

A CLINICAL STUDY ON VISUAL OUTCOME & VISUAL PROGNOSTIC FACTORS OF LENS INDUCED GLAUCOMAI. S. V. S. Prasada Rao¹**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: India being rich in rural population, Lens induced glaucomas are a common occurrence. Delayed treatment of lens-induced glaucoma results in poor visual outcome. Hence early diagnosis and management of cataract is essential for good visual recovery of ageing population. A prospective study of 100 cases of lens-induced glaucoma that attended Government Regional Eye Hospital, Visakhapatnam was done for 2 years. The purpose was to study different clinical types of lens-induced glaucoma and find out visual prognostic factors and visual outcome. It was found that 54% cases were phacomorphic, 39% cases were phacolytic, 5% were lens particle glaucoma, 2% were due to dislocation of lenses. Clinical examination of all cases were done. Visual Acuity and IOP were assessed pre and post operatively. Majority of patients were subjected to SICS with PCIOL implantation or triple procedure. The analysis of 100 cases of LIG was done. The most common type was phacomorphic glaucoma (54%). The next common type was phacolytic glaucoma (39%). The highest incidence of LIG has age group 40 to 70 years. 42% were males, 58% were females. The IOP was >30 mm hg in 94% cases, Maximum recorded iop was 70mm hg 95% patients showed good post-operative IOP control. 5% didn't show improvement due to extensive peripheral anterior synechiae. 45% cases achieved 6/6 to 6/12 vision and 36% patients achieved 6/60 visual acuity. The remaining 19% patients had poor visual outcome of less than 6/60.

KEYWORDS: Lens induced glaucoma, Cataract, intraocular pressure, Phacolytic glaucoma, Phacomorphic glaucoma.

INTRODUCTION: Lens induced glaucoma was first described by Gifford,¹ in 1900 and Von Reuss independent of each other. While Gifford described it as glaucoma associated with hyper mature cataract,² Reuss noted it as spontaneous absorption of lens substance through intact capsule. Later different workers,^{3,4,5} described such types of cases under different names like lens induced glaucoma, lens induced uveitis with glaucoma, phacotoxic glaucoma, phacogenetic and phacogenic glaucoma, phacolytic glaucoma. LIG is a common cause of ocular morbidity especially in rural population.⁶ Lens induced glaucoma in elderly age group is characterized by secondary glaucoma, seen in immature, mature and hypermature cataracts with normal angles in other eye, normal IOP in the other eye and prompt relief of symptoms and restoration of vision after cataract extraction in affected eye. This is a preventive and curable condition if diagnosed and treated at the earliest.

In LIG the lens is the culprit for the increased IOP.⁷ LIG is mostly due to secondary angle closure (Phacomorphic) or secondary open angle (Phacolytic) glaucoma.⁸ In most cases the mode of treatment was ECCE with PCIOL implantation.^{9,10} Lens induced glaucoma is a common condition seen in patients of senile cataract. It is the commonest cause of secondary glaucoma which needs immediate treatment and attention to prevent blindness. Due to large backlog of cataracts, poor health education, poor socio economic status, fear of operation, LIG is more common in rural

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population. LIG occurs presumably due to recognizable lesion related to lens either by closure of angle or plugging of angle with lens matter or products of inflammation.

This study showed that LIG can be effectively managed in the majority of cases by surgical intervention in the early presenting period. This study deals with age and sex wise distribution, clinical profile and prognostic factors.

AIMS & OBJECTIVES:

- To study clinical profile of LIG.
- To find out age and sex wise distribution of LIG.
- To find out visual prognostic factors.
- To evaluate outcome of surgical management.

MATERIALS & METHODS: The present study was conducted in Government Regional Eye Hospital, Visakhapatnam from 2012-2014. 100 patients suffering from LIG are taken for this study. Detailed history was taken clinical examination of all cases were done, i.e., general examination, adenexa, anterior and posterior segment examination was done, lens was examined for its transparency, size, shape, position, fundus examination and gonioscopy was done. All routine investigations like BP recording, RBS was done. All cases were subjected to medical line of management initially to reduce intraocular pressure and reduced inflammation and later operative management was planned. After surgery follow-up was given one week post operatively, second week post operatively and 6th week post operatively. After 6 weeks spectacles were prescribed.

OBSERVATIONS: The study demonstrated age and sex distribution, clinical profile, prognostic factors, result of treatment. All patients complained of eye pain and red ness. Majority of the patients had signs of congestion, lid odema, corneal odema, etc.

1. **Types of LIG:** Commonest type of glaucoma was phacomorphic glaucoma (54%). Next common was phacolytic glaucoma.

| Type | No. of Cases | % |
|---------------------------------|--------------|-----|
| Phacomorphic | 54 | 54% |
| Phacolytic | 39 | 39% |
| Lens Particle | 5 | 5% |
| Glaucoma due to dislocated lens | 2 | 2 |

Table 1: Showing Incidence of Type of Glaucoma

2. **Age-wise Disturbances:** In this study the LIG is more in patients of 40 – 70 age group due to senile cataracts (93% cases). Max. Number of patents affected were in the age group of 50 – 59 years.

| Age Group (Years) | No. of Cases | % |
|-------------------|--------------|----|
| 0 – 30 | 4 | 4% |
| 31 – 39 | 3 | 3% |

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| | | |
|---------|----|-----|
| 40 - 49 | 21 | 21% |
| 50 - 59 | 48 | 48% |
| 60 - 70 | 24 | 24% |

Table 2: Age Incidence

3. Sex Disturbances: Female predominance was observed.

| Gender | No. of Cases | % |
|--------|--------------|-----|
| Male | 42 | 42% |
| Female | 58 | 58% |

Table 3

4. 10P at the time of admission (presentation).

| Range of IOP (mm Hg) | No. of Cases | % |
|----------------------|--------------|-----|
| 0 - 19 | 0 | 0% |
| 20 - 29 | 6 | 6% |
| 30 - 39 | 29 | 29% |
| 40 - 49 | 48 | 48% |
| 50 - 70 | 17 | 17% |

Table 4

In this study 94% patients 10 P is more than 30 mm Hg and in 17% cases it is more than 50 mm Hg Majority of the cases have 10P in the range of 40-50 mm Hg (48%).

5. Duration of Symptoms: 60% patients attended the hospital within 1 week after the starting of symptoms.

| Duration (Days) | No. of Cases | % |
|-----------------|--------------|-----|
| 1 - 3 | 22 | 22% |
| 4 - 7 | 38 | 38% |
| 7- 14 | 21 | 21% |
| > 14 | 19 | 19% |

Table 5

6. Laterality of LIG: LIG is always a unilateral disease.

| Laterality | No. of Cases | % |
|------------|--------------|------|
| Unilateral | 100 | 100% |
| Bilateral | 0 | 0% |

Table 6

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- 7. Etiology of LIG:** In this study 51% cases were mature / hyper mature cataracts. 42% were immature cataracts, 5% were traumatic cataracts, 2% were dislocated cataracts.

| Etiology | No. of Cases | % |
|------------------------|---------------------|----------|
| Mature Cataracts | 11 | 12% |
| Hyper mature Cataracts | 40 | 40% |
| Immature Cataracts | 42 | 42% |
| Traumatic Cataracts | 5 | 5% |
| Dislocated Cataracts | 2 | 2% |

Table 7

- 8. Type of Surgery Done:**

| Surgery | No. of Cases | % |
|------------------|---------------------|----------|
| Vectis removal | 2 | 2% |
| SICS with PI | 5 | 5% |
| SICS with PCIOL | 74 | 74% |
| Triple Procedure | 19 | 19% |

Table 8

In this study 74% cases were operated by SICS with PCIOL implantation, in 19% cases triple procedure was done due to extensive peripheral anterior synechiae.

- 9. P.O. B C V A:** In this study 45% patients gained VA 6/6 – 6/12, 36% patients gained VA of 6/18 – 6/60, 19% cases gained VA < 6/60.

| BCVA | No. of Cases | % |
|-------------|---------------------|----------|
| 6/6 – 6/12 | 45 | 45% |
| 6/18 – 6/60 | 36 | 36% |
| < 6/60 | 19 | 19% |

Table 9

- 10. Relationship between duration of symptoms and post-operative BCVA.**

| Duration of attack (days) | No. of Cases | VA > 6/2 | VA > 6/18 – 6/60 | VA > 6/60 |
|----------------------------------|---------------------|--------------------|----------------------------|---------------------|
| 1 - 3 | 22 | 18 | 4 | 0 |
| 4 - 7 | 38 | 20 | 18 | 0 |
| 7 - 14 | 21 | 7 | 12 | 2 |
| > 14 | 19 | 0 | 2 | 17 |

Table 10

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In this study, it was observed that the earlier presentation cases showed good BCVA post operatively (6/6 – 6/12).

11. Impact of initial IOP on final best corrected visual acuity (BCVA).

When IOP was below 50 mm Hg at presentation the patients post-operative BCVA was more than 6/60 (seen in 83% cases), when IOP was above 50mm Hg patients best corrected visual acuity was less than 6/60.

| Initial IOP mm Hg | No. of Cases | 6/6 – 6/12 | 6/18 – 6/60 | 1 < 6 p 60 |
|-------------------|--------------|------------|-------------|------------|
| 21 – 30 | 12 | 7 | 5 | - |
| 31 – 50 | 71 | 28 | 38 | 5 |
| > 50 | 17 | 2 | 4 | 11 |

Table 11

In this study, it was observed that the earlier presentation cases showed good BCVA post operatively (6/6 – 6/12).

12. Relation of duration of attack and optic disc changes.

| Duration of attack (days) | No. of Cases | No. of eyes Showing OD changes | % |
|---------------------------|--------------|--------------------------------|-----|
| 1 – 3 | 22 | 0 | 0% |
| 4 – 7 | 38 | 4 | 4% |
| 7 – 14 | 21 | 11 | 50% |
| > 14 | 19 | 18 | 95% |

Table 12

DISCUSSION: The present study was conducted in Government Regional Eye Hospital, Visakhapatnam to study the clinical profile of lens induced glaucoma, early diagnosis and management with a view to look for prognostic factors and find out the efficacy of surgical management & visual outcome.

The condition was initially managed medically to control inflammation and raised intraocular pressure, later surgical treatment was given in the form of small incision cataract surgery with PCIOL implantation/triple procedure/vectis removal of lens in majority cases.

The incidence of LIG cases was 3.5% during this study period of 2 years in cataract patients. The most common type of LIG was phacomorphic glaucoma followed by phacolytic glaucoma. The age group was mostly 40 to 70 years due to high prevalence of senile cataracts in this age group. The highest incidence was found to be between 50 to 70 years (72%), it was found that males were 42% and females were 58%. The female dominance was due to female negligence, illiteracy, lack of health education, fear of operation, which were the factors for the late presentation of LIG cases as well.

The percentage of patients having IOP in the range of 40 to 50 mm Hg came out to be 48%. Post operatively 95% patients showed control of IOP where as 5% patients had no control of IOP due to extensive peripheral anterior synechiae.

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In patients presenting LIG within 1 week the BCVA was more than 6/60. But in patients presenting LIG of more than 1 week the BCVA was less than 6/60.

High IOP more than 50 mm Hg at presentation was associated with poor visual recovery (< 6/60). Less than 50 mm Hg IOP presentation was associated with post-operative visual recovery of more than 6/60.

Fundus changes in the form the pallor and glaucomatous optic atrophy.

Patients who presented within one week did not show any disc changes, nerve fibre defects whereas patients who presented late than one week were having disc changes (pallor, etc.).

CONCLUSION: The present clinical study of 100 cases of LIG was done in Government Regional Eye Hospital for 2 years from 2012-2014 in Visakhapatnam to study the incidence, mechanism, prognostic factors, management, visual outcome of lens induced glaucomas.

From this study it was concluded that the incidence of LIG was 3.5% of total cataracts. Most common type was phacomorphic glaucoma (54%), most common affected age group was 40 to 70 years (93%), female predominance was noted, duration of attack had also significant effect on visual prognosis. Early presentation cases (less than 1 week) had good post-operative best corrected visual acuity when compared to late presentation cases (more than 1 week), high IOP at the time of presentation was associated with poor visual recovery. Late presentation cases had evidence of optic nerve damage in 75% cases. The surgical management was successful which included mostly SICS with PCIOL implantation / triple procedure.

It can be concluded that proper health education, early screening, frequent follow ups, appropriate timely surgery gave good post-operative visual recovery and prevents the potentially vision threatening complication.

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