

## Assesment of Post Operative Visual Outcome in Lens Induced Glaucoma Patients Attending Tertiary Care Centre in North Karnataka

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### Abstract:

Cataract is a major cause of blindness in India and lens induced glaucoma is major complication associated with cataract. Based on slit lamp findings we classify lens induced glaucoma into three categories. Proper evaluation and early intervention lead to good visual outcome.

**Materials and Methods:** Retrospective study conducted from medical records of total 30 patients who presented to tertiary care centre in north Karnataka.

**Results:** In this study majority are female patients with predominance of phacomorphic type of lens induced glaucoma. Statistically and clinically significant correlation found between time of presentation, intra ocular pressure at the time of presentation and post operative visual outcome.

**Conclusion:** Early presentation of lens induced glaucoma patients to hospital and proper measurement of intra ocular pressure and timely intervention aids in preserving vision and to prevention of blindness.

**Keywords:** Lens induced glaucoma, Phacomorphic glaucoma, Phacolytic glaucoma Intraocular pressure, Visual acuity.

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### Introduction

Lens-induced glaucomas are a type of secondary glaucoma are major cause of blindness in rural India. First described by Gifford in 1900, these glaucomas are primarily caused by cataracts, which account for 62.2% of blindness cases in India [1]. Timely intervention for cataract and glaucoma is crucial to prevent blindness. Types of Lens-Induced Glaucomas are phacomorphic glaucoma which is secondary angle closure glaucoma due to lens swelling and pupillary block, commonly associated with mature and hyper-mature cataracts. Phacolytic glaucoma, caused by leakage of lens particles from the intact capsule of a mature cataract, leading to blockage of the trabecular meshwork. Phacotopic glaucoma, secondary angle closure glaucoma resulting from lens subluxation, lens particle glaucoma, and phacoantigenic glaucoma, which are caused by disruption of the lens capsule and moving of lens particles in the anterior chamber, leading to granulomatous inflammation [2]. Patients typically present with acute onset of pain, vision loss, redness, and watering. The time of presentation, intraocular pressure, type of glaucoma, and intraoperative complications all impact postoperative outcomes. Understanding the factors affecting visual outcome and providing timely intervention and awareness to

patients are critical in preventing blindness. The purpose of our study is to investigate the factors influencing postoperative visual outcomes in patients with lens-induced glaucoma, with the goal of providing timely intervention and raising awareness among patients in rural areas to prevent future blindness.

### Materials and Methods

A retrospective study was conducted at a tertiary care hospital in north Karnataka to investigate lens-induced glaucoma. The study spanned one year, from July 2022 to July 2023. Details of the patients collected from available medical records. The study sample consisted of 30 patients who presented with lens-induced glaucoma and underwent surgery at the hospital.

### Inclusion Criteria

1. Patients above the age of 50 years
2. All cases of lens induced glaucoma

### Exclusion Criteria

1. Traumatic cataract
2. Patients who are known cases of any other primary /secondary glaucoma on medications

3. Patients <50 years of age
4. complicated cataracts
5. Patients vision PL or no PL for more than 6 months

The study collected the following data from the medical records of 30 patients who underwent surgery for lens-induced glaucoma. Patients' demographic details, visual acuity at presentation measured using Snellen's visual acuity chart, Intraocular pressure measured using Goldman applanation tonometer, type of glaucoma, estimated through slit-lamp examination. Intraoperative complications and postoperative visual acuity and fundus examination findings, recorded 6 weeks after surgery was obtained. All these details were extracted from the patients' medical records, which were available for review.

All patients received antiglaucoma medication, including IV mannitol or oral acetazolamide, prior to surgery. They then underwent small incision cataract surgery, followed by postoperative treatment with topical antibiotic steroid eye drops. The data collected was compiled and analyzed using the chi-square test, with the results presented in tables. This analysis aimed to identify significant factors related to lens-induced glaucoma and its treatment outcomes.

## Results

The study was conducted on 30 patients who presented to a tertiary care center in north Karnataka. Among these patients, 60% were female and 40% were males (Table 1), and 18 (60%) presented within 3 days of the onset of symptoms 12 (40%) of them presented after 3 days (Table 2). The study found that phacomorphic glaucoma was the most common type, accounting for 90% of the cases, followed by phacolytic glaucoma (6.6%) and phacotopic glaucoma (3.3%) (Table 3). At the time of presentation, the visual acuity of most patients was PL to HM+29 patients (96.6%) 1(3.3%) of them had HM+ to 6/60 (Table 4). Half of the patients had an intraocular pressure (IOP) between 30-40 mmHg 15 patients (50%) 5 (16.6%) had between 20-30 mmhg, 4 had between 30-40 mmHg and 6 (14.4%) had > 50mmHg (Table 5). All patients underwent small incision cataract surgery, and 96.6% of them received PCIOL implantation 1 patient was left aphakic (Table 6). Intraoperative complications were rare, 2 cases had zonular dehiscence (Table 7). At the 6-week postoperative follow-up, 19 (63.3%) patients had achieved a visual acuity of 6/18-6/6, 5(16.6%) between 6/60-6/18, 1(3.3%) 6/60-3/60 and 5(16.6%) with PL + (Table 8) due to optic atrophy.

**Table 1 : Sex distribution**

Male	12
Female	18

**Table 2: Time of presentation**

≤3 Days	18
>3 Days	12

**Table 3: Type of glaucoma**

Phacomorphic	27
Phacolytic	2
Phacotopic	1

**Table 4: Pre operative visual acuity**

PL to HM+	29
HM+ to 6/60	1
>6/60	0

**Table 5: Intra ocular pressure (mmhg)**

20-30	5
30-40	15
40-50	4
>50	6

**Table 6: Type of iol used in surgery**

Posterior Chamber Intraocular Lens	29
Aphakia	1

**Table 7: Intra operative complications**

Zonular Dehiscence	1
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**Table 8: Post operative visual outcome**

Vision	After 6 Week
6/18-6/6	19
6/60-6/18	5
6/60-3/60	1
PL+	5

**Table 9: Time of presentation and visual acuity**

Time of presentation	6/18-6/6	6/60-6/18	6/60-3/60	PL+
< 3 days	15	3		0
3days	4	2	1	5

P value < 0.05, statistically significant.

**Table 10: Preoperative intra ocular pressure and post operative visual acuity**

Intra Ocular Pressure (mmHg)	6/18-6/6	6/60-6/18	6/60-3/60	PL+
< 50 mmHg	19	4	0	1
>50 mmHg	0	1	1	4

P value < 0.05, statistically significant

## Discussion

In this study of 30 patients presented to the tertiary care centre from time period of July 2022 to July 2023. Majority of the patients are females (60%) which is similar to study conducted by Sitoula et al (67.5%)[3]. Females are more prone for lens induced glaucoma since they have shallow anterior chamber, more prevalence of cataract and giving less attention for health care. Our study showed predominance of phacomorphic type (90%) followed by phacolytic (6.6%) which correlate with study conducted by Pradhan et al which showed phacomorphic in 72% cases and phacolytic in 28% cases [4]. In present study pre operative visual acuity was poor since most of them presented with mature cataract, 29 patients. At the time of presentation visual acuity was PL to HM+ in 29 patients and 3/60 in 1 patient. Post operatively majority of the patient got significant visual improvement after 6 weeks of surgery, patient vision 6/18-6/6 in 19(63.3%) of the patients, 6/60 to 6/18 in 5(16.6%), 6/60-3/60 in 1( 3.3%) and PL+ in 5(16.6%) which is comparable with the study conducted by Prajna et al [5] their study showed 76.6% of the patient had good visual outcome more than 6/12, 12% had poor outcome <6/60. 18 patients (60 %) of our patients presented in <3 days and 8 of them (40%) presented > 3 days which is clinically and statistically significant (P value <0.05) with post operative visual outcome. Similar finding was seen in study conducted by Reddy GN et al [6] where poor visual acuity of <6/60 found in cases presented after 2 weeks. In present study intra ocular pres

sure of the patients at the time of presentation was <50 mmHg in 24 patients and > 50 mmHg in 6 patients. Statistically significant correlation found between intra ocular pressure and visual out come after surgery. All the patients were undergone small incision cataract surgery and in 29 (99.9%) of

the cases PCIOL was placed 1 patient was left aphakia.

## Conclusion

Time of presentation and IOP are detrimental factors in postoperative visual outcome in patients of lens induced glaucoma. Delayed presentation can result in more intra operative complication and raised intra ocular pressure can result in optic atrophy and poor visual outcome after surgery.

Our study shows the importance of early presentation of lens induced glaucoma patients to hospital and proper measurement of intra ocular pressure and timely intervention to preserve patients vision and to prevent blindness

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**LIST OF ABBREVIATION**

1. AC - Anterior Chamber
2. CDR - Cup Disc Ratio
3. HM - Hand Movements
4. IV - Intravenous
5. PCIOL - Posterior Chamber Intraocular Lens
6. PL - Perception of Light