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RESEARCH ARTICLE

STUDY OF OUTCOMES IN PATIENTS OF CHRONIC SIMPLE GLAUCOMA UNDERGOING SMALL INCISION CATARACT SURGERY WITH TRABECULECTOMY

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Abstract

Aim: To study outcomes of procedure (Small incision cataract surgery with PCIOL implantation with trabeculectomy) in terms of visual acuity, intraocular pressure and complications.

Methodology: A hospital based descriptive longitudinal study was done on 22 patients with chronic simple glaucoma operated at Pravara rural hospital, Loni. The pre-operative and post operative data was collected in terms of Visual Acuity recorded with Snellen's chart and Intra Ocular pressure recorded with help of Applanation Tonometry or Non Contact Tonometry in uncooperative patients. The Trabeculectomy and SICS with PCIOL were performed at separate site. The preoperative mean IOP was 28 mmHg with good functional visual acuity ranging from Finger counting 4 meters to 6/24 with coexisting cataract. The IOP and VA were noted post operative 1 Week; and 6 weeks.

Results: Mean age of the patients in the study was 74, 5 (22.7%) were less than and equal to 60 years, 8 (36.3%) were between 61 and 70 years, 7 (31.8%) were between 71 and 80 years, 2 (9.1%) were above 80 years. Out of 22 patients, 16 (72.7%) were male and 6 (27.3%) were female. Mean intraocular pressure on post operative 1 week and 6 weeks was 17.3 mmHg and 17 mmHg respectively. Significant visual improvement was seen in patients who underwent combine surgery. Postoperative BCVA at 6 weeks below 6/60 in 3 patients (13.6%), between 6/60 to 6/24 in 9 (40.9%), above 6/24 in 10 patients (45.5%).

Conclusion: Management of coexisting cataract with chronic simple glaucoma in one setting has advantage of no financial burden as financial burden is main cause of non compliance in the poor rural population.

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Introduction:-

Glaucoma is a chronic progressive optic neuropathy that results in changes in optic nerve head, visual field changes with or without rise in intraocular pressure.^(1,2) It is one of the leading causes of blindness for people over the age of 60 years.⁽⁴⁾ In good number of patients the chronic Simple Glaucoma and cataract coexist. The effect is so gradual that you may not notice a change in vision until the condition is at an advanced stage. Many a times diagnosis of glaucoma is missed in coexisting cataract with glaucoma patients which is major cause of loss of vision.

Any opacity in the lens or its capsule whether developmental or acquired is called cataract.^[3] Cataract is the leading cause of blindness (51%) and low vision (33%) worldwide^[3]. In India, cataract has been reported to be responsible for 50 to 80% of the bilateral blindness in the country.^[7-9]

Many patients after cataract surgery do not continue the treatment of glaucoma. So there is severe visual impairment. So management of glaucoma by trabeculectomy (filtration surgery) along with cataract extraction ensures permanent intraocular pressure control. The combined management with trabeculectomy and cataract extraction with IOL has many advantages in terms of compliance, reduce financial burden and good IOP control.⁽⁵⁾

In this study an attempt will be made to study outcomes in patients undergoing SICS with trabeculectomy in chronic simple glaucoma patients.

Aim-

To study outcomes of procedure (Small incision cataract surgery with PCIOL implantation with trabeculectomy) in terms of visual acuity, intraocular pressure and complications.

Objective:-

To study the outcomes in patients with coexisting cataract with chronic simple glaucoma who underwent small incision cataract surgery with trabeculectomy in terms of visual acuity, intraocular pressure and complications.

Methodology:-

1. A hospital based descriptive longitudinal study was done on 22 patients with chronic simple glaucoma operated at Pravara rural hospital, Loni. The pre-operative and post operative data was collected in terms of Visual Acuity recorded with Snellen's chart and Intra Ocular pressure recorded with help of Applanation Tonometer or Non Contact Tonometer in uncooperative patients.
2. The routine preoperative evaluation was done of anterior segment by slit lamp examination, IOL power calculation, Fundus examination and adnexal examination with patency of lacrimal passages.
3. The Trabeculectomy and SICS with PCIOL were performed at separate site. Study duration – 1 year (March 2021 – March 2022)
4. The preoperative mean IOP was 28 mmHg with good functional visual acuity ranging from Finger counting 4 meters to 6/24 with coexisting cataract. The IOP and VA were noted post operative 1 Week; and 6 weeks.

Inclusion Criteria:

1. Patients with coexisting cataract and glaucoma.
2. Those willing to give written informed consent for surgery and study in pravara rural hospital, Loni.

Exclusion Criteria:

Patients having corneal pathologies, optic neuropathies (other than glaucoma), retinopathies, ocular pathologies like uveitis and pediatric glaucoma patients.

Results:-

22 patients underwent combined surgery (small incision cataract surgery with trabeculectomy) out of which 16 (72.7%) were male and 6 (27.3%) were female. Mean age of the patients in the study was 74, 5 (22.7%) were less than and equal to 60 years, 8 (36.3%) were between 61 and 70 years, 7 (31.8%) were between 71 and 80 years, 2 (9.1%) were above 80 years. (as shown in Table 1).

Age	Male		Female	
	Frequency (n=22)	Percentage (%)	Frequency (n=22)	Percentage (%)
< 60 Years	2	9.1	3	13.6
61 to 70 Years	5	22.7	3	13.6
70 to 80 Years	7	31.8	0	0.0
> 80 Years	2	9.1	0	0.0
Total	16.0	72.7	6.0	27.3

Table 1:- Age and gender distribution.

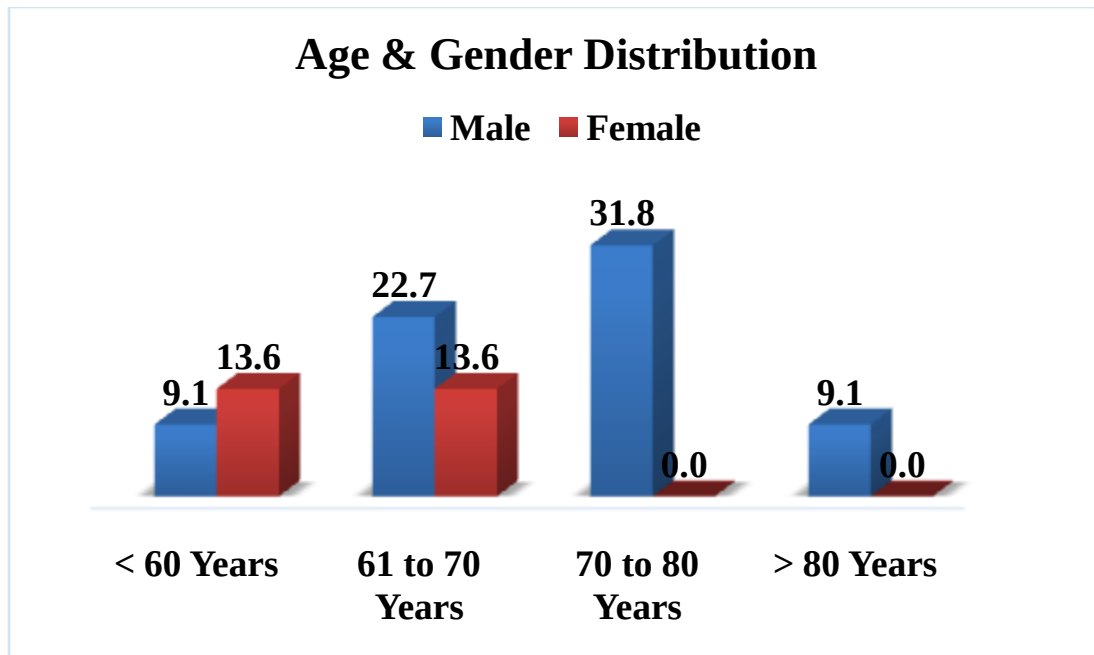


Figure 1:- Age and gender distribution.

The mean pre operative intraocular pressure was 28 mmHg as shown in Table 2. The mean intraocular pressure at postoperative 1 week and 6 weeks was 18.2 mmHg, 17.3 mmHg and 17 mmHg. In 22 patients, the intraocular pressure could be reduced to less than 20 mmHg.

Table 2:- Preoperative and postoperative mean IOP.

IOP	Mean	SD
Pre-op	28	3.3
Post -op Week 1	17.3	3.0
Post -op Week 6	17.0	3.1

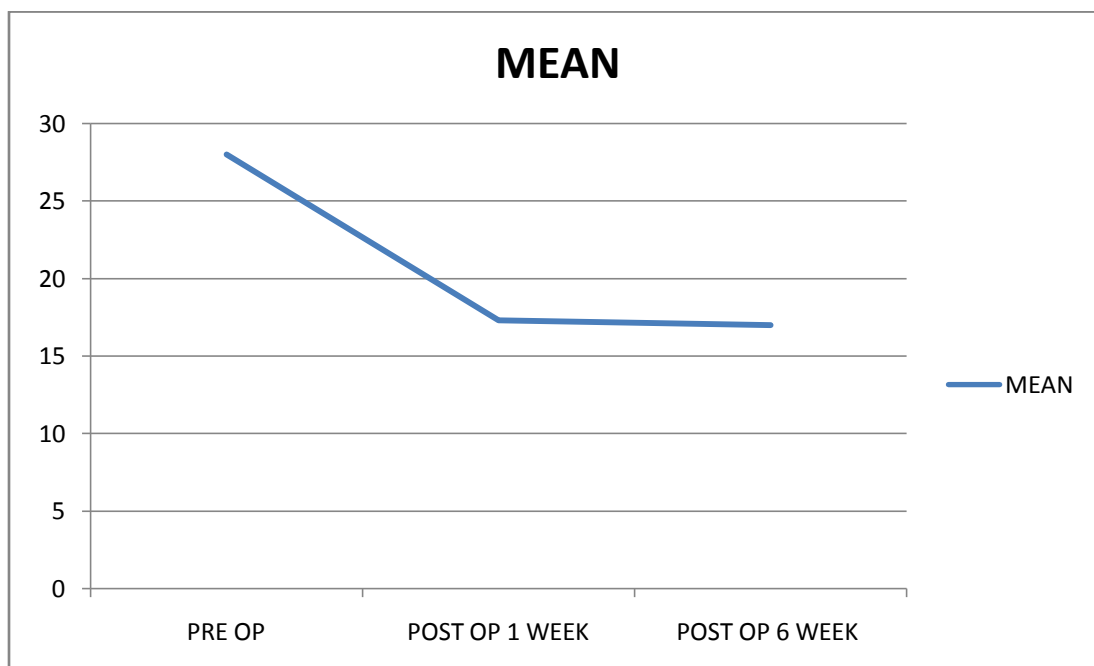


Figure 2:- Graphical representation of mean IOP preoperative and postoperative 1 week and 6 week.

Vision was improved markedly in patients who have underwent combine surgery .Preoperative BCVA , 10 patients had vision below 6 / 60 , 12 patients had vision between 6/60 -6/24 . Postoperative BCVA at 1 week below 6/60 in 3 patients (13.6 %), between 6/60 to 6/24 in 12 patients (54.5 %), above 6/24 in 7 patients (31.8%) . Postoperative BCVA at 6 weeks below 6 / 60 in 3 patients (13.6 %) , between 6 /60 to 6/24 in 9 (40.9 %) , above 6 /24 in 10 patients (45.5 %). (as shown in table 3)

Table 3:- Preoperative and postoperative BCVA.

BCVA	Pre-op		Post-op Week 1		Post-op Week 6	
	Frequency (n=22)	Percentage (%)	Frequency (n=22)	Percentage (%)	Frequency (n=22)	Percentage (%)
Below 6/60	10	45.5	3	13.6	3	13.6
6/60 to 6/24	12	54.5	12	54.5	9	40.9
Above 6/24	0	0.0	7	31.8	10	45.5
Total	22	100.0	22	100.0	22	100.0

Intraoperative and postoperative complications encountered in this study are as shown in table 3 .While performing the surgery , posterior capsular tear with vitreous loss seen in 1 patient and hyphema seen in 1 patient.Immediate post operative complications included hyphema in 1 patient, Shallow anterior chamber due to wound leak in 1 patient, post operative inflammation in 2 patients and in remaining 18 patients no complications were noted. (as shown in figure 3 and 4)

Figure 3:- Intraoperative complications.

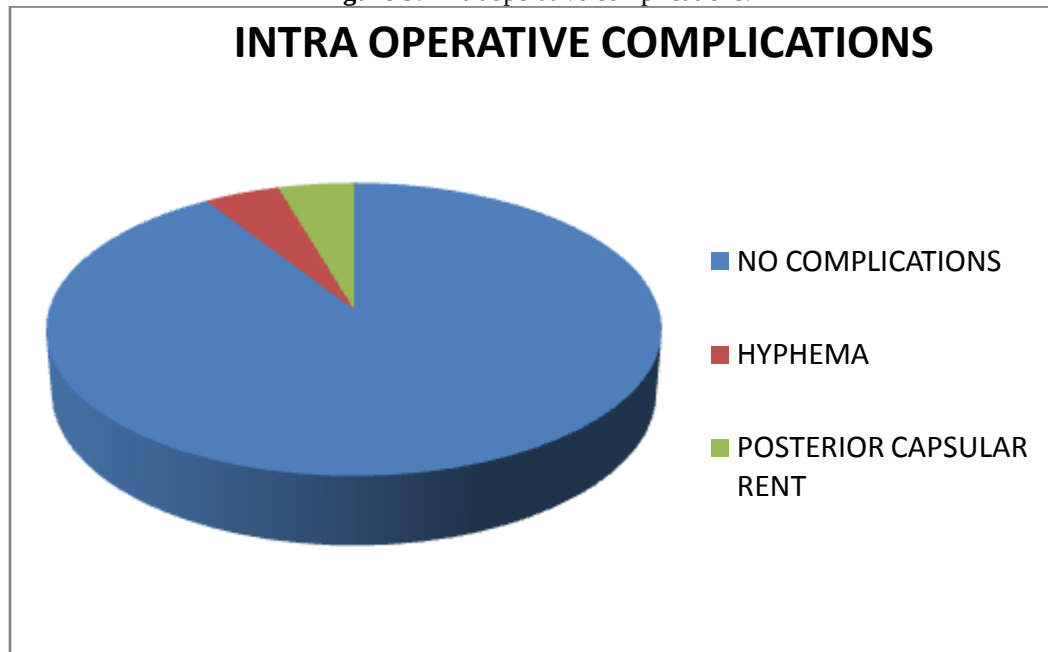
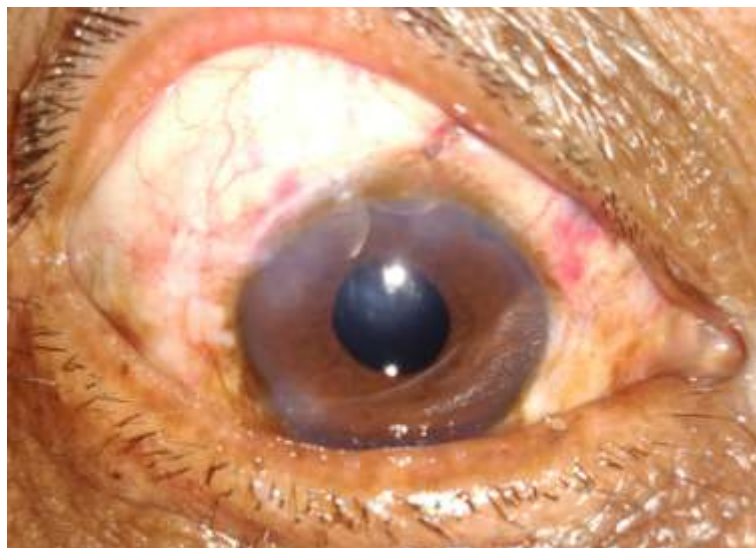
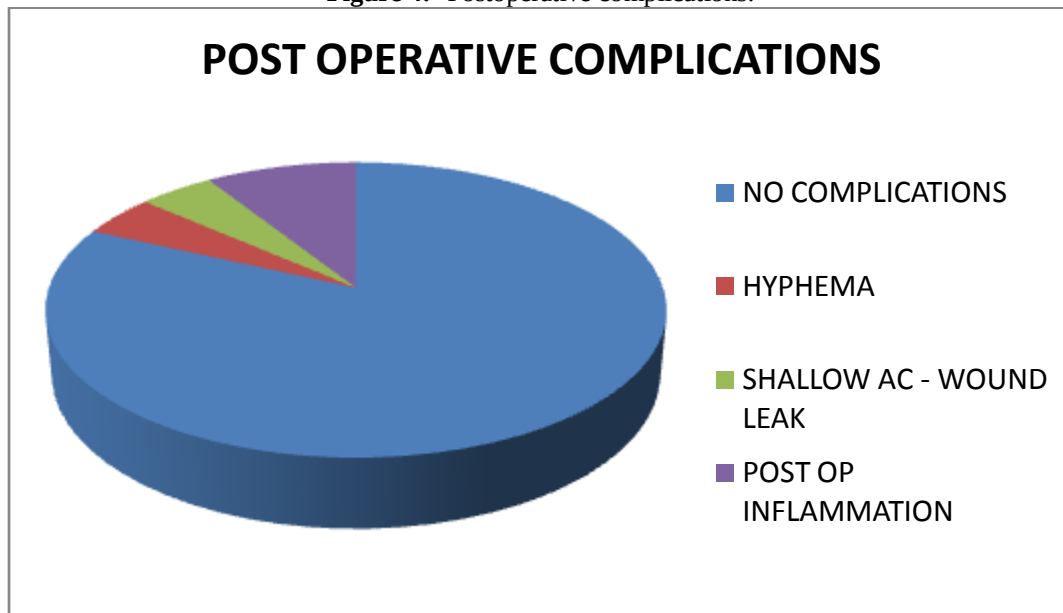


Figure 4:- Postoperative complications.

Post operative photo of patient's right eye .

Discussion:-

Cataract remains the most important cause of blindness worldwide .Glaucoma is second most important leading cause of blindness. Combine cataract and glaucoma with trabeculectomy and cataract extraction with IOL has many advantages over medical and separate management .In ageing population the incidence of coexisting cataract with glaucoma is rising and many a times diagnosis of glaucoma is missed in such cases which ultimately results in poor visual outcomes and irrecoverable visual damage . Combine surgery has many advantage in terms of reduction in financial burden , good compliance of patient , better intraocular pressure control and good visual rehabilitation.

Our study include 22 patients diagnosed to have cataract with chronic simple glaucoma underwent combine surgery SICS with PCIOL implantation with trabeculectomy .All the patients had immature senile cataract with chronic simple glaucoma and their preoperative vision ranging from finger counting 4 meter to 6 /60.Out of 22 patients , 16 (72.7%) were male and 6 (27.3) were female .

Mean age of the patients in our study was 74 years. In a study conducted by Wedrich A et al.⁽¹¹⁾ the mean age of patients who underwent combined surgery i.e. combine cataract and trabeculectomy surgery was 76.40 years. Age is a major risk factor for glaucoma. Incidence of glaucoma increases with the age.

In our study, significant improvement in visual outcome was seen on postoperative 1 week and 6 weeks. At 6 weeks postoperatively, majority of the patients i.e. 10 patients (45.5%) had vision better than 6/24, 9 patients (40.9%) had vision between 6/60 to 6/24 and 3 patients (13.6%) had vision less than 6/60. Similar results were seen in Singh P. et al.⁽¹⁰⁾ showing 23 patients (65.7%) achieved best corrected visual acuity between 6/18 to 6/6 and 6 patients (17.1%) had 6/60 to 6/24 on the 6th weeks follow up.

Mean pre operative IOP was 28 mmHg and post operative mean intraocular pressure 1 week, 6 weeks was 18.2, 17.3, 17 mmHg respectively. Similar result was seen in study by Wedrich A et al.⁽¹¹⁾ where mean preop IOP was 21.2 $\pm$ 6 mmHg and postop 13.5 $\pm$ 2.1 mmHg. Significant reduction in intraocular pressure was seen along with improvement in visual acuity.

Intraoperatively, 2 patients had complications, 1 had hyphema, 1 had posterior capsular rent. Immediate post operative complications included hyphema in 1 patient, Shallow anterior chamber due to wound leak in 1 patient, post operative inflammation in 2 patients and in remaining 18 patients no complications were noted. In 3 patients who underwent combine surgery have not shown much improvement in vision on post operative 6 weeks had posterior capsular rent in 1 patient and 2 patients optic disc changes and visual field defects remained stationary following surgery.

Conclusion:-

Management of coexisting cataract with chronic simple glaucoma in one setting has advantage of no financial burden as financial burden is main cause of non compliance in the poor rural population.

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