

## Combined Trabeculectomy And Phacoemulsification : Intraocular Pressure Control After Two Site Approach.

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**Abstract:** Phacoemulsification and the use of foldable lenses increases the success rate of combined phacoemulsification and trabeculectomy. It has been argued that the phacoemulsification incision separate from the trabeculectomy incision reduces postoperative scarring of the scleral flap and conjunctiva and improves the results of the filtration surgery. The combined surgery with separate sites was performed on 33 eyes of 33 patients in the Department of Ophthalmology Govt Medical College Srinagar between January 2015 and July 2017. The control of IOP after combined surgery was the parameter studied. It was observed that 78.8 % cases had controlled IOP after 6 months follow up without any drugs while as 21.2% cases required drugs less than before to control the Intra Ocular Pressure.

Thus we can safely conclude that combined cataract and trabeculectomy surgery is a procedure that should be accepted for the efficacy, safety and repeatability of results.

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### I. Introduction

Dealing with either cataract or glaucoma separately is in itself a herculean task and to make the matters worse when both coexist in the eye the task becomes more challenging. In this part of the world with prevalence of both cataract and glaucoma being very high it is no surprise that very often we are dealing with this co-existent condition. The idea of combining the surgeries was to reduce the patient burden of undergoing two separate procedures thus negating the ill effects if patient for some reason may decide not to undergo the other procedure. Very often it is seen that if trabeculectomy is done first patient not gaining any vision gets discouraged for second surgery similarly if cataract surgery is done first as visual recovery is very often good the patient doesn't consider it necessary to undergo second surgery with disastrous consequences. Recent advances in incisional techniques have changed the indications for surgery by minimising the severity of complications. In the early 1980s, extracapsular cataract extractions with trabeculectomy were reported to be effective, but larger wound size was associated with more inflammation and hyphaema.<sup>1,2,3</sup> Phacoemulsification and the use of small foldable lenses increases the success rate of combined phacoemulsification and trabeculectomy. There are promising results in literature.<sup>4</sup> It has been argued that the phacoemulsification incision separate from the trabeculectomy incision reduces postoperative scarring of the scleral flap and conjunctiva and improves the results of the filtration surgery.<sup>5</sup> This study was carried out to study the success rate of combined cataract and glaucoma surgery using a two site approach.

### II. Materials And Methods

The prospective study was conducted on 33 eyes of 33 patients operated by combined method of phacoemulsification cataract surgery and trabeculectomy at separate site at Department of Ophthalmology, Government Medical College, Srinagar, Jammu and Kashmir, India, during the period between January 2015 and July 2017.

**Study Location:** This study was carried out at tertiary care teaching hospital in the Department of Ophthalmology, at Government Medical College Srinagar, Jammu and Kashmir.

**Study Design:** Prospective Study.

**Sample Size:** 33 eyes of 33 Patients.

**Study Duration:** January 2015 to July 2017.

**Subjects and selection Method:** The pre operative assessment of type of glaucoma, visual acuity, Intraocular pressure measurement by applanation tonometry, Postoperatively visual acuity Intra ocular pressure measurement and complications were documented at 1<sup>st</sup> day, at 1 week, 1 month and 6 months of follow up.

**Procedure Methodology:** After written consent was obtained, anaesthesia was achieved by 2 % Lidocaine . A peritomy was made starting from 1 O clock up to 2 and 1/2 clock and light bipolar cautery done extending upto 5 mm from limbus . A fornix based triangular half thickness scleral flap dissected and carried into 1 mm beyond limbus. Then a routine phacoemulsification procedure was done by making main port from 10 and 1/2 clock hours to 11 and 1/2 clock hours and in the bag IOL placed.

The anterior chamber was entered with a routine keratome through the site of trabeculectomy 1mm beyond limbus . The deep sclerotomy was completed on the posterior lip of the tunnel by Kelley’s Descemet punch and peripheral iridectomy performed by Vannas scissor. The superficial scleral flap was closed by 1 10-0 nylon suture at the apex and conjunctiva suture by 2 8-0 vicryl sutures and making the flap water tight.

The success of the procedure was evaluated by studying the independent variable of decrease in IOP.

### III. Results

The combined surgery was performed on 33 eyes of 33 patients of which 26 (89.6 %) were male.

The mean age of presentation was 57.8 years with age range of 48 years to 72 years. 11 (33.3%) patients were diagnosed as primary angle closure glaucoma. 9 (27.3% ) patients had primary open angle glaucoma and 13 (39.4%) patients were diagnosed as pseudoexfoliation glaucoma. The patients were followed up for 6 months post operatively. The Post operative variable studied was change in baseline Intraocular pressure (IOP). Mean pre operative IOP was 30.94 mm Hg . The mean post operative IOP at week 1 was 18.79 mmHg and the mean IOP at 1 month and 6 months was 18.73 mm HG and 17.45 mmHg. p value at all the follow up visits is less than 0.001.

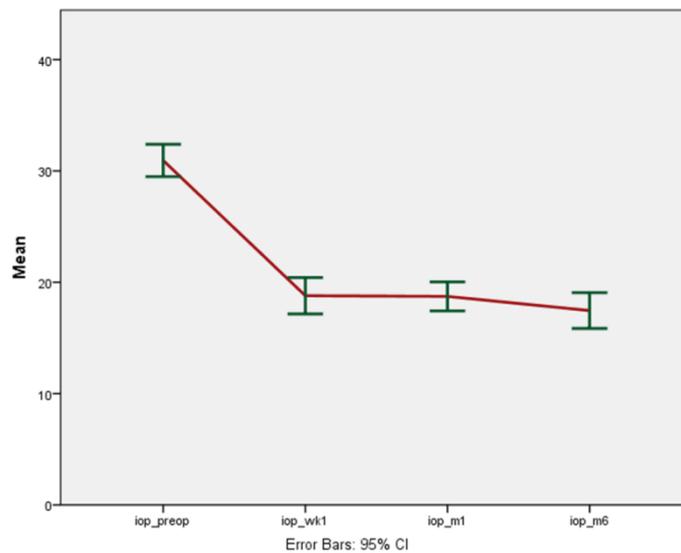
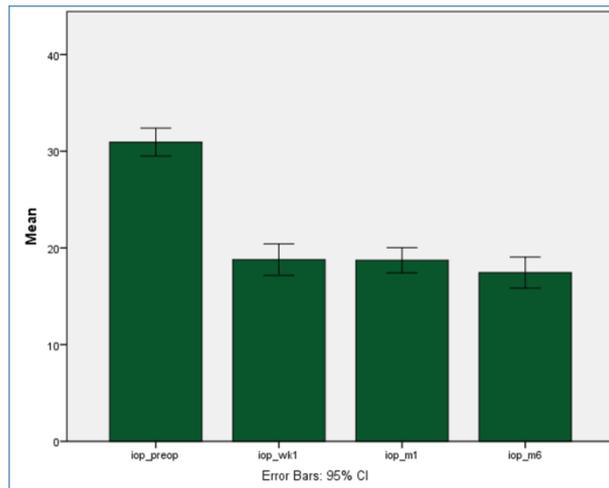
Preoperatively 80% patients required more than 2 medications, postoperatively 26 patients did not require any antiglaucoma medicine at the end of follow up period of 6 months Those who required medication were put on 1 medication only. The number of patients who needed addition of medication were 3 with PEX glaucoma 2 with NAG and 2 with 2 POAG.

**Table No 1: Shows the patient characteristics**

| Patient (N=33)         | Characteristics | Number             | Percentage |
|------------------------|-----------------|--------------------|------------|
| Age (Mean (SD), Range) |                 | 57.8 (6.56), 48-72 |            |
| Sex                    |                 |                    |            |
| Male                   |                 | 26                 | 78.8       |
| Female                 |                 | 7                  | 21.2       |
| Type of glaucoma       |                 |                    |            |
| NAG                    |                 | 11                 | 33.3       |
| PEX                    |                 | 13                 | 39.4       |
| POAG                   |                 | 9                  | 27.3       |

**Table no 2: Shows the mean IOP at different visits and significance of change IOP.**

| IOP     | Mean  | Std. Deviation | 95% Confidence Interval |             | p-value |
|---------|-------|----------------|-------------------------|-------------|---------|
|         |       |                | Lower Bound             | Upper Bound |         |
| Pre-op  | 30.94 | 4.092          | 29.49                   | 32.39       | <0.001  |
| Week 1  | 18.79 | 4.608          | 17.15                   | 20.42       |         |
| Month 1 | 18.73 | 3.668          | 17.43                   | 20.03       |         |
| Month 6 | 17.45 | 4.535          | 15.85                   | 19.06       |         |



#### IV. Discussion

The advantages of combined surgery are that it averts the potential post-operative IOP spike which may happen with cataract surgery alone which may have disastrous consequences on the remaining retinal nerve fibres. Long term control of IOP with glaucoma surgery and quick visual recovery from removal of a significant cataract. Disadvantage is the potential risk of more intraoperative and postoperative complication as the cataract surgery in glaucoma cases is more challenging due to chronic miosis/poor pupil dilation from medications or presence of synechiae. Patients with glaucoma secondary to trauma or exfoliation syndrome may have weak/fragile zonules, which may lead to zonular dehiscence and vitreous loss. Vitreous loss may lead to failure of glaucoma surgery. More inflammation is induced with combined cases, especially with one site surgery. Several authors haven't found any difference in the success rates of either a single or two site approach.<sup>6</sup> McCartney D L et. al.<sup>1</sup> Intraocular pressure control (less than or equal to 21 mmHg) was achieved in 92% of eyes; 57% required no medications. Mean follow-up was 16.8 months. In our study 78.8 % patients had ideal IOP control without drugs after 6 months of follow up. Simmons S T et. al.<sup>2</sup> Found in their study that control of intraocular pressure was achieved without medication in 77% cases our study had similar results where 21.2% cases had to put on medication for achieving the target IOP. Parker JS et al.<sup>4</sup> In their study of combined trabeculectomy and cataract surgery concluded that the reduction of intraocular pressure to 21 mm Hg or less was achieved in 84% of eyes, with 58% requiring no antiglaucoma medications while as others required fewer medications than before corroborating with our present study.

#### V. Conclusion

Thus we can safely conclude that combined cataract and trabeculectomy is a procedure that should be accepted for the efficacy, safety and repeatability of results.

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