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Original Research Article

Visual outcome in retrofixated iris claw lens for aphakic eye

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ABSTRACT

Aim of this study was to assess the visual outcome and complications in retropupillary iris claw lens implantation in aphakic patients. Retrospective case series of aphakic patients who underwent retrofixation of iris claw lens, over a period of two years were collected and analysed. The study comprised of 9 patients with unilateral aphakia. The follow up period was 6 months with mean uncorrected visual acuity (VA) was significantly improved at one month postoperatively (-0.69 logMAR P < 0.001) compared to preoperative value. The mean preoperative Spherical equivalent was -3.04±4.2D which significantly reduced to -1.01+/-2.66 post-operatively. Results showed that the retrofixation of iris claw lens was an effective method for correction of aphakia with significant improvement in visual outcome.

1. Introduction

According to the World Health Organization (WHO), globally, one billion people have preventable visual impairment. In which cataract accounts for 94 million. Cataract blindness in India affects about 3.8 million people annually. Currently 1.6-1.9 million cataract operations are conducted annually.[1,2] Cataract surgery has evolved over the past years from ECCE to phacoemulcification. Phacoemulsification being the recent technique with minor risk of complication and excellent visual outcome. However, adverse events may occur like dislocation of lens in patients with zonular dialysis, psuedoexfoliation syndrome, PC Rent; leaving the patient aphakic.[3] In aphakic patients or lens dislocated patients capsular bag support is absent and surgical correction in these patients still remains a challenge. Scleral fixated posterior chamber IOL (SFIOL), anterior chamber IOL (ACIOL), or retro fixation of Iris claw lens(R-IOL) are the different surgical approach for visual improvement in these patient. ACIOL has complication like corneal decompensation, cystoid macular edema, secondary glaucoma, uveitis making it a less prefered surgical approach. In Scleral fixated IOL ideal anatomical position of lens is maintained but requires suturing and adequate surgical experience. It may also lead to complications like vitreous hemorrhage, retinal detachment, choroidal detachment and suture related complications. The retropupillary iris claw intraocular lens (R-IOL) is an alternative option for secondary IOL implantation. R-IOL provides better structural stability and less risks of IOL tilt or dislocation compared to iris- or scleral-sutured lenses. Therefore, this retrospective study was conducted in view of assessing the visual outcome and complication of retrofixation of iris claw lens in aphakic patients.

2. Aim and Objectives

1. To assess the visual outcome and complications in retropupillary iris claw lens implantation in aphakic patient.
2. Assess visual outcome and efficacy of retro fixation of iris claw lens.

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3. Material and Methods

1. This was a retrospective study.
2. Medical records of patients who underwent RFIC Lens implantation from jan 2018 to june 2020 were collected and analysed.

Study included 9 aphakic patients

3.1. Indication for surgery

1. History of trauma
2. Pseudo exfoliation syndrome
3. Patient with PC-Rent
4. Patients with zonular dialysis

3.2. Exclusion criteria included

1. Patients with no light perception
2. Corneal decompensation
3. Advanced glaucoma
4. Iris neovascularization or aniridia
5. Previous history of retinal pathology

Preoperative data collected included demographics of patients, previous surgeries, preoperative eye pathology, position of dislocated IOL, intraocular pressure, and best corrected visual acuity.

Operative data and postoperative outcomes included best corrected visual acuity, lens position, intraocular pressure, AC depth, and IOL position.

3.3. Surgical technique

A single experienced surgeon performed all the procedure. In required patients R-IOL implantation were combined with other ocular surgical procedures of need. Same surgical technique was used in all the patients and were conducted under local anesthesia. 5 patients had dislocated lens and one patient had dislocated PMMA-IOL in vitreous. 3 patients were aphakic with PC rent. Core vitrectomy was performed and dislocated lens was removed through 6mm limbal incision made at 12 o'clock position after corneal endothelial viascoelastic protection. Remnants of capsule were removed. Two corneal paracentesis at 3 o'clock and 9 o'clock were created. Vitreous was cleared from anterior chamber and miosis was achieved by using pilocarpine 2%. Iris claw IOL was placed over the iris and rotated horizontally for the desired position with viscoelasic endothelial protection. 27 gauze cannula was inserted through lateral paracentesis and iris claw IOL holding forceps was inserted through the main incision. Irrigation had stoped. Optics of IOL was held using the forceps and left side haptic was gently pushed under the iris and enclaved. Similarly, second haptic was enclaved vitroelastic substance was cleared by saline wash. A surgical PI was performed at 11 o'clock position to prevent secondary glaucoma. The optic power was calculated using the SRK/T formula with the aim of achieving emmetropia. The manufacturer's recommendation for constant A is 117.25 for retropupillary implantation.

4. Observation and Results

1. In this study total of 9 patients were included out of which 6 patients were male and 3 patients were female.
2. Mean age of patients were 48 years (ranging from 35 to 60 years).
3. 2 eyes had suffered post-traumatic dislocation of the lens, 3 eyes suffered spontaneous dislocation of lens due to psuedoexfoliation, 3 eyes had PC-Rent, 1 eye dislocated PMMA-IOL with psuedoexfoliation.
4. The mean preoperative best corrected logMAR visual acuity was 1.050±0.058 with a significant improvement to 0.211±0.01 post-operatively.
5. Position of IOL was examined post-operatively and found to be in stable position.
6. Pupillary dilation was not an issue in the presence of this lens style.

Table 1:

	Pre operative	**Post operative**
Mean visual acuity	1.366±0.0068	0.573±0.028
Mean BCVA	1.053±0.058	0.211±0.018
Mean spherical equivalent	3.04±4.2	1.01±2.66
Mean intraocular pressure	17.77±0.883	16.66±0.833

5. Discussion

Surgical correction of aphakia still face challenges inspite of various surgical options available, as each available surgical techniques have their own complication and risk. Best approach is the one that has the best visual outcome and least post operative complication. In view of this, we conducted a retrospective study of retrofixation of iris claw len (R-IOL) implantation in aphakic patients to assess the visual outcome and complication of this approach. Various studies conducted previously have shown the efficacy of R-IOL for correction of aphakia. In 2002, a study conducted by Mohr et al. reported that "the retropupillary fixation of an iris claw lens seems to have the advantages of a true posterior chamber implantation with a low intra- and postoperative risk profile." Study included 47 eyes which underwent retro papillary iris claw lens fixation.[4] In 2015, a study published by Forlini et al. included 320 patients. It was a retrospective analysis of long-term follow-up of retropupillary ICIOL implantation and concluded that complications related to retropupillary

iris claw were minimal compared with its benefits.[5] A study conducted in the past on iris-sutured IOLs have been reported severe inflammation immediately after the operation[6] but In our study, there was no significant anterior or posterior inflammation after the surgery. Post operative complication observed in this study was transient rise in IOP in one case which was treated with topical antiglaucoma. With the observed post-operative visual outcome, using retropupillary implantation of the iris claw lens is an effective alternative strategy for aphakia without capsular support.

6. Conclusion

Results showed that the retrofixation of iris claw lens was an effective alternative for correction of aphakia with significant improvement in visual outcome and minimal complications. It is a easy surgical technique. Since retro pupillary iris claw fixation gives a similar anatomical correction as posterior chamber lens, it has similar advantages as well. This study has some limitations. Firstly, this is a retrospective study. Patients included in this study have diverse ophthalmic history. This study doesn't have control group for comparison. Number of patients in this study was small and follow up period was short as there was lack of sufficient data.

7. Source of Funding

None.

8. Conflict of Interest

None.

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