



## Clinical Profile and Visual Outcome of Phacolytic Glaucoma – A Prospective Study

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### ABSTRACT

**Purpose:** To analyse the clinical profile, visual outcome and predisposing factors which influence the visual outcome in phacolytic glaucoma.

**Materials & Methods:** All clinically diagnosed cases of phacolytic glaucoma who attended ophthalmology outpatient department at a tertiary care hospital during a period of 1 and ½ years were included in the study. Information regarding history and clinical presentations were recorded. Patients were examined preoperatively and postoperatively on day 1, after 1 week, 3 weeks and 6 weeks. Final analysis was done at 6 weeks follow up. In a period of one and a half years 52 patients were evaluated.

**Results:** 80.76% of the study population belonged to lower socioeconomic class. 53.85% of them were pseudophakic and 65.28% of them had visual acuity better than 6/60 in the fellow eye. Intraocular pressure at diagnosis was more than 40mmHg in 53.84% of patients. Cataract extraction was done in all the patients. Intraocular lens could be implanted in 82.69% of the patients. Intraocular pressure was normal without any medication following surgery in 100% of subjects. On final analysis, 42.31% of the subjects had visual acuity in the range of 6/6 to 6/12; 36.54% attained visual acuity in the range of 6/18 to 6/60 and the rest 21.15% had visual acuity less than 6/60.

**Conclusion:** satisfactory vision in the fellow eye, lower socioeconomic background and financial constraints, all may have an important role in occurrence of phacolytic glaucoma. The definitive treatment for phacolytic glaucoma is cataract extraction. The final visual outcome is fairly good with early diagnosis and prompt treatment.

**Keywords:** phacolytic glaucoma; visual outcome; intraocular pressure; visual acuity.

### INTRODUCTION

Age related cataract is a vision impairing disease. It is one of the leading causes of reversible blindness in the world today. The overall cataract burden in India is around 12 million<sup>1</sup> and it is annually increasing at an estimated rate of 3.8

million<sup>2</sup>. Hence the occurrence of lens induced glaucoma is not an infrequent event in India. Lens induced Glaucoma was first described in the year 1900 by Gifford and von Reuss independent of each other<sup>3</sup> Phacolytic glaucoma, so called by Flocks and his colleagues (1955), is a condition

which occurs in an eye with hypermature cataract, wherein the capsule may be thinned or ruptured posteriorly. Large mononuclear phagocytes accumulate in masses around the capsule and laden with lenticular material, these clog the trabecular spaces at the angle of anterior chamber and thus induce a rise of ocular tension usually manifesting itself as an acute or subacute glaucoma<sup>4</sup>. Rise in intraocular pressure will lead on to optic nerve damage and finally result in blindness. The usual clinical presentation of phacolytic glaucoma consists of abrupt onset of pain and redness in a cataractous eye that has had poor vision for some time. The cornea may be edematous and significant reaction occurs in the anterior chamber. Intraocular pressure is markedly elevated and the anterior chamber angle is open, although the same material may be seen in the trabecular meshwork. Initial treatment of phacolytic glaucoma consists of controlling intraocular pressure with anti-glaucoma medications and managing inflammation with topical corticosteroids. Surgical removal of the lens is the definitive treatment<sup>5</sup>. This clinical study was undertaken to analyse the clinical profile, visual outcome and intraocular pressure control following surgery, risk factors which could influence the visual outcome and predisposing factors associated with the occurrence of phacolytic glaucoma.

## MATERIALS AND METHODS

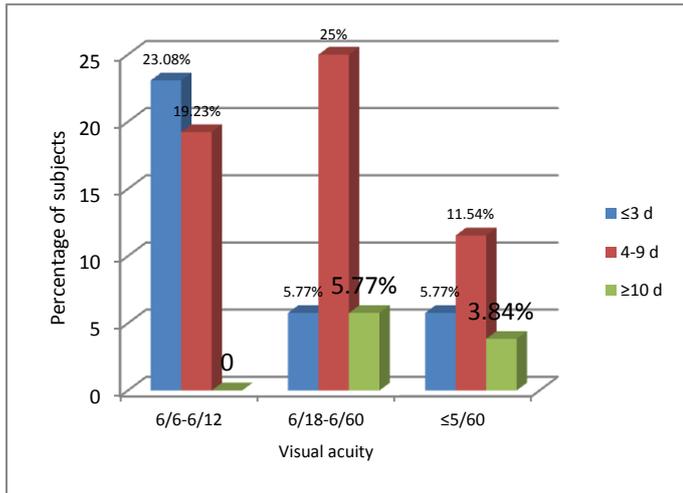
In a tertiary hospital based prospective study, all clinically diagnosed cases of phacolytic glaucoma who attended Ophthalmology outpatient department (52 patients), during a period of one and a half years were studied. The exclusion criteria were Primary Glaucomas, Secondary Glaucomas other than phacolytic glaucoma, Corneal dystrophies and corneal opacities with cataract & patients lost for follow up. Slit lamp examination was done and presence of corneal edema, anterior chamber cells and flare and lens status were looked for. Best corrected visual acuity (BCVA) of both eyes were recorded using snellens chart following retinoscopy and refraction. Examination of pupil with special attention to presence of

relative afferent pupillary defect (RAPD) by swinging flash light test was done. Intraocular pressure was recorded by applanation tonometry. Testing of nasolacrimal duct patency, intraocular lens power calculation foreseeing the cataract extraction, they are likely to undergo and a B scan to analyze the posterior segment were also done. First step in management of phacolytic glaucoma is lowering of intraocular pressure by medical management after which, patients were posted for cataract surgery. A written informed consent, which explains the need for cataract surgery and the complications that are likely to occur and the guarded visual prognosis in view of the probable optic nerve damage that might have occurred due to raised intraocular pressure; was obtained from the patients. After adequate preoperative preparation patients underwent cataract extraction with or without posterior chamber intraocular lens implantation depending upon the feasibility. Patients were hospitalized for at least one day after surgery. On post op day 1, recording of visual acuity and slit lamp examination were done, focusing on the condition of wound, corneal transparency, anterior chamber activity based on SUN (standardization of Uveitis Nomenclature) working group and positioning of Intraocular lens. Patients were asked to review after 1 week, 3 weeks & 6 weeks subsequently. On each review recording of visual acuity, slit lamp examination, IOP measurement & fundus examination were done. Best corrected visual acuity was estimated following retinoscopy and refraction at 6 weeks follow up. In those whom intraocular lens could not be implanted. BCVA with aphakic correction was taken for analyzing the visual outcome.

## RESULTS

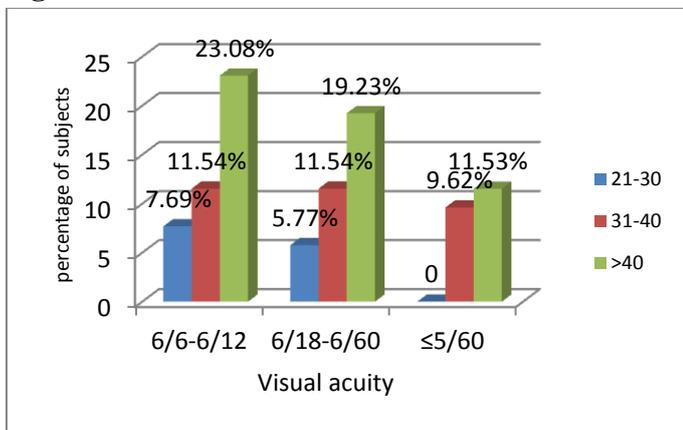
The study was conducted in 52 subjects diagnosed with phacolytic glaucoma. The patients were followed up from the time of admission and surgery till 6 weeks post-operatively. Statistical analysis was done by Chi-Square test and Probability values (p); p value < 0.05 was considered statistically significant

**Figure 1:** Duration of Symptoms and Final BCVA



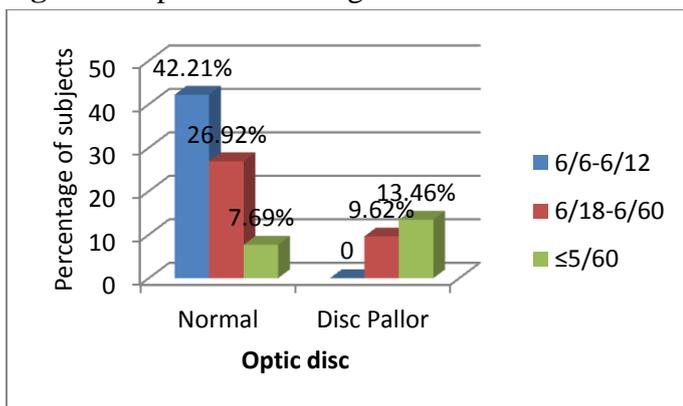
Chi-square=5.879 ,p value=0.20

**Figure 2.** IOP at Presentation And Final BCVA



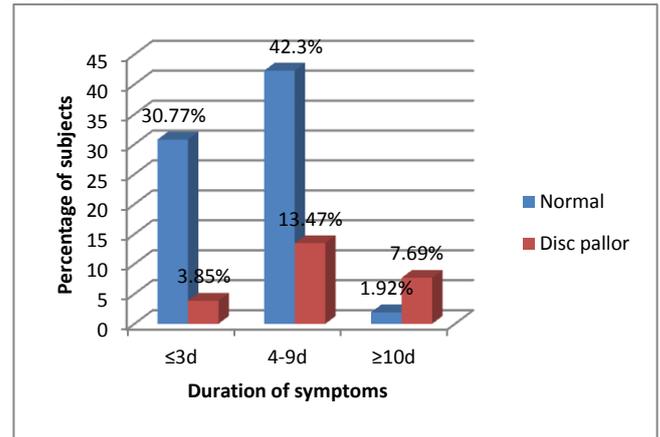
Chi-square=5.746 ,p value=0.21

**Figure 3.** Optic Disc Changes and Final BCVA



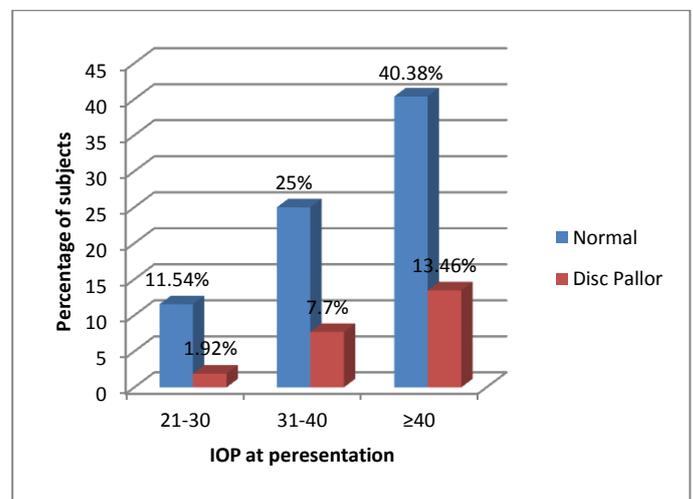
Chi-square =9.22, p value =0.055

**Figure 4:** Optic Disc Changes and Duration of Symptoms



Chi-square =3.35 ,p value =0.5

**Figure 5:** Optic Disc Changes and IOP At Presentation



Chi-square =14.14 ,p value =0.0064

**DISCUSSION**

The age range of subjects included in this study was 58-86 years, with a mean age of 71.62 year. The incidence of phacolytic glaucoma was found to be more in the lower socioeconomic status group in this study, constituting 80.76% of study subjects. This implies that it could be the financial constraints which prevent the patients from seeking early medical care for cataract and eventually leading to the stage of phacolytic glaucoma. All cases of phacolytic glaucoma studied were unilateral. In 57.69% of cases left eye was affected. This could be due to surgeons' preference of right eye for doing cataract surgery in patients with equal cataract in both eyes. On analyzing the status of the other eye, 53.85% of the

subjects were found to be pseudophakic and 65.28% had better than 6/60 visual acuity. This corresponds with the study conducted by Dr. Gajjala Bharath Kumar et al <sup>6</sup> at Warangal during 2008-2009. His study concluded that most patients with lens induced glaucoma are pseudophakic in other eye. Negligence of one eye with cataract due to satisfactory vision in other eye, poor socioeconomic status, and ignorance of the possible complications of cataract all play a significant role in the incidence of phacolytic glaucoma. In this study, 9.61% of patients presented later than 10 days after onset of symptoms, of whom none had better than 6/18 final BCVA. Whereas of those who presented within 3 days of onset of symptoms 66.6% attained final BCVA better than 6/18. Though not statistically significant (p value=0.20), it is clinically significant. The Lahan study of 1998 found that longer duration of symptoms was associated with poor visual outcome in phacomorphic group, while in phacolytic group, no such association were made out.<sup>7</sup> Majority (53.84%) of the subjects presented with IOP>40mmHg. 32.70% of patients presented with IOP between 31 and 40 mmHg. Mean IOP was 38.04 and standard deviation 7.234. IOP range was from 26-58mmHg. In the study by Venkatesh et al <sup>8</sup> in 2006, the mean pre-operative IOP was 46.2mmHg. Madurai<sup>9</sup> study reported IOP range from 22-71mmHg. All patients in the study underwent cataract extraction and intra ocular lens could be implanted in 82.69% of patients; PCIOL in 71.15% and ACIOL in 11.54%. The rest 17.31% (9 cases) were left aphakic. The final BCVA was assessed at the end of 6 weeks. 42.31% of patients had better than 6/18 visual acuity in this study. 36.54% of patients had visual acuity between 6/18 and 6/60 and 21.15% of patients had less than 6/60 visual acuity. Final IOP was normal without any medication in 100% of cases at 6 weeks follow up. In the Lubling study.<sup>10</sup> IOP was controlled in all subjects and concluded that lens extraction is the definite treatment of lens induced glaucomas. Optic disc condition was assessed post operatively and was categorized into two-normal and those

with disc pallor. 76.92% of study subjects had normal optic disc. and 23.08% had optic disc pallor. Optic disc status and initial IOP was compared. 14.28% of patients, who presented with IOP between 21 and 30mmHg, 23.6% of patients with initial IOP between 31 and 40mmHg, and 25% of patients with initial IOP  $\geq$ 41mmHg had disc pallor at last follow up. Optic disc status when compared with duration of symptoms it was found that 11.1% of subjects who presented within 3 days of onset of symptoms, 24.13% of subjects who presented within 4-9 days, and 60% of patients, who presented later than 10 days had optic disc pallor. Optic disc status when compared with final BCVA it was found that 55% of patients who had normal optic disc at last follow up, had final BCVA better than 6/18 and 10% of them had less than 6/60. None of the patients who turned out to have disc pallor, had final BCVA better than 6/18 and 58.33% of them had less than 6/60. Pre-operative IOP and final BCVA were compared. None of the patients who had final BCVA less than 6/60, had initial IOP less than 31mmHg; 45.45% of them had IOP between 31 and 40mmHg and 54.54% of them had more than 40mmHg. 18.18% of patients who had final BCVA better than 6/18 had initial IOP less than 31mmHg, 27.27% of them had initial IOP 31-40mmHg and 54.54% had initial IOP more than 41mmHg

## CONCLUSIONS

Majority of the patients in this study were pseudophakic and had satisfactory vision in the unaffected eye, due to which cataract in fellow eye might have been neglected and eventually led on to phacolytic glaucoma. Majority of the patients belonged to lower socioeconomic class. Financial constraints is an important factor preventing the patient from seeking adequate health care at proper time. IOP at presentation was more than 40mmHg in majority of the patients. The most common age group affected was 66-75 years. IOP became normal in all patients following cataract extraction. Intraocular lens could be implanted in majority of the patients. Final visual

outcome was fairly good with more favorable results in those who presented early. Duration of symptoms and level of initial IOP has got a bearing on glaucomatous optic disc damage.

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