery, near-normal visual acuity was noted in 93% of cases.

**Conclusion:** This study demonstrates that good results can be obtained in pre-senile cataract patients undergoing surgery with intraocular lens implantation in the developing world.

**Keywords:** Best corrected visual acuity, blindness prevention, pre-senile cataract, visual outcome

### Introduction

According to a survey conducted by the WHO and NPCB (National Programme for Control of Blindness), India has a backlog of over 22 million blind eyes and 12 million blind persons, 80.1% of whom are blind as a result of cataract. 3.8 million people worldwide have cataract-related blindness every year. There are currently between 1.6 million and 1.9 million cataract procedures performed annually. There are several methods for boosting the quantity of cataract operations in developing nations. Rural surgical eye camps offer affordable surgery near to where most people reside. In eye camps, surgical outcomes are frequently not assessed.<sup>[1]</sup>

Pre-senile cataract by definition is the occurrence of cataracts before the age of 50 years.<sup>[2,3]</sup>

Pre-senile cataract incidence has risen during the past 20 years. Chewing tobacco, having high cholesterol, and being exposed to a lot of gasoline are all risk factors for cataract development early in life. Studies on the assessment of the visual outcome in pre-senile

cataract have been conducted in a relatively small number of cases.

The effectiveness of cataract surgery can also be assessed in terms of ability to function<sup>[4]</sup>, quality of life, or economic recovery, as well as visual acuity in the operated eye or in the patient.<sup>[5]</sup> However, since the others take time and are not easily available to a typical cataract surgeon, visual acuity is the most appropriate parameter to examine.<sup>[6]</sup>

A positive visual outcome frequently aids in marketing cataract surgery to the public and aids in accomplishing vision 2020 goals.

As the studies done on the Visual Outcome after Pre-senile Cataract surgery are sparse in the region, this study was conducted to analyse the Visual outcome after Cataract surgery and to know the various causes of non-improvement of Vision after Surgery.

### Materials And Methods

This was a retrospective hospital-based study over a one-year period, at the Tertiary care centre in the

district of Aurangabad, Maharashtra. Case files of patients managed for pre-senile cataract during the study period, from June 2021 to May 2022 were retrieved and demographic (age, gender, occupation), clinical (presenting complaints, duration of symptoms, preoperative visual acuity), and surgical (type of surgery, complications, post-operative visual acuity, duration of follow up) data were extracted.

Pre-senile cataract was defined for the purpose of this study as a diagnosis of cataract in one or both eyes in individuals less than 50 years of age, in the absence of any other documented pathology responsible for visual complaint or visual impairment.

Patients less than 20 years of age and those with a history of duration of symptoms from infancy and / or childhood were excluded from the study.

The World Health Organization definition for blindness and visual impairment was used. In those with bilateral involvement, visual acuity of the eye getting operated was taken when recording Visual Acuity.

The study complied with the declaration of Helsinki.

**Result**

A total of 225 patients underwent Cataract surgery during the study period. Out of 225 cases, 45 patients were those who were pre-senile. 6 patients had Loss to Follow-up at 40 days after surgery.

Total of 39 cases were included in the study.

Out of a total of 39 patients, there were 22 females (56.5%) and 17 males (43.5%). The mean age of males and females were 41.57 and 40.94 years, respectively. Of these, 29 patients (74.35%) were in the age group of 41 to 50 years and 8 patients (20.5%) in the age group of 31 to 40 years of age. (Table 1)

It was observed that 16 (41.03%) had Mature Cataract, 15 (38.4%) had Lenticular opacities involving all layers, 6 (15.38%) cases had Posterior Polar Cataract and only 2 cases had nuclear sclerosis. (Table 2)

Twenty patients (59.2%) underwent phacoemulsification and 19 patients (40.8%) were operated by manual SICS technique. (Table 3).

Nearly, 64.1% of cataract-operated eyes had poor vision preoperatively (<6/60). After the surgery has been done, 92.3% of operated eyes had achieved good visual acuity i.e., better than 6/18 and only 7.7% of patients had Visual Acuity in the range of <6/18-6/60. (Table 4)

Total of 3 patients who had Borderline Visual improvement, 2 cases were due to Schizophrenia and 1 due to pre-existing Vitreous Haemorrhage. (Table 5).

**Table – 1: Distribution of Age group by Sex**

Age	Male	Female	Total
21-30	0	2	2
31-40	1	7	8
41-50	16	13	29
Total	17	22	39

**Table – 2: Distribution based on Cataract Stages**

Visual Acuity	Pure Nuclear	Pure Cortical	Nuclear + Cortical + Posterior Subcapsular	Posterior Polar	Mature Cataract
6/6 – 6/18	1	0	15	6	14

<6/18 – 6/60	1	0	0	0	2
<6/60 – 3/60	0	0	0	0	0
<3/60 – No PL	0	0	0	0	0
Total	2	0	15	6	16

**Table – 3: Distribution based on Surgery performed.**

Visual Acuity	Phacoemulsification	SICS
6/6 – 6/18	20	16
<6/18 – 6/60	0	3
<6/60 – 3/60	0	0
<3/60 – No PL	0	0
Total	20	19

**Table – 4: Pre- and Post-operative Best Corrected visual acuity in the operated eye.**

Visual Acuity	Pre-op	Post-op Day 1	Post-op Day 40
6/6 – 6/18	2	33	36
<6/18 – 6/60	12	6	3
<6/60 – 3/60	3	0	0
<3/60 – No PL	22	0	0
Total	39	39	39

**Table – 5: Causes of visual acuity less than 6/24 at 6 week follow up**

Causes of Poor Visual Acuity	No. of patients
Vitreous Haemorrhage	1
Schizophrenia	2

**Discussion**

This study revealed that a significant proportion (20%) of all cataracts in our population occur in those less than 50 years of age. Just as age related cataract can cause significant visual impairment and morbidity, pre-senile cataract is also capable of causing such to affected persons, but with arguably greater impact as the latter category is composed of younger persons with expected longer lifespan.

There is little published information on the outcome of cataract surgery in Pre-senile Cataract cases.

One of the most important factors for assessing the impact of cataract surgical services on national blindness programmes is to evaluate the number of “blind” patients (visual acuity less than 3/60 in the better eye) who regained vision after cataract surgery. The quality of cataract services can be assessed by the postoperative vision in the operated eye.

Our study showed the Female preponderance of 56.4% in pre-senile cataract cases, Verma et. al. [7] study had a Female preponderance of 60.8%, whereas, Adekoya et. al. [8] study showed the Male predominance of 74.3% cases.

Type of Cataract at the time of presentation was Mature Cataract in 40% of cases in our study, whereas Nuclear Sclerosis (64.2%) type of Cataract was most common type of presentation in Verma et. al. [7] study.

In this study 64.1% of patients had a preoperative visual acuity less than 6/60 in the operated eye, and 15.38% of the operations were performed on bilaterally blind patients. After surgery, only 3 patients were those who had Visual outcome less than 6/18 after 40 days of Surgery.

In our study, Good visual outcome of 6/6 – 6/18 after 40 days of surgery was achieved in 92.3% of patients. Verma et. al. [7] study showed that 100% of patients had similar Visual Outcome. Warad et. al. [9] study had a good visual outcome in 98.1% of cases.

The outcome of cataract surgery depends on the preoperative ocular status, quality of surgery, and the postoperative correction of refractive error. Our study revealed that pre-existing ocular pathology was responsible in 1 case and Schizophrenia in 2 cases for poor outcome in eyes with less than 6/18 at follow up.

This shows that good patient selection is an important factor which affects the final visual outcome. At times, in spite of being aware of the bad prognosis, surgery is performed to salvage any remaining vision and prevent the eye from further deterioration.

### Conclusion

In this study, the visual outcome of cataract surgery was better as compared with WHO recommendations of Visual Acuity between 6/6 – 6/18 in at least 80% of cases after surgery.

### References

1. Minassian DC, Mehra V: 3.8 million blinded by cataract each year: Projections from the first epidemiological study of incidence of cataract blindness in India. *Br J Ophthalmol* 1990;74:341–343.
2. Mosby's medical dictionary. 8th ed. Elsevier; 2009.
3. Miller-Keane encyclopedia and dictionary of medicine, nursing and allied health. 7th edition. Saunders; 2003.
4. Foster A. A simple Method for Evaluating Surgical Cataract Services in Prevention of Blindness Programmes *Comm Eye Health J*. 1992; 10: 2-5.
5. Bjorn Thylefors. Global initiative for the elimination of avoidable blindness *Comm. Eye Health J* 1998; 11: 1
6. Limburg H, Foster A, Vaidy K et al .Monitoring visual outcome of cataract surgery in India. *Bull of WHO* 1999; 77:96.
7. Verma S, Nema N, Verma A, Dwivedi S, Gupta M. Risk factors and visual outcome in presenile cataract. *Indian Journal of Clinical and Experimental Ophthalmology*. 2018 Oct;4(4):450-3.
8. Adekoya BJ, Ekumankama CB. Clinical characteristics and outcome of surgery for pre-senile cataract among patients attending lagos state university teaching hospital. *Annals of Clinical Sciences* Volume. 2020 Jan;5(1).
9. Warad C, Tenagi A, Satarasi P, Goyal D, Mendpara R, Harakuni U, Bubanale SC, Smitha KS, Bhagyajyothi BK, Wani V. Visual Outcome Following Manual Small Incision Cataract Surgery at a Tertiary Center in South India. *Cureus*. 2021 Dec 25;13(12)