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Short Communication

Sutureless retropupillary iris claw intraocular lens implantation is a viable option in aphakic patients

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ABSTRACT

Visual rehabilitation in aphakia has been a challenge with a wide variety of surgical options available for ophthalmologist. We report the visual outcome with retropupillary iris claw lens secondary to intra operative complications and secondary implantation in aphakia. An interventional study on 4 eyes of 4 patients was conducted. Preoperative visual acuity, slit lamp examination and fundus examination were carried out. Anterior vitrectomy and retropupillary fixation of iris claw lens were done. The primary outcome measure was best-corrected visual acuity and secondary postoperative complication was recorded at various intervals. All patients had visual acuity of ≥6/18 postoperatively. Sutureless retropupillary iris claw intraocular lens implantation is a good alternative of scleral-fixated intraocular lenses in aphakic patients.

Keywords: Retropupillary, Iris claw, Scleral fixated intraocular lens

INTRODUCTION

Extracapsular cataract extraction with posterior chamber intraocular lens (PCIOL) implantation in the capsular bag is the "gold standard" surgery for managing cataract. However, after a complicated cataract surgery, there may be insufficient remaining capsular support for either an 'in the bag' or posterior chamber sulcus placement of the intraocular lens (IOL). In such cases, different techniques are required for IOL fixation. These techniques include scleral fixation lens, angle-supported anterior chamber IOL implantation, and iris fixation. The surgical procedure of an angle-supported anterior chamber IOL implantation is safe and fast, but complications are more. Scleral fixated IOL (SFIOL) is a preferred option for many surgeons, but the technique is more challenging, surgical time required is more, and it has a longer learning curve. Furthermore, the stability of SFIOLs can be jeopardized due to degradation of suture material over time, leading to dislocation of IOL.

The iris fixation method was developed in 1978 for an aphakic eye following cataract treatment. Used in a lens technology called the iris claw lens, this iris fixation technique has given sight to a generation of cataract patients.

After 10 years of reliable, safe usage for cataract patients, the iris fixation method was applied to a new innovation for refractive patients. The newest development of the lens had a biconcave design suitable for implantation with a phakic eye with sufficient clearance from all vital tissues in the anterior chamber. The first implantation of the lens was performed in 1986 in Germany by a doctor named Paul. Here, lens is fixated to the mid-peripheral iris, where the iris is less vascularized and less reactive.

The technique for implantation of iris-claw lens is easy. On the posterior surface of the iris, it combines the benefits of posterior chamber implants with a low-risk method of surgery. Retro pupillary fixation of iris-claw lens enhances stability, prevents tilting of the lens and reduces the glare phenomenon.[1,2] Posterior iris-claw lenses avoid the corneal complications of an anterior chamber IOL and the surgical challenge of a sutured PCIOL.

Therefore the purpose of the study was to evaluate the final visual outcome and the complications of posterior iris claw lens implantation in aphakic eyes.

METHODS

This was an observational study.

Inclusion criteria

Aphakic patient without capsular support, monocular aphakia and normal iris patients were included in the study.

Exclusion criteria

Patients with sufficient capsular support and atrophied iris, uveitic patients, patients having retinal disease were excluded.

Follow up of patients

Patients discharged on post op day 1 and then followed up on day 3, 7, 28 days. Correction to patient given 6 week postoperatively. Follow up was done on these patients at 6 months, 1 year and so on.

Surgical technique

Four patients were operated on using this technique between March 2019 and June 2019 in our hospital. All surgeries being performed by a single surgeon. All patients were aphakic without capsular support. All 4 operated in our hospital. After written and informed consent and with all aseptic precautions patient taken in operation table. All the patients were operated under LA. Superior rectus bridle suture applied and then conjunctival peritomy done. Wound re explored and 2 side port incision at 3 and 9 O'clock position in previously marked posterior part of limbus. Adequate anterior vitrectomy done. Iris claw lens introduced into anterior chamber (AC) through a 6 mm sclera tunnel with gentle manipulation. One haptic was tilted down and pushed under the iris while holding the optic with a lens forceps, and then it was tilted up to produce indent in the iris. Simultaneously a sinskey hook was passed through the paracentesis of the same side, and iris was enclosed into the haptic claw with a gentle push using the sinskey hook. With a similar maneuver, the other haptic enclosure was carried out. AC reformed with air and wound closed.

RESULTS

Follow up was one and half month in all 4 eyes. Postoperative best corrected visual acuity was better than 6/18 in all four patients. There was no significant inflammation or IOP increase in any eye. Pigment deposits on the IOL was found on one eye. Claw was seen in AC in one patient through atrophied iris.

All the IOLs were centered. This technique has all the advantages of posterior chamber IOL implantation. This is relatively easy to perform and has such a low risk profile that it is reasonable to think that it might replace sclera fixation as a method of choice for eyes with no capsular support.

Table 1: Best corrected visual acuity in study participants.

Case no.	Best corrected visual acuity
1	6/6
2	6/6
3	6/18
4	6/9

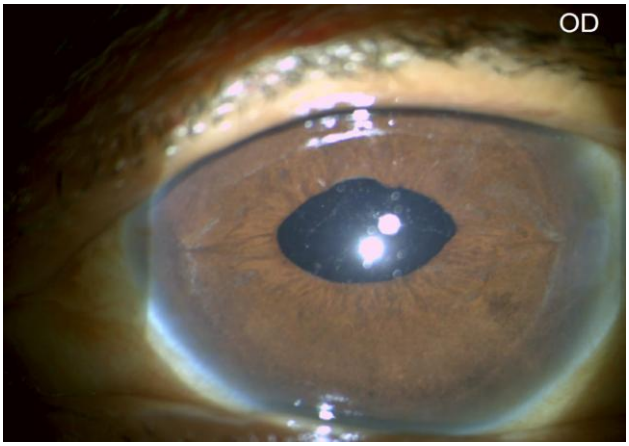

Figure 1: 61 year old female patient with normal iris pattern.
Well centered IOL showing iris tuck and cat's eye pupil (due to iris tuck at mid periphery)

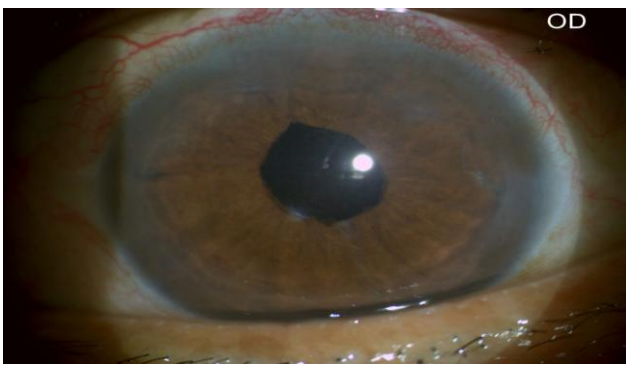

Figure 2: Well centered IOL showing iris tuck in 60 year old female patient.

Figure 3: Postoperative picture showing iris pigments over lens of 70 year old female patient.

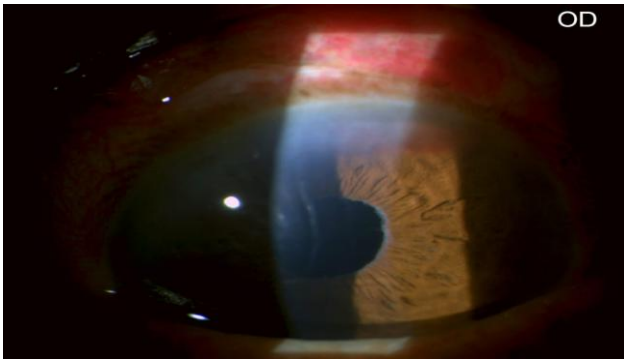

Figure 4: Preoperative picture showing pseudo exfoliation at papillary margin with aphakia in 65 year old male patient.

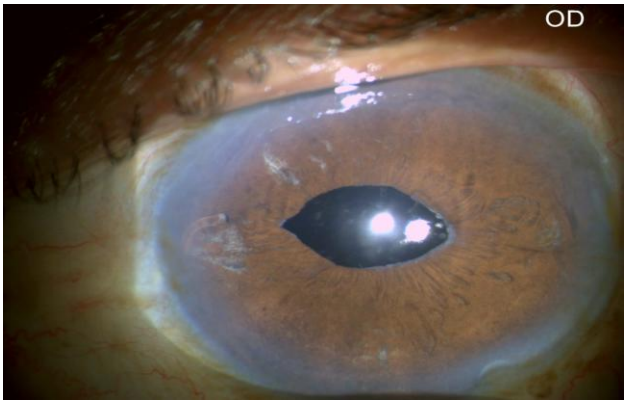

Figure 5: Postoperative picture showing pseudo exfoliation at papillary margin, cats eye pupil with claw of lens in ac through atrophied iris in 65 year old male patient.

DISCUSSION

Posterior capsular rent is an often encountered complication in modern cataract surgery and can be managed with either SFIOL or retropupillary iris claw lens implantation. Retropupillary iris claw IOL fixation is as safe as SFIOL for visual rehabilitation of post-cataract aphakia. Both primary (i.e. at the time of cataract surgery) and secondary approaches yield comparable visual results.[3]

Iris claw is an effective method of rehabilitating aphakic eyes with very minimal complications that can be managed medically. The technique has an excellent visual outcome and can be performed by the primary cataract surgeon himself at a primary care center with the available equipment and a minimal learning curve.[4]

Choice of IOL depends on the surgeons' expertise and previous exposure. Also, iris claw IOLs may be preferred in eyes with poorly dilating pupils without other iris deformities as in such cases, performing SFIOL becomes extremely difficult. Future randomized control trials are required with larger sample, better methodologies including serial ASOCT images and longer follow up to determine superiority of one IOL type over the other.

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