

## ORIGINAL RESEARCH

# A comparative evaluation of retropupillary iris claw and scleral-fixated intraocular lens in the management of post-cataract aphakia

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### ABSTRACT

**Background:** The lack of the eye's lens is known as aphakia. Surgery is used to fix it. Over time, a number of surgical techniques have been developed to treat aphakia. The present study compared retropupillary iris claw and scleral fixated intraocular lens in the management of post cataract aphakia. **Materials & Methods:** 104 patients of aphakia of both genders were classified into 2 groups of 52 each. Group I patients underwent retropupillary iris claw fixation and group II patients underwent scleral-fixated intraocular lens surgery. Both groups had their preoperative corneal oedema, preoperative retinal pathology, preoperative uncorrected distance visual acuity (UCDVA), best corrected distance visual acuity (BCDVA), interval between cataract surgery and IOL, and other parameters documented. **Results:** There were 32 males and 20 females in group I and 24 males and 28 females in group II. IOL placed at time of cataract surgery was seen in 34 in group I and 10 in group II. Interval between cataract surgery and IOL was 15 months in group I and 7.2 months in group II. Preoperative retinal pathology was seen in 15 in group I and 8 in group II. Preoperative corneal edema was seen in 15 in group I and 9 in group II. The mean preoperative UCDVA was 1.58 in group I and 1.77 in group II. The difference was significant ( $P < 0.05$ ). UCDVA at 1 month in group I was 0.8 and in group II was 0.6. BCDVA at 1 month was 0.9 in group I and 0.6 in group II. UCDVA at 1 year was 0.8 in group I and 0.5 in group II. BCDVA at 1 year was 0.9 in group I and 0.3 in group II. The difference was non-significant ( $P < 0.05$ ). **Conclusion:** Claw of the retropupillary iris for the visual rehabilitation of post-cataract aphakia, the IOL fixation approach is comparable to SFIOL.

**Keywords:** Aphakia, Cataract, Retropupillary iris claw

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### INTRODUCTION

The lack of the eye's lens is known as aphakia. Surgery is used to fix it.<sup>1</sup> Over time, a number of surgical techniques have been developed to treat aphakia.<sup>2,3</sup> Scleral fixated intraocular lenses (SFIOLs) and open loop anterior chamber intraocular lenses (IOLs) are commonly used techniques.<sup>4</sup> The former has a few drawbacks, including the development of secondary glaucoma, corneal endothelial decompensation, and cystoid macular edema (CME). However, SFIOLs produce better outcomes. The SFIOL is sutured using non-absorbable sutures.<sup>5</sup> Aphakia can now be treated with a novel procedure called suture-less scleral fixation. This secures the exteriorized haptics beneath the scleral flaps using a three-piece IOL.<sup>4</sup> There is a wealth of information

accessible regarding IOL attachment to the iris.<sup>6</sup> Anterior chamber IOLs, like the Binkhorst lens, are crucial because they secure the haptics to the iris's anterior surface. The IOL haptics are additionally sutured to the iris using non-absorbable sutures. The outcomes of retropupillary fixation of the iris claw lenses are relatively good, and the procedure is simple.<sup>7</sup> This technique reduces the risk of corneal endothelium damage, although it cannot totally prevent problems like glaucoma and pupillary abnormalities. This approach worked better for aphakia situations.<sup>8</sup> The present study compared retropupillary iris claw and scleral-fixated intraocular lens in the management of post-cataract aphakia.

## MATERIALS & METHODS

The present study consisted of 104 patients of aphakia of both genders. All gave their written consent to participate in the study.

Data such as name, age, gender etc. were recorded. All patients were classified into 2 groups of 52 each. Group I patients underwent retropupillary iris claw fixation and group II patients underwent

scleral-fixated intraocular lens surgery. Both groups had their preoperative corneal oedema, preoperative retinal pathology, preoperative uncorrected distance visual acuity (UCDVA), best corrected distance visual acuity (BCDVA), interval between cataract surgery and IOL, and other parameters documented. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

## RESULTS

**Table I Distribution of patients**

Groups	Group I	Group II
Method	retropupillary iris claw fixation	scleral-fixated intraocular lens surgery
M:F	32:20	24:28

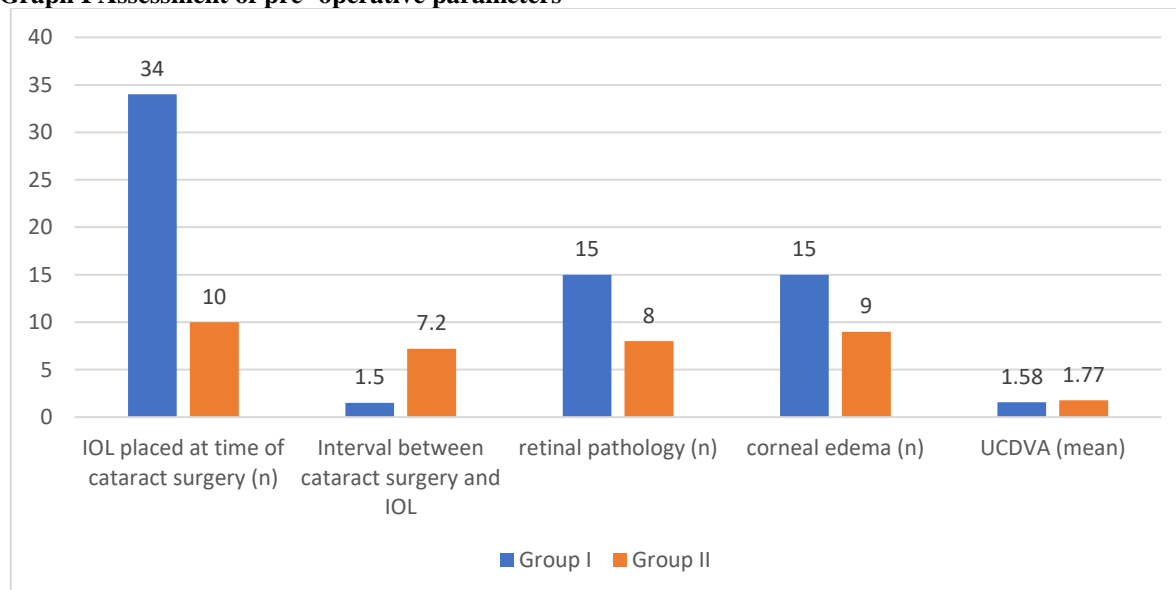
Table I shows that there were 32 males and 20 females in group I and 24 males and 28 females in group II.

**Table II Assessment of pre-operative parameters**

Parameters	Group I	Group II	P value
IOL placed at time of cataract surgery (n)	34	10	0.02
Interval between cataract surgery and IOL	1.5	7.2	0.01
retinal pathology (n)	15	8	0.04
corneal edema (n)	15	9	0.01
UCDVA (mean)	1.58	1.77	0.83

Table II, graph I shows that IOL placed at time of cataract surgery was seen in 34 in group I and 10 in group II. Interval between cataract surgery and IOL was 15 months in group I and 7.2 months in group II. Preoperative retinal pathology was seen in 15 in group I and 8 in group II. Preoperative corneal edema was seen in 15 in group I and 9 in group II. The mean preoperative UCDVA was 1.58 in group I and 1.77 in group II. The difference was significant ( $P < 0.05$ ).

**Graph I Assessment of pre-operative parameters**



**Table III Assessment of post-operative parameters**

Parameters	Group I	Group II	P value
UCDVA at 1 month	0.8	0.6	0.25
BCDVA at 1 month	0.9	0.6	0.05
UCDVA at 1 year	0.8	0.5	0.81
BCDVA at 1 year	0.9	0.3	0.02

Table III shows that UCDVA at 1 month in group I was 0.8 and in group II was 0.6. BCDVA at 1 month was 0.9 in group I and 0.6 in group II. UCDVA at 1 year was 0.8 in group I and 0.5 in group II. BCDVA at 1 year was 0.9 in group I and 0.3 in group II. The difference was non-significant ( $P < 0.05$ ).

## DISCUSSION

Special techniques are required for the insertion of posterior chamber intraocular lenses (IOLs).<sup>9</sup> Among the methods that frequently show improved outcomes in the treatment of aphakia include angle-supported anterior chamber intraocular lenses, scleral fixation posterior chamber intraocular lenses, and retropupillary iris-claw IOLs.<sup>10,11</sup> Angle-supported lenses clearly result in fewer problems, including cystoid macular edema (CME), secondary glaucoma, and corneal edema.<sup>12,13</sup> Similar to this, SF-PCIOL implantation is a challenging technique due to its long operating time and other disadvantages, including IOL tilt, decentration, displacement into the vitreous cavity, choroidal hemorrhage, retinal detachment, CME, and conjunctival erosion. Iris-claw IOLs produce better visual results.<sup>14,15</sup> The present study compared retropupillary iris claw and scleral-fixed intraocular lens in the management of post-cataract aphakia.

We found that there were 32 males and 20 females in group I and 24 males and 28 females in group II. IOL placed at time of cataract surgery was seen in 34 in group I and 10 in group II. Fouda et al<sup>16</sup> evaluated the safety and efficacy of retropupillary fixation of an iris-claw intraocular lens (IOL; Verisyse polymethyl methacrylate IOL, Abbott Medical Optics [AMO], Netherlands) for the surgical correction of aphakia in microspherophakic eyes without sufficient capsular support. Eight patients had familial microspherophakia and one patient had Marfan's syndrome. Eighty-two percent of the cases achieved a visual acuity of 0.3 or better. There was no significant postoperative inflammatory reaction. Transient elevation of IOP was recorded in two cases in the 1st week only. One IOL developed disengagement of one of the haptics from the iris and was successfully re-engaged. All the other IOLs were well centered and stable. The mean surgical time was  $18.0 \pm 4.5$  min.

We observed that interval between cataract surgery and IOL was 15 months in group I and 7.2 months in group II. Preoperative retinal pathology was seen in 15 in group I and 8 in group II. Preoperative corneal edema was seen in 15 in group I and 9 in group II. The mean preoperative UCDVA was 1.58 in group I and 1.77 in group II. UCDVA at 1 month in group I was 0.8 and in group II was 0.6. BCDVA at 1 month was 0.9 in group I and 0.6 in group II. UCDVA at 1 year was 0.8 in group I and 0.5 in group II. BCDVA at 1 year was 0.9 in group I and 0.3 in group II. Madhivanan et al<sup>17</sup> conducted a study in which 46% (48) eyes were fixated with retropupillary iris claw IOL method and in 56 eyes SFIOL was the treatment performed. Iris claw was done in 56% at the time of primary cataract surgery as compare to 14% in which SFIOL was done. Results showed that BCDVA was relatively better than SFIOL group at 1 month follow-up but this difference did not persist at 1 year ( $0.4 \pm 0.4$  logMAR in iris claw vs.  $0.3 \pm 0.2$  logMAR in SFIOL,  $P = 0.56$ ). Eyes with iris claw IOL

experienced significantly more postoperative iritis seen in 17%, intraocular pressure spikes in 10% and ovalization of the pupil in 16%.

## CONCLUSION

Authors found that claw of the retropupillary iris for the visual rehabilitation of post-cataract aphakia, the IOL fixation approach is comparable to SFIOL.

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