

Aphakic correction using retropupillary iris claw lens following a therapeutic keratoplasty

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ABSTRACT

Retropupillary iris claw lens implantation is a safe, simple, and effective alternative to anterior chamber or scleral-fixated intraocular lens implantation in post keratoplasty cases. We, hereby, report a case of retropupillary iris claw lens implantation for aphakia following a therapeutic keratoplasty. A 55-year-old male who had a large fungal keratitis underwent therapeutic keratoplasty, and subsequently, a retropupillary iris claw lens implantation. A 6-month follow-up showed a clear graft with stable iris claw lens and no comorbidities.

Key words: *Fungal keratitis, Iris-fixated intraocular lens, Therapeutic penetrating keratoplasty*

Intraocular lens implantation (IOL) in eyes with corneal pathology and insufficient posterior capsular support presents a surgical challenge. Iris-fixated intraocular lens appears to offer simplicity in implantation and may be combined with penetrating keratoplasty. It may be a safe and effective alternative to anterior chamber IOLs or scleral-fixated IOLs. The iris claw lens has the advantage that it can be fixated to the iris without sutures because the peripheral iris is incarcerated between the claws [1]. We report our experience of retropupillary fixation of iris claw lens for the correction of aphakia in an eye which underwent therapeutic penetrating keratoplasty for a large fungal keratitis.

CASE REPORT

A 55-year-old male patient came with chief complaints of whitening of the black part of the right eye associated with pain, redness, and watering since 5 days and a history of injury with wooden stick 5 days back. There was no history of any systemic diseases. On examination, visual acuity in the right eye was hand movements with circumcorneal congestion, dry looking grayish white ulcer of size 6 × 7 mm with feathery margins, deep stromal infiltrates encroaching the limbus with anterior chamber cells 3+ and flare 3+, sluggishly reacting pupil, and cataractous lens (Fig. 1). Corneal scraping of the ulcer revealed fungal filaments on grams stain and KOH mount. A diagnosis of fungal keratitis was made, and in view of large size and limbal involvement, an emergency therapeutic penetrating keratoplasty was planned.

During the surgery, after the corneal tissue was removed, due to positive vitreous up thrust, there was lens expulsion along with vitreous into the anterior chamber. We explanted the lens

along with capsular bag and performed anterior vitrectomy. A 9.5 mm large corneal graft was sutured with 10-0 nylon with 16 interrupted sutures, and the eye was left aphakic. On the first post-operative day, patient gained visual acuity of 2 m which improved to 6/60 with +12.00 D. Graft was clear, graft-host junction was well apposed, and all sutures were intact. He was prescribed topical natamycin eye drops every hourly and atropine eye drops every 6 hourly. After 2 weeks, the graft was clear with no recurrence of fungal infection. The intraocular pressure (IOP) and fundus were within normal limits. He was prescribed topical 1% prednisolone acetate 4 hourly.

At 6 weeks, visual acuity was 6/18 with +12.00 D with clear graft and aphakia. In view of the absence of capsular support, a retropupillary-fixed iris claw IOL implantation was planned. A superior corneoscleral tunnel was made, and vitrectomy was done through anterior approach and a peripheral iridectomy made at 10 O'clock position. Iris claw lens implantation was done with clawing the IOL at 3 and 9 O'clock positions. Scleral tunnel was sutured with 10-0 nylon and anterior chamber formed with air bubble. On the first post-operative day, visual acuity was 6/36 m with pinhole improving to 6/18. Graft was clear, flare and cells ++, deep anterior chamber, and IOL was in place. Topical 1% prednisolone acetate and 0.5% moxifloxacin were given 3 hourly. The patient was reviewed regularly every month for the next 6 months, and at the last follow-up, his best-corrected visual acuity was 6/12 with a clear graft, stable IOL, controlled IOP, and normal posterior segment (Fig. 2).

DISCUSSION

Artisan iris claw retropupillary-fixated aphakic IOLs have been shown to be safe for aphakia in general [2] and in aphakia with

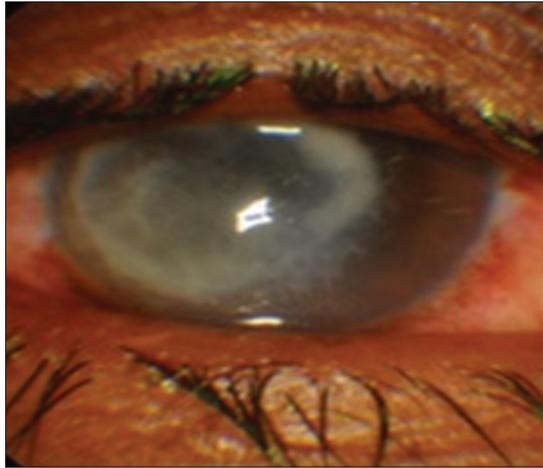


Figure 1: Large fungal corneal ulcer encroaching temporal limbus

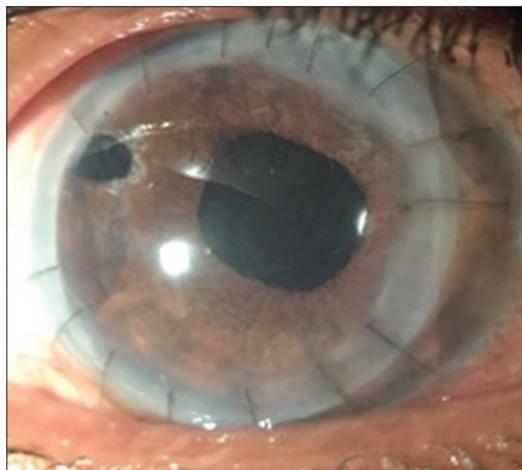


Figure 2: 6-month follow-up picture showing clear graft, iris claw lens *in situ*

keratoplasty [3] with insufficient capsular support. The refractive corrective options for this patient were anterior chamber, angle-supported IOL, which seem to be less harmful to the corneal endothelium than their predecessors, but they are still not ideal because of possible complications with respect to endothelial cell loss and secondary glaucoma [4,5]. Scleral-fixated posterior chamber IOL was also another option but was not considered because the learning curve for implanting transcleral sulcus-sutured IOLs, especially during open-sky surgery, is long and steep. Their complications include chronic inflammation, IOL-iris contact, pigment dispersion, vitreous incarceration, and cystoid macular edema [6]. Anterior iris-fixated IOL was not considered on account of possible endothelial cell loss in general [7] and particularly in cases of post-penetrating keratoplasty [8].

Current-generation refractive, iris-fixated, retropupillary IOLs leave enough space between themselves and the endothelium to avoid harming the endothelium in phakic and aphakic eyes after a penetrating keratoplasty [9]. This IOL is clawed onto the mid-peripheral iris behind the pupil in the posterior chamber. They have previously been used in combination with keratoplasty for the surgical management of aphakic bullous keratopathy [10] and for the correction of high myopia after penetrating keratoplasty [11]. The retropupillary fixated IOL also does not prevent pupil dilation for posterior segment examination and treatment purposes. Our case shows that long-term follow-up of this IOL is predictable with a successful outcome. It is easy, quick, and effective alternative to scleral-fixated or glued IOL in the management of aphakia in general and aphakia with keratoplasty.

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