



**ORIGINAL RESEARCH PAPER**

**Glaucoma**

**A STUDY OF CLINICAL PROFILE OF PHACOMORPHIC GLAUCOMA AND ITS MANAGEMENT OUTCOME**

**KEY WORDS:** Phacomorphic Glaucoma, Blindness, Anterior Chamber Depth, Corneal Oedema

**Dr Shubhra Mehta**

R.D.gardi Medical College Surasa, Ujjain, Pin Code – 456001

**Dr Avril Hooda\***

R.D.gardi Medical College Surasa, Ujjain, Pin Code – 456001 \*Corresponding Author

**Dr Manoj Mehta**

R.D.gardi Medical College Surasa, Ujjain, Pin Code – 456001

**ABSTRACT**

**PURPOSE:** To study clinical profile of phacomorphic glaucoma and its management outcome.

**METHODS:** Phacomorphic glaucoma is one of the leading cause of blindness. Our study was a observational hospital based study of 30 patients suffering from Phacomorphic glaucoma. All patients underwent a comprehensive ocular examination as well as laboratory investigation and were subjected to surgical procedure for management.

**RESULTS:** Our study included 19 (63.33 %) females while only 11 (36.76 %) were males. 73.33 % patients belong to rural area. 26 (86.67 %) of our patients had anterior chamber depth < 2.5 mm. 25 (83.33%) patients presented with corneal oedema while 80 % patients had raised intraocular pressure. In our study 7 (23.33 %) patients had but corrected visual acuity between 6/6 to 6/18. While 15 (50 %) patients had visual acuity between 6/60 to 6/18.

**INTRODUCTION:**

There are many causes of blindness worldwide with cataract and glaucoma forming the main causative factors. Lens induced glaucoma are of many types and is one of the most important cause of loss of vision among rural population. Patients with lens induced glaucoma are typically elderly female. Phacomorphic glaucoma is one of the most important type of lens induced glaucoma. Patients usually presents with pain, redness ,watering with sudden diminution of vision. Raised intraocular pressure with phacomorphic glaucoma directly damages the optic nerve thereby affecting the visual functioning. Lens induced glaucoma was first discovered by Gifford in the year 1900<sup>1</sup>. In phacomorphic glaucoma secondary angle closure is caused by lens swelling. It is an acute angle closure glaucoma that results due to sudden hydration of an immature senile cataract which blocks the angle by forward push to iris. Cataract in india is the most important cause of preventable blindness accounting to 63.7%. Hence all the emphasis is on preventing blindness from phacomorphic glaucoma<sup>2</sup>. The risk factor associated with phacomorphic glaucoma are age >60 years, short axial length>23.7mm, female gender. A swollen lens and shallow anterior chamber are major factors responsible for development of phacomorphic glaucoma. Sudden swelling of lens usually results in phacomorphic glaucoma. Angra et al(1991)<sup>3</sup> in their study mentioned that in india, phacomorphic glaucoma accounts for 3.9% of all cataract extractions. Phacomorphic glaucoma is highly prevalent in developing countries. Hence our study was planned to evaluate the factors associated with phacomorphic glaucoma and best possible management to decrease prevalence of blindness from phacomorphic glaucoma.

**MATERIAL AND METHOD**

The present study "A Study of Clinical Profile of Phacomorphic Glaucoma and Its Management Outcome" was an observational type of case series study conducted in department of ophthalmology CRGH Hospital. R D Gardi medical college, Ujjain. A total number of 30 cases were enrolled.

**METHODOLOGY**

Written informed consent was taken from all patients and details of patients were recorded. Patients residential address was also recorded to know whether they belong to urban and rural areas, which helped us in knowing the prevalence of phacomorphic glaucoma. Patients with phacomorphic glaucoma present with variety of complains and these were recorded in chronological order along with duration.

The following were the inclusion and exclusion criteria of study:

**INCLUSION CRITERIA**

- All patients with phacomorphic glaucoma

**EXCLUSION CRITERIA**

- Patients with phacolytic glaucoma, anaphylactic glaucoma and other secondary glaucomas.
- Patients with associated vitreous haemorrhage and retinal detachment.
- Patients with no perception of light.
- Patients with general debilitated conditions, unfit for surgery.

All patients underwent detailed ocular examination and anterior segment examination. Presence of corneal oedema and bullous keratopathy was specifically noted. Corneal sensations were also recorded. Corneal curvature was recorded by keratometry. Presence of corneal degeneration and dystrophy were also noted. A-Scan was done in all patients and axial length of both the eyes were recorded.

B-Scan was done in all the patients to rule out posterior segment abnormalities. Anterior chamber depths and lens thickness were measured.

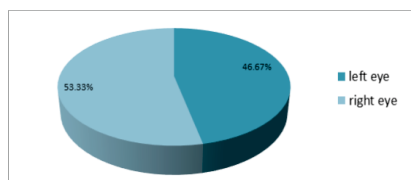
All patients were subjected to a battery of laboratory and systemic investigation before undergoing surgical procedures. Blood pressure was recorded for all patients to rule out presence of anemia. Blood sugar level were done to rule out diabetes mellitus.

All the patients underwent surgical management for phacomorphic glaucoma and follow up was done upto 1 month after surgery. All data was analysed using SPSS software.

**RESULTS**

25 (80%) patients out of 30 patients were in the age group 51-70 years of age whereas only 4 patients (13.33%) were >70 years of age. In our study 19(63.33%)patients were females whereas only 11 (36.67%)patients were males. 83.33% of our patients belong to low socioeconomic status. 73.33% patients belong to rural area in our study. Out of 30 eyes 16 (53.33%) were right eye whereas 14 (46.67%) were left eye affected by phacomorphic glaucoma.

**Figure 1 : Distribution of eyes affected by phacomorphic glaucoma. No of patients ( n = 30 )**

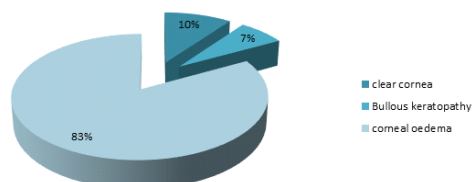


**Table no – 1 Visual acuity distribution of patient with phacomorphic glaucoma in the study group (n = 30 eyes)**

Sr. no.	VA	RE	%	LE	%
1	PL - 1/60	11	36.67	12	40.00
2	>1/60 - 3/60	3	10	2	6.67
3	>3/60 - 6/60	2	6.67	0	0
4	>6/60	0	0	0	0
Total		16	53.33	14	46.67

23 (76.67%) eyes suffering from phacomorphic glaucoma has visual acuity <1/60 while only 7 eyes (23.33%) had vision >1/60.

**Figure : 2 Distribution of corneal oedema and bullous kera to pa thy in study group. (n = 30 eyes)**



In our study 25(83.33%) patients presented with corneal edema whereas bullous keratopathy was seen in 2 patients (6.67%)

**Table no 2 Axial length in eyes with phacomorphic glaucoma in the study group (n = 30 eyes)**

Sr.no	AL(mm)	RE	%	LE	%
1	<23	8	0	7	23.33
2	23-24	6	20	5	16.67
3	>24	2	6.67	2	6.67
Total		16	26.67	14	46.67

In our study we found that 15(50%) patients had axial length <23mm, while 11 patients had axial length between 23-24mm.

26(86.67%) patients in our study group had anterior chamber depth <2.5 mm.

In our study that 21 (70%) patients had lens thickness between 4-5mm,(16.67%) patients had <4 mm, and 4 (13.33%) patients had >4 mm.

**Table No – 3 Best corrected visual acuity at one month after surgery (n = 30 Eyes)**

Sr.no	BCVA	RE	%	LE	%
1	6/6 - 6/18	4	13.33	3	10.00
2	<6/18 - 6/60	8	26.67	7	23.33
3	<6/60 - 3/60	2	6.67	2	6.67
4	<3/60 - 1/60	1	3.33	1	3.33
5	<1/60 - PL	1	3.33	1	3.33
Total		16	53.33	14	46.67

In our study 7 (23.33%) eyes had best corrected visual acuity between 6/6 -6/18, 15 (50%) eyes had between <6/18-6/60 and 8(26.67%) eyes had between <6/60-PL at one month after surgery.

In our study out of 30 patients operated 2 (6.67%) had iris prolapse, 4 (13.33%) had vitreous loss, 2 (6.67%) had persistent corneal oedema and none of the patients has any surgical complications.

**DISCUSSION**

Phacomorphic glaucoma can affect any race but usually seen in elderly persons. Many factors like short axial length, thickness of lens, advancing age, female gender, family history of angle closure directly influence the clinical picture of patients suffering from phacomorphic glaucoma. Our study was hospital based observational type of case series study of 30 patients suffering from phacomorphic glaucoma, conducted in OPD in department of ophthalmology, R.D Gardi medical college, Ujjain. We found

that 73.33 % patients belong to rural areas which was a significant factor associated with phacomorphic glaucoma as these patients presented late for treatment mostly due to lack of awareness or poor economic background or lack of escort to accompany to the hospital. Jain IS et al (1983)<sup>4</sup> in their study found the average patient to be 62 years. In our study 25(80%) patients out of 30 patients were in the age group of 51-70 years of age. Only 4 patients were more than 70 years of age group. The difference between two groups was significant. [p value =0.000].

Pradhan et al (2001)<sup>5</sup> in their study found that the female:male ratio was 1:3:1. In our study majority of patients i.e 19(63.33 %) patients were females and remaining 11 (36.67 %) patients were males. The difference was significant [p value = 0.032]. Females are more predisposed. Kaplowitz KB el al (2011)<sup>6</sup> in their study showed that axial length less than 23.7 mm was significant risk factor for development of phacomorphic glaucoma. In our study 15 patients (50 %) had axial length less than 23 mm, which proves that shorter axial length predisposes a person to development of phacomorphic glaucoma. Tomey KF et al (1992)<sup>7</sup> in their study also documented shallow anterior chamber as very strong factor for development of phacomorphic glaucoma. In our study majority of patients i.e. 26(86.67 %) has anterior chamber depth <2.5 mm. while only 4 patients had anterior chamber depth >=2.5 mm. the difference was significant [p<0.05]. Mansouri et al (2014)<sup>8</sup> in their study found that majority of patients suffering from phacomorphic glaucoma had lens thickness 4.28 ± 0.43 mm. In our study 21 (70 %) patients had lens thickness between 4-5 mm, 5 (16.67%) patients had >4 mm, and 4 (13.33 %) patients had > 4 mm. We in our study found that 25 (83.33 %) patients presented with corneal oedema and 80 % of patients also had raised intra ocular pressure between 31-40 mm Hg. Bhartiya S et al (2009)<sup>9</sup> mentioned that in their study of 137 out of 229 (59.8 %) of the patients of the phacomorphic glaucoma had a poor visual outcome. In our study group 7(23.33 %) patients had best corrected visual acuity between 6/6-6/18, 15 (50 %) patients had between ,6/18-6/60 and 8 (26.67 %) patients had between <6/60-PL. Out of 8 patients who had vision <6/60, 6 had partial optic atrophy and 2 had persistent corneal oedema.

**CONCLUSION**

Our study included 30 cases of phacomorphic glaucoma 80 % patients were in age group 51-70 years of age. 19 patients (63.33 %) were females whereas (83.33 %) of our patients belong to low socioeconomic status. 73.33 % of our patients belong to rural area which was a significant factor associated with phacomorphic glaucoma as they presented late. Shorter axial lengths, shallow anterior chamber, raised intraocular pressure were major factors associated in our patients. Our study recommend that management of phacomorphic glaucoma should encompass a comprehensive view of disease. Early detection and proper management of phacomorphic glaucoma is very essential to decrease the incidence of blindness.

**REFERENCES**

- Gifford H, "The dangers of the spontaneous cure of senile cataract," American Journal of Ophthalmology, 1900; vol. 17,pp:289-293.
- Government of India, National Survey on Blindness and Visual Outcome after Cataract Surgery, 2001-2002, vol. 77, National Programme for control blindness, Ministry of health, Government of India, New Delhi, India,2002.
- Angra SK, Pradhan R., Garg SP. Cataract induced glaucoma : An insight into management .Indian J Ophthalmol 1991;39:97-101.
- Jain IS, Gupta P, Dogra MR, Gangwar DN, Dhir SP.Phacomorphic glaucoma-management and visual prognosis .Indian j Ophthalmol 1983;31:648-53.
- Pradhan D, Hennig A, Kumar J, Foster A. A Prospective study of 413 cases of lens-induced glaucoma in Nepal .Indian J Ophthalmol 2001;49:103-7.
- Kaplowitz KB, Kapoor KG. An Evidence-based Approach to Phacomorphic Glaucoma. J Clin Expirement Ophthalmol 2011;51:006.
- Tomey KF, al-Rajhi AA. Neodymium:YAG laser iridotomy in the initial management of phacomorphic glaucoma , Ophthalmology , 1992 May ;99(5) : 660-5.
- Mansouri M, Ramezani F, Moghimi S ,et al. Anterior segment optical coherence tomography parameters in phacomorphic angle closure and mature cataracts . Invest ophthalmol Vis. Sci. 2014 ; 55 :7403-7409.
- Bhartiya S., Kumar Mahesh HM, Jain M., Phacomorphic glaucoma: Evolving Management Strategies. Journal of Current Glaucoma Practice , May-August 2009;3(2):39-46.