



OUTCOME OF SMALL INCISION CATARACT SURGERY IN LENS INDUCED GLAUCOMA A CLINICAL STUDY

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(ABSTRACT) **Aim:** A prospective clinical study - To evaluate the clinical outcome of "Small incision cataract surgery" in "Lens induced glaucoma" - conducted at Govt. Regional Eye Hospital, Visakhapatnam.

Materials and Methods: 68 cases of Lens induced glaucoma (52 eyes of Phacomorphic and 16 eyes of Phacolytic glaucoma) included in this study. All cases under went SICS with PC IOL implantation.

Results: Visual improvement Phacomorphic glaucoma: out of 52 eyes, 32 eyes improved good vision 6/6 to 6/18, 12 eyes improved fair vision 6/24 to 6/60, and 8 eyes poor visual improvement ie. less than 6/60 of BCVA visual acuity. In phacolytic glaucoma, out of 16 eyes 12 eyes improved good vision 6/6 - 6/18, 2 eyes fair vision with 6/24 - 6/60 and 2 eyes poor visual improvement, less than 6/60. Intra Ocular Pressure control: Out of 52 eyes of Phacomorphic glaucoma there is good IOP control in 71% eyes, moderate control in 17% eyes, poor control in 11% eyes. Out of 16 Phacolytic glaucoma 68% eyes has good control of IOP, 25% eyes has moderate control and in one eye has poor control of IOP even after 6 months of the surgery.

Conclusion: Small incision cataract surgery is effective in both control of IOP and visual outcome in Lens Induced Glaucoma.

KEYWORDS : SICS, Lens induced glaucoma, BCVA.

Introduction :

36 million are blind in the world, out of these 35 % due to cataract 1. Cataract responsible for 50% of blindness in developing world. 2. Recent studies have largely found higher rates of cataracts in women than in men. 3. Incidence of Lens induced glaucoma still more in rural and tribal area mainly in elderly females because of socioeconomic factors. Lens-induced glaucoma may occur as either secondary angle-closure or open-angle glaucoma. The angle-closure can be caused by lens swelling (Phacomorphic glaucoma) or obstruction of trabecular mesh work by high-molecular-weight soluble lens protein from hypermature cataract (phacolytic glaucoma), 4.5.6.7.

Initial treatment of phacomorphic glaucoma is to lower the intraocular pressure with medical therapy such as topical beta blockers, carbonic anhydrase inhibitors and hyperosmotic agents, IV Mannitol and Laser iridotomy if possible. Fellow eye should be evaluated for predisposing factors to angle closure glaucoma, prophylactic laser iridotomy should be considered. Definitive treatment lens induced glaucoma is only the cataract extraction. 8,9,10,11, Lens induced glaucoma should be treated initially with topical steroids, and aqueous suppressants, and plan for cataract extraction . 12

Manual small-incision cataract surgery (SICS) is a form of Extra capsular cataract extraction (ECCE). It is developed after invention of phacoemulsification. SICS has the advantage of a self-sealing sutureless wound, with early visual rehabilitation with low postoperative astigmatism. SICS useful in community ophthalmology of rural and tribal areas of India. It can be easily practiced by simple learning curve, shorter operative time, less need for technology and lower cost, useful in high volume of surgeries. 13.14.15.16.17.

Intraocular pressure reduction noticed after cataract surgery . 18. lens extraction itself Increased AC Depth, 19.

Materials and Methods:

A prospective study, 68 cases of Lens induced glaucoma (52 eyes of Phacomorphic, 16 eyes of Phacolytic glaucoma) included in this study and subjected for "Small incision cataract surgery" with intraocular lens implantation. from Jan -Jun. 2017 Govt. Regional Eye Hospital. Visakhapatnam.

Inclusion criteria:

Symptomatic Lens Induced glaucoma of 68 eyes between the age of 50 -74 years, including 12 Males and 56 females are included in this study. These patients complained variable symptoms of pain, swelling in the eye, redness, loss of vision, nausea and vomiting. Pts complaints with the duration varied from 2 days to 21 days, ie. with in 1 week (49 eyes), 1-2 weeks (12 eyes), more than 2 weeks (7 eyes).

Diabetes, other variants of glaucoma (PACG, OAG) in fellow eye, LIG not controlled with max medical treatment, Intra operative complications like PC tear are excluded from this study.

Pre operative evaluation carried out including visual acuity, bio microscopy to assess anterior chamber depth, AC reaction, pupil size and reaction, type of cataract. Intra ocular pressure recorded with Goldman Applanation Tonometer, revealed range of 25 - 30 mm of Hg (48 eyes) 30 - 40 mm of Hg (12 eyes) 40 - 50 mm of Hg (8 eyes).

Pre operative gonioscopy performed after achieving normotensive condition to assess angle width and extent of synechial extant.

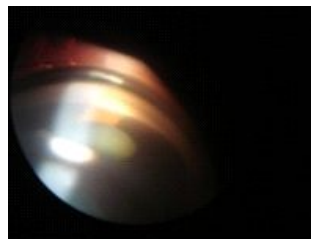


Fig: 1 Synechial extant < 90 degrees (49 eyes)

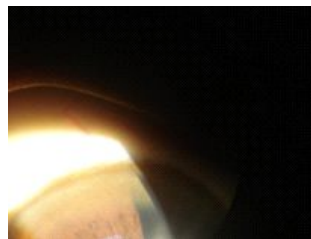
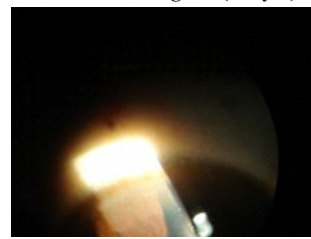


Fig: 2 Synechial extant 90-180 degrees (17 eyes)



C. Fig: 3 synechial extant > 180 degrees (2 eyes)

The diagnosis of Lens Induced (Phacomorphic & Phacolytic) Glaucoma established. The condition of the fellow eye examined and optic disc condition is noted in the cases where ever it is possible.

All the cases are Pre Operatively treated with IV Mannitol, Acetazolamide, 0.5% Timolol eye drops and Antibiotic and steroid eye drops to control IOP and inflammation.

Operative procedure: Under Pre operative Mannitol, and peribulbar anesthesia 68 eyes operated with “Small Incision Cataract Surgery with PCIOL Implantation”



Fig: 4 SICS incision

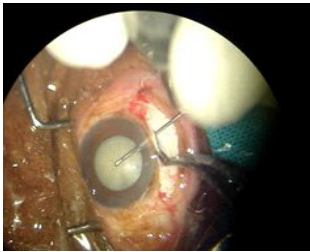


Fig: 5 Capsulotomy

Post operatively all the patients treated with Antibiotic and steroid eye drops for 6 weeks. Visual acuity, IOP recording, Gonioscopy, Fundus examination carried out postoperatively.

1st postoperative day examination revealed Corneal edema in 18 eyes. 36 eyes had severe iritis and 22 eyes developed fibrin membrane. 2 eyes developed hyphema. Blood clot resolved with medical treatment next few days. Fundus examined with +78 D.

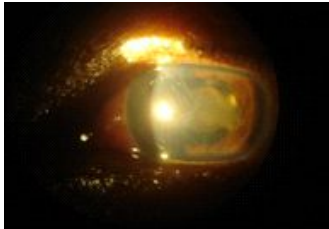


Fig: 6 Fibrin reaction on early post operative day



Fig: 7: Fibrin reaction resolved



Fig: 8: Fundus photograph on early pos operative day

BCVA given to all the cases at the end of 6 weeks and followed every month up to 6 months. visual Field examination carried out periodically once in three months for a period of 6 months.

Results:

Visual acuity improvement :

Out of 52 eyes of Phacomorphic glaucoma : Best corrected visual acuity, 32 eyes developed good visual improvement 6/6 to 6/18, 12 eyes developed 6/24 to 6/60, and 8 eyes developed less than 6/60 of visual acuity.

Phacolytic glaucoma has better visual outcome than phacomorphic glaucoma. out of 16 eyes 12 eyes developed 6/6 to 6/18, 2 eyes with 6/24-6/60 and 2 eyes developed less than 6/60 vision.

Intra Ocular Pressure control: Phacomorphic glaucoma IOP is well controlled in (12 – 16 mm of Hg) in 37 (71%) eyes, 17 - 20 mm of Hg in 9 (17%) eyes, up to 28 mm of Hg in 6 (11%) eyes. of Phacomorphic glaucoma

Out of 16 Phacolytic glaucoma there is good control of IOP in 11(68%) eyes (12 - 18 mm of Hg), 4(25%) eyes had 17 - 20 mm of Hg, and in one eye IOP was not controlled remained high more than 26 mm of Hg.

Post operative Iritis and Fibrin formation occurred in 36 eyes which resolved with topical steroid treatment and atropinisation.

Post operative gonioscopy revealed persistent synechia in 7 cases of phacomorphic glaucoma which are existed pre operatively. All these cases had the attack of Lens Induced Glaucoma for more than 2 weeks. No synechia noted in phacolytic glaucoma.

Fundus and visual field examination carried out and followed up to 6 months. But no significant changes noted. In our study, incidence of lens induced glaucoma is more in females (70%) than male (29%). It is possible due to socioeconomic constraints. one eye operated for cataract and the other eye surgery is delayed for several causes.

Conclusions:

Small incision cataract surgery is effective in Lens induced glaucoma. The visual outcome and IOP control are good with SICS. Normal IOP maintained without antiglaucoma medications in many cases even after 6 months after the surgery. Visual outcome is good in cases presented to us early. Post Operative reactions are proportional to the duration of attack and pre operative IOP. Prognosis is good in phacolytic than phacomorphic glaucoma. Incidence of Phacomorphic glaucoma is more than phacolytic and more in females. Combined SICS and Trabeculectomy is advisable in lens induced glaucoma, if the acute attack is more than 2 weeks. Cases with persistent high post operative IOP treated with antiglaucoma medical treatment.

Discussion:

The incidence of Lens induced glaucoma is still remains high in rural and tribal areas of India. Lens extraction is mandatory to control IOP in LIG. Cataract surgery is difficult in phacomorphic glaucoma because there is an increased risk shallow chamber, iris prolapse, peripheral capsulorhexis tears. SICS is safe and effective for management of lens induced glaucoma.20.21.

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