A STUDY OF 21 CASES OF PHACOLYTIC GLAUCOMA 1 DAY BEFORE AND ON 1ST AND 7TH DAY AFTER CATARACT SURGERY

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ABSTRACT

BACKGROUND
Aim of this study is to evaluate the visual outcome and disc changes in 21 cases of phacolytic glaucoma in hypermature cataract cases presenting with high intraocular pressure (More than 40 mm), severe pain, redness, corneal clouding and with gross decrease in visual acuity.

MATERIALS AND METHODS
21 cases (Male & Female) of phacolytic glaucoma with hypermature cataract attending Government General Hospital's Ophthalmology Outpatient Department have been selected for study. Patients presented with complaints of severe pain, decrease in vision, redness and watering. All these patients were admitted on emergency basis, intraocular pressure was controlled and were immediately taken up for cataract surgery and intraocular lens implantation.

RESULTS
Despite of high intraocular pressure, corneal clouding and with decreased vision, all of them have regained good visual acuity (Ranging between CF 5 metres to 6/12), fundus showed 0.5 to 0.8 cupping. Intraocular pressure came to normal levels in all cases.

CONCLUSION
Earliest possible surgical intervention in cases of phacolytic glaucoma with hypermature cataract can result in regaining good vision along with control of intraocular pressure.

KEYWORDS
Phacolytic Glaucoma, Intraocular Pressure, Ciliary Congestion, Corneal Oedema Flare in Anterior Chamber.


BACKGROUND
There are twenty million blind people in India; eighty percent of this blindness is due to causes which are preventable. Cataract in India is the most important cause of preventable blindness accounting to 63.7 percent. Lens-induced glaucoma (LIG) was first described in the year 1900 by Gifford[1] and von Reuss independent of each other. In the year 1998, Pradhan et al reported an incidence of 0.42% of phacolytic glaucoma amongst the 27,073 of patients detected to have senile cataract.[2]

Phacolytic glaucoma is open-angle glaucoma induced by mature or hypermature cataract. During this condition, the soluble contents of the lens leak into the anterior chamber and obstruct trabecular outflow. The lens capsule in phacolytic glaucoma appears grossly intact or occasionally shows spontaneous non-traumatic defects.[3-5]
given immediately, followed by definitive therapy i.e. cataract extraction.

**MATERIALS AND METHODS**

Study includes 21 cases of phacolytic glaucoma and their evaluation regarding post-operative visual recovery.

**Data**

Total Cases - 21  
Male Patients - 6  
Female Patients - 15  

Age group ranging from 36 years to 72 years.  
All the patients are from the remote villages of Krishna district, Andhra Pradesh and were seen by many ophthalmologists before approaching government institution.  
All these cases were operated by 2 senior ophthalmic surgeons with SICS procedure in the institute.

**Procedure Done**

These cases were posted in theatre on emergency basis to preserve and restore the vision.

Routine Small Incision Cataract Surgery (SICS) procedure with posterior chamber intraocular lens (PC-IOL) implantation under local anaesthesia was done after controlling the intraocular pressure and bringing it below 20 mmHg.

**RESULTS**

- One day before cataract surgery these patients showed  
  - Pain.  
  - Redness.  
  - Watering.  
  - Defective Vision.  
  - Glare.  
  - Photophobia.  
- In some cases where there is milky fluid in the anterior chamber, after creating a scleral tunnel fluid was taken out by making a side port.  
- Bluerhex has been used to visualise the anterior capsule and also for capsulorhexis.  
- In some cases after taking out the milky fluid, visco is injected and synechiolysis is done with iris repository.  
- Removal of milky fluid from anterior chamber has immediately enabled us to visualise the details of the anterior chamber and lens.  
- So this has helped us to go for further steps of cataract surgery.

**Signs**

- High Intraocular Pressure (42 to 72 mmHg and above).  
- Circum corneal congestion.  
- Intense flare and cells in AC.  
- Milky fluid in AC.  
- Hypopyon in some cases.  
- Vision PL+ / HM.  
- Mid dilated pupil.  
- Patients were requested to come to Op Department after discharge once in 2 days and the findings were analysed on 5th and 7th day.

- Even on 1st post-operative day 18 of these 21 cases got good vision ranging from CF 5 m to 6/12 and got relieved of many of the complaints like pain, redness, etc.  
- On 7th day refraction was carried out and almost all the patients got good vision.
DISCUSSION
The term phacolytic glaucoma was coined by Flocks et al. in 1955. Phacolytic glaucoma represents a lens induced acute secondary open angle glaucoma associated with rapid onset of pain, redness and watering in the eye and the intraocular pressure (IOP) may become as high as 60 to 80 mmHg. Visual acuity is reduced to perception of light with sometimes inaccurate or doubtful projection of rays. The lens usually shows a hypermature Morgagnian cataract or mature cataract, rarely an immature cataract. Flocks et al. believed that the condition was attributable to obstruction of the inter trabecular spaces by macrophages distended with engulfed lens material and Morgagnian fluid that had escaped from the lens. Goldberg[9] popularised Millipore filter technique for identification of the diagnostic macrophages. Epstein et al[10] have shown that direct obstruction of outflow pathways by leaking heavy-molecular-weight soluble proteins (Molecular weight 150x10 daltons) may significantly affect the pathogenesis of human phacolytic glaucoma. Such clogging is more specific than macrophage response in phacolytic glaucoma[10].

Both cellular and humoral immune response has been implicated in the process of phacolytic glaucoma. Phacolytic glaucoma is caused by an obstruction of trabecular meshwork by lens proteins or protein-laden macrophages.[11]

However, the pathogenesis of phacolytic glaucoma is not fully understood. The mechanisms underlying the association between the presence of soluble contents and increased IOP remain under debate. One theory suggests that after leakage of its soluble contents, the aqueous humor becomes saturated with calcium oxalate and cholesterol crystals, which are found as hypere refringent particles in the anterior chamber. At the same time, the obstruction of the trabecular meshwork with high molecular weight proteins from the lens and phagocytic macrophages leads to a characteristically severe elevation in IOP.[12]

Alternatively, Mavrakanas et al.[13] suggests two forms of phacolytic glaucoma: acute onset and gradual onset. Acute onset phacolytic glaucoma is caused by rapid leakage of liquefied lens protein into the aqueous humor through tiny spontaneous ruptures of the anterior lens capsule, without the presence of macrophages. Gradual onset phacolytic glaucoma is characterised by the presence of macrophages in the aqueous humor induced by an immunologic reaction to lens protein through an intact lens capsule.

Clinically, phacolytic glaucoma presents acutely with corneal oedema, cellular exudates in the anterior chamber often with hypopyon, polychromatic hypere refringent or crystalline particle in the anterior chamber, and hypermature cataract, behind a semidilated pupil with open angle.[14]

Acute angle closure glaucoma, open angle glaucoma with uveitis, neovascular glaucoma, and glaucoma secondary to trauma are the conditions which can mimic phacolytic glaucoma.[15]

It is common practice for many of the ophthalmologists not to take up the cases of phacolytic glaucoma with high intraocular pressure and that too with long duration of the condition for 2-3 weeks.

As ours is a government institute we are forced to operate on this type of cases.

We have analysed 21 cases of such type of phacolytic glaucoma which are due to hypermaturaiton of cataract, leaking of lens proteins through capsule causing rise in intraocular pressure with all clinical signs and symptoms.

Initially intraocular pressure was controlled with administration of IV Mannitol 300 mL, Dorzox-T drops (4 times per day), Tab Diamox along with the supportive treatment.

We have carried out all the local and systemic essential investigations that are required before cataract surgery.

After reducing the intraocular pressure to below 20 mmHg, cases are admitted to the operation theatre on emergency basis and were operated for cataract extraction surgery by Small Incision Cataract Surgery (SICS).

In all the cases, we have implanted posterior chamber intraocular lens (PC IOL) with desired IOL power. As 19 of these 21 cases have approached us within 5-7 days of onset of symptoms they recovered good vision (CF 5 metres to 6/12).

Rest of the 2 cases got only CF to hand movements. This is because of partial optic atrophy following longstanding high IOP.

CONCLUSION
By taking informed consent and explaining the visual prognosis to the patient, it is always better to operate phacolytic glaucoma cases at the earliest possible, not only to restore the vision but also to relieve the patient from acute painful condition. Our study has shown good results with many of these types of cases.

REFERENCES


