



ORIGINAL ARTICLE

Pattern and Visual Outcome in Lens Induced Glaucoma

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Abstract

Lens induced glaucomas are a common occurrence in rural areas of India. Early diagnosis and treatment of mature cataract is very important since delayed treatment of lens-induced glaucoma may result in poor visual outcome. An attempt was made to study the pattern and visual outcome in LIG cases attending the Department of Ophthalmology at Government Medical College, Jammu. A total of 25 patients with a diagnosis of LIG were analyzed. Out of these 15(60%) patients had phacomorphic and 10(40%) had phacolytic glaucoma respectively. All the patients were subjected to ECCE with PC IOL implantation. Postoperative BCVA upto 6/12 was achieved in 6(24%) and upto 6/60 in 16(64%) patients. Only three patients showed poor visual outcome. However, all the patients maintained postoperative IOP of < 20mm Hg without any additional antiglaucoma therapy.

Key Words

Lens Induced Glaucoma, Intraocular Pressure, Cataract

Introduction

The uptake of eye care services by the rural community has been optimal in countries like India where lens induced glaucomas are a common cause of ocular morbidity (1). Lens induced glaucoma compromise a number of different glaucomatous processes occurring in the elderly that share in common the role of the crystalline lens in the mechanism of increase in IOP (2). LIG in general may be secondary angle closure (phacomorphic) or secondary open angle (phacolytic) (3). Other types like lens particle glaucoma and phacotoxic glaucoma may occur in some cases. In the present era many ophthalmologists have worked with latest surgical techniques (4), but the modality of treatment in such type of glaucoma is lens extraction. Mode of treatment is extracapsular cataract extraction with posterior chamber IOL implantation (ECCE with PC IOL) (5,6). However, postoperative recovery in these conditions remains guarded. In order to evaluate this information the present

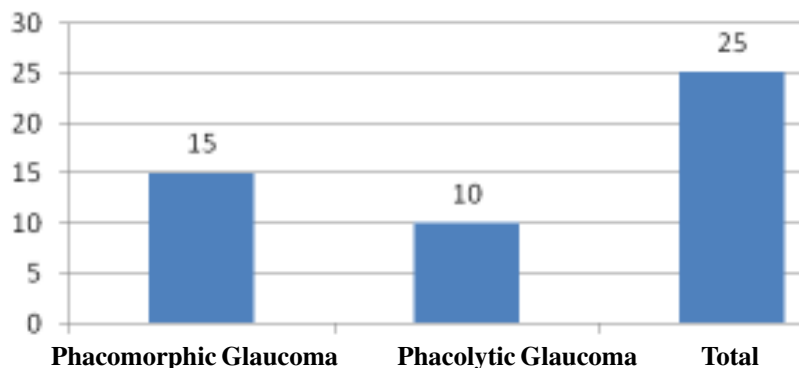
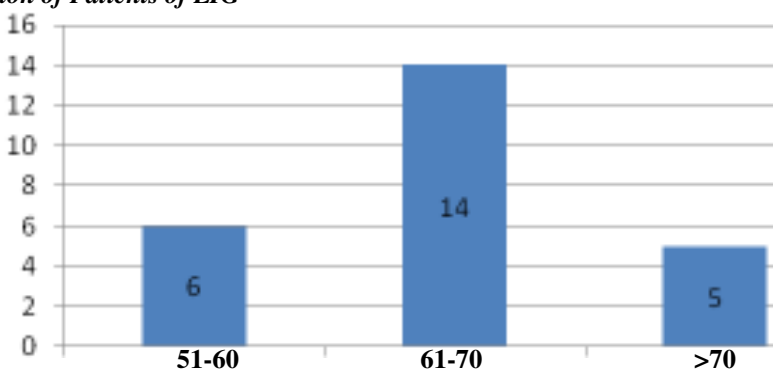
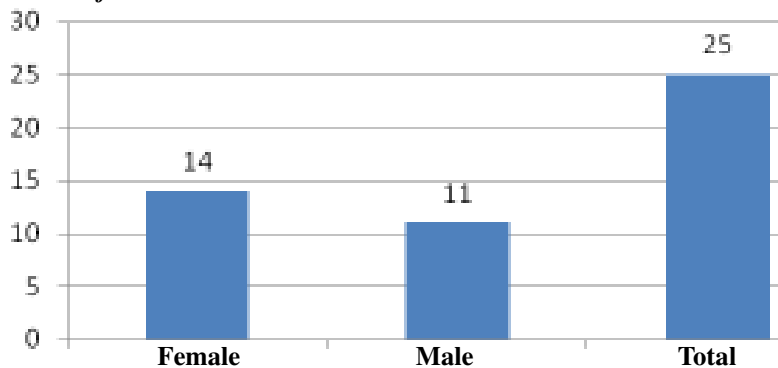
study was attempted to study the pattern and visual outcome of the current management of LIG.

Materials and Methods

All the patients who attended the Outpatient Deptt. and Emergency of the Deptt. of Ophthalmology at Government Medical College, Jammu with a diagnosis of lens induced glaucoma for a period of one year were included in the study. 25 cases of lens induced glaucoma with senile cataract and IOP > 30 mm Hg were analyzed. Patients with a history of primary open angle or narrow angle glaucoma, trauma and patients with LIG with prior ocular hypotensive management elsewhere were excluded. A complete history related to the illness was taken with duration of decrease in vision, mode of onset, redness, watering, pain or any other associated symptoms. The duration between symptoms and surgery was also noted. The patients were subjected set protocol of investigations which included: visual acuity, anterior

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**Fig. 1 Patients of LIG****Fig. 2 Age wise Distribution of Patients of LIG****Fig. 3 Sex Distribution of Patients of LIG****Table .1 Measurement of IOP**

IOP mm Hg	NO.OF PATIENTS	PERCENTAGE
30<=35	2	8%
35<=40	3	12%
40<=45	14	56%
45<=50	4	16%
> 50	2	8%

Table. 2 Best Corrected Visual Acuity at Last Follow Up

BCVA	NO. OF PATIENTS	PERCENTAGE
6/6 - 6/12	6	24%
6/18-6/60	16	64%
<6/60	3	12%



segment examination, tonometry, fundus examination and gonioscopy of both the eyes. The anterior chamber depth was assessed by directing the slit beam adjacent to the limbus. The AC was considered shallow if the depth was less than 1/4th of the corneal thickness. Phacomorphic glaucoma was recognized by the subjective complaints of pain, redness with the presence of corneal edema, shallow anterior chamber, fixed dilated pupil and an intumescent cataractous lens. Phacolytic glaucoma was diagnosed by the presence of pain, corneal edema, normal or deep anterior chamber, flare, cells, with minimal KPs, the presence of mature or hypermature cataract with or without white spots on the anterior capsule. Initially, control of IOP was done with tab. acetazolamide 250 mg oral four times a day, topical timolol maleate 0.5% 12 hourly and intravenous mannitol. Topical dexamethasone 0.1% eye drops 4 times a day was given to reduce inflammation.

After obtaining a written informed consent and explanation of relatively guarded prognosis, all the patients were subjected to extracapsular cataract extraction with PC IOL implantation. Cataract surgery was done by making a limbal incision and fornix based conjunctival flap with can opener capsulotomy. The nucleus was expressed and thorough cortical clean up was done followed by PCIOL implantation in the bag.

All the operated cases were examined postoperatively daily and discharged on 3rd postoperative day. The patients were followed up in OPD for a period of 6 weeks. All the patients were put on topical Gatifloxacin and Dexamethasone six times a day during post operative period. A short acting cycloplegic was also added. On the follow up, visual acuity, anterior segment examination, tonometry and fundus examination was done.

A good IOP control was defined as a final postoperative IOP of < 21 mm Hg, without the need for any antiglaucoma medication. Poor visual outcome at postoperative six weeks was defined as best corrected visual acuity of less than 6/60.

Results

A total 25 patients with LIG were analyzed. Of these 15(60%) patients had phacomorphic glaucoma and 10(40%) patients had phacolytic glaucoma (*Fig 1*). In our series 6(24%) patients were less than 60 years,

14(56%) patients were in the age group of 61-70 years and 5 patients were more than 70 years of age. Maximum no. of patients were in the sixth decade of life (*Fig 2*). Females were more in the current study (*Fig-3*). The most common symptoms were ocular pain, defective vision and redness of eyes. Duration of pain of 1 day was seen in 2(8%) cases, 2-5 days in 16(64%) cases, 6-10 days in 5(20%) cases and more than 10 days in 2(8%) cases. Maximum duration of ocular pain reported was 16 days.

The visual acuity at the time of admission was hand movement close to face or less. But none of the patient had faulty light projection. Circumciliary congestion, corneal edema and cataractous lens were present in all the cases. In the present study the highest IOP recorded was 59.1 mm Hg, the lowest was 33 mm Hg and the mean was 42.5 mm Hg (*Table 1*). Examination of the fellow eye revealed normal anterior chamber depth and open angle in all the patients. IOP was less than 20 mm Hg in all the fellow eyes. With a mean follow-up of 6 weeks we found that all the patients maintained a normal postoperative pressure of less than 20 mm Hg without any additional medical therapy. BCVA of 6/12 could be obtained in 6 (24%) patients. 16(64%) patients achieved BCVA upto 6/60. 3(12%) patients showed poor visual recovery i.e. < 6/60 (*Table 2*). The cause for the poor visual outcome was attributed to corneal edema in 1(4%) and optic atrophy in 2(8%) patients.

Discussion

Lens induced glaucomas are a common occurrence in India, hardly surprising in a situation where the incidence of cataract cases far exceeds the total number of surgeries performed currently (7). Though phacomorphic and phacolytic glaucomas are clinically distinct entities, they have certain common factors in that they are lens induced, they compromise the function of the optic nerve due to rise of intraocular pressure, cataract surgery is curative in these cases, and finally they uniformly share a guarded prognosis (8).

The present study demonstrates that phacomorphic glaucoma is more common than phacolytic glaucoma. Rijal AP et al, Sharma RG et al have too documented phacomorphic glaucoma to be common than other forms of LIG (9,10). In our study we found LIG to be more in



the 6th decade of life. Data collected from Flocks *et al*, Ali Abdollahi *et al*, Rohatgi JN also reveals LIG to be a disease of increasing age(11,12,13). Analysis shows females are affected more as compared to males. This is identical with the studies of Sinha A and Prajan *et al* (14,15). Analyzing anterior chamber and gonioscopic findings in the fellow eyes, our study found normal AC depth and open angle in all the cases. This is similar to earlier study done by Das JC (16). In our study at six weeks BCVA of 6/12 was achieved in 6 cases (24%), 6/18-6/60 in 16 (64%) and < 6/60 in 3 cases (12%). In our study BCVA upto 6/60 was achieved in 23 cases (n=25).which is more or less similar to Prajan NV *et al* study that showed BCVA of >6/60 in 82cases (88%) and less than 6/60 in 11cases (11.82%). The study does not correlate well with Pradhan *et al* and Rijal AP both of whom achieved BCVA of 6/60 in 68.5% and 45% respectively(17,9).This may be because of late surgical intervention in their series at 1 week to 4 months as against of our 1-16 days of presentation.The poor postoperative visual acuity (<6/60) was seen in three patients (out of 25) with optic atrophy to be the common cause. Prajan NV *et al* and Rijal AP have too documented optic atrophy as the common cause of poor visual outcome(15,9).

In our prospective study on 25 patients of LIG with a mean follow-up of 6 weeks we found that all the patients maintained a normal postoperative pressure of less than 20 mm Hg without any additional medical therapy which correlates well with Venkatesh R *et al* and Singh G studies who too achieved IOP < 20 mm Hg in all their patients at the end of follow-up period without any antiglaucoma medication (18,19).

Conclusion

Despite high IOP at the initial presentation in cases of lens induced glaucoma, IOP came down to normal limits after lens extraction. The results of LIG in response to visual recovery and IOP control is quite satisfactory and encouraging.

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