Original Research Paper

Volume - 16 | Issue - 03 | March - 2026 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Ophthalomology

# COMPARISON OF PREOPERATIVE AND POSTOPERATIVE KERATOMETRY IN PHACOEMULSIFICATION SURGERY WITH FOLDABLE POSTERIOR CHAMBER INTRAOCULAR LENS IMPLANTATION (PCIOL)

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**ABSTRACT** **Objectives:** Comparison of Pre & Post operative keratometry readings in phacoemulsification surgery with foldable posterior chamber intraocular lens (PCIOL) implantation. **Method:** Prospective Hospital based observational study which included 100 presenile and senile cataract cases with superior scleral incision(3.2mm) in phacoemulsification surgery with foldable PCIOL implantation. Analysis of data was done by paired 't' test and 'p' value <0.05 considered significant. The preoperative and postoperative keratometry was compared at 6 weeks. **Result:** Significant difference was observed between pre operative and post operative Keratometry (P<0.05) at 6 weeks. Majority of patients postoperatively developed against the rule astigmatism (62% of patients).

**KEYWORDS :** Superior scleral incision, phacoemulsification, foldable posterior chamber IOL, keratometry.

## INTRODUCTION:

"Cataract" is defined as any opacity in crystalline lens or its capsule whether developmental or acquired, progressive or stationary. Blindness due to cataract is one of the major community health problems in India. Cataract surgery with IOL implantation restores vision to near normal. Safe surgery, early visual rehabilitation and post-operative emmetropia are the requirements of present day cataract surgery.[1,2]

The length and location of incision are important factors influencing postoperative astigmatism.[5,6]

Various techniques have been used for management of cataract one of which is phacoemulsification.[3] The clinical significance of rapid wound healing and less induced astigmatism with small incision has constantly been demonstrated by various workers.[4]

Pre and post-operative keratometry readings analysis helps to minimize induced asigmatism and enhance surgical outcome, hence present study was carried out.

## AIMS AND OBJECTIVES:

Comparison of Pre & Post-operative keratometry readings in phacoemulsification surgery with foldable posterior chamber intraocular lens (PCIOL) implantation.

## MATERIALS AND METHODS:

Prospective Hospital based observational study conducted in Dept of ophthalmology at Tertiary Care Hospital, Pune.

Uncomplicated presenile and senile total 100 cataract cases irrespective of age, sex and preop astigmatism undergoing phacoemulsification surgery were included.

### Exclusion Criteria:

Patients with Pterygium complicated cataract , previous ocular surgery, traumatic cataract; subluxated cataract, co-existing glaucoma; Pseudoexfoliation , patients with any retinal pathology, complicated surgery due to PCR, history of use of steroids, (topical and systemic) patients not giving informed consent were excluded from study.

### Inclusion Criteria:

1. Informed consent was taken from each patient
2. All patients diagnosed with visually significant cataract & reasonable visual potential.

### Preoperative Assessment:-

Preoperative evaluation was done:- Detailed medical history, general and systemic examination, visual acuity on Snellen's chart, examination of anterior and posterior segment, IOP, sac syringing and routine blood investigation . All preoperative and postoperative keratometry was done on KM6 keratometer by the same person. An axial length and IOL power calculation was done using AXIS2 Biometer. SRK-T formula was used.

Surgical Technique:- All cases operated with 3.2 mm (scleral incision) phacoemulsification Surgery & Foldable PCIOL by same surgeon.

### Postoperative Evaluation:--

Each patient was followed up postop on day 1st, 1st week and the 6th week. Visual acuity on Snellen's chart along with slit lamp examination was done.

At 6 weeks Refraction with subjective acceptance and keratometry was done. Analysis of amount and type of astigmatism was restricted to keratometry and refraction.

**Statistical Analysis:** - Statistical analysis was done by using a paired't' test, statistical significance was considered when p value was less than 0.05

## RESULTS :-

a) The study includes total 100 cases.
b) Majority of patients were in the age group of 61-70 years
c) Majority of patients had grade II NS (49%) followed by grade III NS (40%)

**Table 1: Type Of Astigmatism In Study**

| Type of astigmatism | Preoperative | Postoperative |
|---|---|---|
| With rule astigmatism | 41 | 18 |
| Against the rule astigmatism | 39 | 62 |
| Oblique astigmatism | 4 | 13 |
| No Astigmatism | 16 | 7 |
| Total | 100 | 100 |

From above table majority of patients preoperatively have with rule astigmatism (41 %) & postoperatively have against the rule astigmatism (62%).

**Table 2:- Preoperative And Postoperative Keratometry Difference In Study**

| Preoperative keratometry difference | Postop keratometry difference | 'P'value |
|---|---|---|
| Mean + SD n=100<br>0.57+/- 0.43 | Mean + SD n=100<br>0.745+/- 0.45 | <0.05<br>(0.0053) |

**DISCUSSION: –**

This study was intended for keratometric comparison for patient undergoing phacoemulsification through superior scleral incision (3.2mm) at end of 6 weeks.

The aim of modern cataract Surgery is rapid visual rehabilitation, best uncorrected visual acuity with less postoperative astigmatism[7].

SIA (surgically induced astigmatism) is still obstacle for achieving excellent uncorrected [8] visual acuity. SIA is related to incision length site, architecture, and location and closing technique.

Smaller incision size is associated with less change in corneal contour and multiplanar incisions give greater wound stability allowing self-sealing of the wound thus avoid sutures.

**Limitations:** –

Sample size is small
Durations of follow up shorter

**CONCLUSIONS:-**

- There was significant difference between pre-operative and postoperative Keratometry ($p<0.05$).
- Mean +/- SD Preoperative Keratometry difference was 0.57+/-0.43 and post-operative Keratometry difference was 0.745+/-0.45.

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