Original Article

Incidence of Glaucoma after Combined Descemet's Stripping Endothelial Keratoplasty and Retropupillary Fixated Iris-Claw Lens

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Abstract

Purpose: To assess the incidence of glaucoma after combined Descemet's stripping endothelial keratoplasty (DSEK) and retropupillary fixated iris-claw intraocular lens (IOL) implantation in the patients with bullous keratopathy (BK) who required secondary IOL or IOL exchange.

Methods: In this retrospective case series, medical records of 22 patients who underwent combined DSEK and retropupillary fixated iris-claw IOL implantation were evaluated. Preoperative vision, intraocular pressure (IOP), postoperative IOP at different time periods, and intraoperative and postoperative complications were analyzed.

Results: A total of 22 eyes of 22 patients (7 females and 15 males) were analyzed. The median age was 62 years, and the median duration of the postoperative follow-up was 106.5 days. The corrected distance visual acuity improved from a median of 1.85 logMAR to 1.68 logMAR. None of the patients had intraoperative complications. Three patients (13.6%) had dislocation of the donor tissue on the 1st postoperative day and were successfully rebubbled. Six eyes (27.3%) had graft failure and required penetrating keratoplasty. Eleven eyes (50%) had a sustained rise in the IOP, of which 2 (9.09%) had ocular hypertension and 9 eyes (40.9%) progressed to glaucoma.

Conclusions: DSEK combined with retropupillary fixated iris-claw lens is a good surgical option for the management of aphakic/pseudophakic BK in patients who require secondary IOL or IOL exchange. Regular IOP monitoring after the surgery is an essential, as there is a risk of IOP rise and glaucoma in the postoperative period. Clinicians should be vigilant and control the IOP to prevent glaucoma progression.

Keywords: Aphakia, Bullous keratopathy, Descemet's stripping endothelial keratoplasty, Glaucoma, Iris-claw intraocular lens, Secondary intraocular lens

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Introduction

Cataract surgery can accelerate the onset of corneal edema in patients with low endothelial counts, such as in patients with Fuchs endothelial dystrophy, iridocorneal endothelial syndrome, or endothelial inflammatory diseases as a result of iatrogenic surgical trauma. Correction of aphakia in the eyes with corneal endothelial decompensation and no capsular support or those requiring secondary intraocular lens (IOL) implantation or an IOL exchange poses a surgical challenge and has a significant risk of developing complications.[1,2] Surgical options to correct aphakia include anterior chamber IOL (AC-IOL),[3] scleral-fixated IOL,[4] or retropupillary iris-fixated and posterior chamber IOL (PC-IOL).[5]

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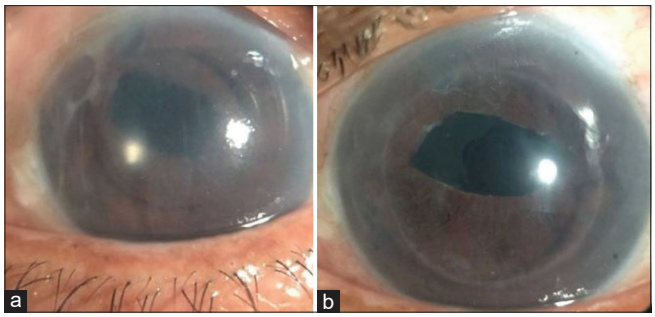

Figure 1: (a) Preoperative slit-lamp photograph showing corneal stromal edema and the presence of an anterior chamber intraocular lens. (b) Postoperative slit-lamp photograph, 4 months after the surgery, shows an attached and clear Descemet's stripping endothelial keratoplasty graft and a well-centered retropupillary iris-claw intraocular lens

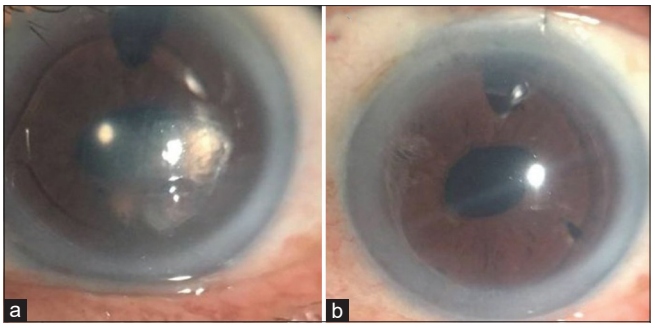

Figure 2: (a) Preoperative slit-lamp photograph showing corneal edema with Descemet's membrane folds, and a posterior chamber intraocular lens in the anterior chamber. (b) Postoperative slit-lamp photograph showing clear cornea, clear Descemet's stripping endothelial keratoplasty graft with a retropupillary fixed iris-claw lens *in situ*

Bullous keratopathy (BK) after complicated cataract surgery is commonly associated with aphakia, IOL dislocations, or placement of an AC-IOL after unplanned intracapsular cataract extraction. Corneal endothelial decompensation and aphakia can be managed by penetrating keratoplasty (PK) combined with angle-supported AC-IOL,[6] scleral-fixated IOL,[7-10] or retropupillary iris-claw IOL.[11-14] Descemet's stripping endothelial keratoplasty (DSEK) has replaced PK as a primary surgical treatment for the management of endothelial diseases, such as Fuchs dystrophy and pseudophakic BK (PBK) or aphakic BK (ABK) and endothelial graft failure, as it has lower graft rejection and faster visual recovery.[15]

There are a few reports in the literature where combined DSEK and iris-fixated, PC-IOL was performed in the patients with aphakia and corneal edema.[16-18]

We describe the incidence of glaucoma in the patients who were managed with simultaneous DSEK and a retropupillary fixated iris-claw IOL procedure in the eyes with ABK/PBK, who required secondary IOL/IOL exchange.

Methods

A retrospective chart review of the medical records of all the consecutive cases of DSEK and iris-claw PC-IOL implantation was carried out. All the surgeries were performed between September 2017 and December 2020 by a single surgeon. Internal Anand Eye Institute Review Board approval was obtained, and the study was carried out in accordance with the tenets of the Declaration of Helsinki for research involving human subjects.

All patients had given written informed consent for the surgery. Inclusion criteria were all the eyes that underwent DSEK and iris-claw PC-IOL implantation for ABK or PBK and that required secondary IOL or IOL exchange. Patients who had undergone DSEK and iris-claw PC-IOL implantation concurrent with vitreoretinal surgery (for retinal detachment) or glaucoma shunt implant or those who underwent DSEK with PC-IOL implantation in sulcus were excluded. Data were collected on indication for surgery, preoperative and postoperative evaluations including corrected distance visual acuity (CDVA), slit-lamp examination, fundus examination, preoperative B-scan, preoperative and postoperative intraocular pressure (IOP) at the follow-up visits, measured with Goldmann applanation tonometry (GAT), intraoperative complications, gonioscopy (wherever performed and feasible), optic disc findings, number of antiglaucoma medication (AGM) required, and surgery required to control the IOP. Ocular pathology and comorbidities were also noted.

Iris-claw lens (Excelens, PIC 5580 model; Excel optics [P] Limited, Chennai, Tamil Nadu, India) is a monofocal, single-piece biconvex poly methyl methacrylate IOL, 8 mm in length and has an optical zone of 5.5 mm. The haptics have fine fissures, in which the iris tissue is enclaved. IOL power was calculated using Sanders-Retzlaff-Kraff T formula, with a constant of 117.2, as per the manufacturer's recommendation.

Surgical technique

All procedures were performed by one experienced surgeon (A.S.) using the same surgical protocol in all cases. Under peribulbar anesthesia, the host corneal epithelium was debrided. A superior, sclera-corneal tunnel incision was used to explant the AC-IOL, and a 20-gauge vitrector was used to perform anterior vitrectomy. Cases with posterior-dislocated IOL underwent three-port pars plana vitrectomy and retrieval of IOL from the vitreous. Iris-claw IOL was introduced, manipulated to align the long axis horizontally, and enclaved behind the iris at 3 and 9 o'clock position. A peripheral iridectomy was performed. The donor corneal tissue in each case was precut in the eye bank using an automated microkeratome system. Standard criteria for the selection of corneal tissue for endothelial keratoplasty were followed. Central descemetorhexis of 7.5 mm diameter was done. An 8 mm diameter donor lenticule was trephined, pushed into the AC over a lens glide, manipulated into an appropriate position, and positioned with an air bubble placed in the AC. After centering the graft, the AC was completely filled with air. After 10 min, the air bubble was reduced to approximately 80% of the size of the endothelial graft. The scleral wound was sutured with 10-0 nylon sutures, and a bandage contact lens (BCL) was placed at the end of the surgery.

Postoperatively, all the patients were prescribed topical prednisolone acetate 1% starting with 8 times/day and gradually tapered to twice daily over 9 months and moxifloxacin 0.5% four times/day, which tapered over 6 weeks. Patients were asked to come for follow-up at 1 day, 1 week, 1 month, and subsequently at 2 monthly intervals. BCL was removed after a week following the surgery. If any patient was noted to have a rise in the IOP ≥22 mmHg, they were switched over to topical 0.5% loteprednol etabonate or fluorometholone, and AGM was added to the medical regimen for the management of raised IOP. Glaucoma diagnosis was made based on IOP ≥22 mmHg, glaucomatous optic nerve damage (documented increase in the cup-to-disc ratio, neuroretinal rim thinning), and corresponding visual field defect on Swedish interactive threshold algorithm standard, 24–2 Humphrey visual field.

Statistical analysis was performed using the SPSS version 16 (SPSS/IBM Inc., Chicago, Illinois, USA). Snellen's CDVA was converted to logMAR to allow averaging for the analysis. Kolmogorov–Smirnov test was used to test the distribution of continuous variables. As none of the measures followed a normal distribution, descriptive statistics included median and interquartile range (IQR) for the nonnormally distributed variables. Wilcoxon signed-rank test was used to compare preoperative and postoperative variables.

Results

Of the 22 patients analyzed, 15 were male and 7 were female. The median age was 62 years (IQR: 60, 73.75), and the median duration of the postoperative follow-up was 106.5 days (IQR: 35, 423.75), of which six patients had regular follow-up till 3 years. The median duration between primary cataract surgery and DSEK combined with iris-claw IOL was 18 (IQR: 7, 90) months [Table 1].

Patient's ocular pathologies and comorbidities are presented in Table 2. Table 3 shows the patient's characteristics, preoperative and postoperative visual outcomes, IOP, and AGM required postoperatively.

The most frequent indication for the surgery was PBK ($n = 12$), of which 11 eyes had AC-IOL [Figure 1a] and one eye had PC-IOL in the AC [Figure 2a]. Six eyes had ABK, and four eyes had ABK and posterior IOL dislocation.

Postsurgical median CDVA improved to 1.68 logMAR (IQR: 0.95, 1.81) when compared with the presurgical median CDVA of 1.85 logMAR (IQR: 1.75, 2) ($P = 0.03$). The median preoperative IOP was 12 mmHg (IQR: 12, 14), and the median postoperative IOP was 18 mmHg (IQR: 12, 20). The median postoperative IOP did not change significantly compared to preoperative IOP in all the patients ($P = 0.06$). The mean IOP change was −5.8 ± 10.82 mmHg on comparing preoperative IOP to the IOP recorded at the last follow-up visit.

Preoperatively, only one eye (case 21) had raised IOP and was started on dorzolamide timolol fixed drug combination twice daily and oral acetazolamide thrice daily till the surgery was performed. Case 2 developed raised IOP and secondary glaucoma postoperatively but developed retinal detachment during the follow-up, and at the last follow-up visit, the eye was digitally soft and the IOP was not recordable on GAT as it was <0 mmHg [Table 3]. Eleven eyes (50%) had a sustained rise in the IOP, of which 2 eyes (9.1%) had ocular hypertension and 9 eyes (40.9%) showed progression to glaucoma. Of these, nine eyes had the IOP controlled with AGM, and 2 eyes required Ahmed glaucoma valve implantation for control of IOP, as these patients were noncompliant with the AGM. Gonioscopy was not performed preoperatively because of bullous keratopathy which precluded visualization of angle structures. Postoperatively in the 11 eyes which developed raised IOP, gonioscopic data were available for the five patients, of which four eyes had documented open angles in all the quadrants and one eye had three-quadrant synechial angle closure. In six patients, gonioscopy was not performed as they had developed graft edema which hampered visualization of angle structures.

Table 1: Descriptive analysis of the study participants

	Median (first-third quartile)
Age (years)	62 (60-73.7)
Preoperative corrected visual acuity (logMAR)	1.85 (1.75-2)
Postoperative corrected visual acuity (logMAR)	1.68 (0.95-1.81)
Preoperative intraocular pressure (mmHg)	12 (12-14)
Postoperative intraocular pressure (mmHg)	18 (12-20)
Postoperative cup-disc-ratio	0.7 (0.5-0.8)
Preoperative antiglaucoma medications	0 (0-0)
Postoperative antiglaucoma medications	0 (0-1.75)
Follow-up duration (days)	106.5 (35.25-423.75)
Postoperative central corneal thickness (μm)	613 (554-628)
Duration between cataract surgery and DSEK and iris-claw IOL surgery (months)	18 (7-90)
Axial length (mm)	23.1 (22.28-23.8)
Anterior chamber depth (mm)	2.9 (2.87-3.45)
IOL power (diopter)	21.25 (20.5-22.38)

DSEK: Descemet's stripping endothelial keratoplasty, IOL: Intraocular lens

None of the patients had intraoperative complications. Three patients (13.6%) presented with a dislocation of the donor tissue, which occurred on the 1st postoperative day and was successfully rebubbled. During the follow-up period, six eyes (27.3%) had graft failure, of which one eye had perforated corneal ulcer, and all these eyes required PK. Endothelial cell density data were not available for any of the patients. However, clinically, 16 eyes had clear corneal lenticule and well-positioned iris-claw IOL at the last follow-up visit [Figures 1b and 2b].

None of the factors such as axial length ($P = 0.6$), AC depth ($P = 0.2$), IOL power ($P = 0.14$), or duration between surgeries ($P = 0.36$) predicted postoperative rise in IOP. Figure 3 shows the Kaplan–Meier plot with the percentage of eyes that had a raised IOP, as defined by the study criteria.

Table 2: Indications for surgery and ocular pathology in the patients, who underwent Descemet's stripping endothelial keratoplasty and retropupillary iris-claw intraocular lens implantation

Age/ gender	Eye (RE/LE)	Indication for surgery	Surgery performed	Postoperative complications	Additional surgery required during follow-up
52/ male	LE	ABK (3 months after complicated cataract surgery)	DSEK+retropupillary iris-claw IOL	Secondary glaucoma	AGV (2 months after surgery)
74/ male	LE	ABK+posterior IOL dislocation (1 year after complicated cataract surgery)	PPV+IOL removal+DSEK+retropupillary iris-claw IOL	Secondary glaucoma/ later perforated corneal ulcer/retinal detachment	Graft rebubble and later therapeutic penetrating keratoplasty (3 years after surgery)
65/ female	RE	PBK (AC-IOL) (8 years after complicated cataract surgery)	IOL explantation+DSEK+retropupillary iris-claw IOL	Secondary glaucoma/graft failure	Penetrating keratoplasty (4 years after surgery)
61/ male	RE	PBK+subluxated PC-IOL (1 year after complicated cataract surgery)	IOL explantation+DSEK+retropupillary iris-claw IOL	Secondary glaucoma	
61/ female	RE	ABK (9 years after complicated cataract surgery)	DSEK+retropupillary iris-claw IOL	Secondary glaucoma	
60/ female	LE	PBK (AC-IOL) (6 years after complicated cataract surgery)	IOL explantation+DSEK+retropupillary iris-claw IOL	Secondary glaucoma/graft edema	Rebubble
76/ female	LE	PBK (AC-IOL) (16 years after complicated cataract surgery)	IOL explantation+DSEK+retropupillary iris-claw IOL		
56/ male	LE	PBK (AC-IOL) (1 year after complicated cataract surgery)	IOL explantation+DSEK+retropupillary iris-claw IOL		
68/ male	LE	PBK (AC-IOL) (5 years after complicated cataract surgery)	IOL explantation+DSEK+retropupillary iris-claw IOL		
63/ female	RE	ABK+posterior IOL dislocation (1 month after complicated cataract surgery)	PPV+IOL removal+DSEK+retropupillary iris-claw IOL		
75/ male	RE	PBK (AC-IOL) (10 months after complicated cataract surgery)	AC-IOL explantation+DSEK+retropupillary iris-claw IOL	Secondary glaucoma/ CNVM	
60/ female	RE	ABK (6 months after complicated cataract surgery)	DSEK+retropupillary iris-claw IOL		
51/ male	RE	ABK (1 year after complicated cataract surgery)	DSEK+retropupillary iris-claw IOL		
64/ male	LE	ABK+posterior lens dislocation (3 years after complicated cataract surgery)	PPV+IOL removal+DSEK+retropupillary iris-claw IOL	OHT/graft failure	Rebubble and later penetrating keratoplasty (1 month after surgery)
60/ male	RE	PBK+PC-IOL in anterior chamber (3 years after complicated cataract surgery)	IOL explantation+DSEK+retropupillary iris-claw IOL	OHT	
61/ male	LE	PBK (AC-IOL) (8 years after complicated cataract surgery)	AC-IOL explantation+DSEK+retropupillary iris-claw IOL	Foveal atrophy	
76/ male	LE	ABK (2 months after complicated cataract surgery)	DSEK+retropupillary iris-claw IOL		
73/ male	RE	ABK+posterior IOL dislocation (2 months after complicated cataract surgery)	PPV+IOL explantation+DSEK+retropupillary iris-claw IOL		
61/ female	LE	PBK (AC-IOL) (4 months after complicated cataract surgery)	AC-IOL explantation+DSEK+retropupillary iris-claw IOL	Failed graft	Penetrating keratoplasty (1 month after surgery)
76/ male	LE	PBK (AC-IOL) (2 years after complicated cataract surgery)	AC-IOL explantation+DSEK+retropupillary iris-claw IOL	Secondary glaucoma/ failed graft	Penetrating keratoplasty/ AGV (3 months after surgery)
43/ male	LE	PBK (AC-IOL)+secondary glaucoma (20 years after complicated cataract surgery)	AC-IOL explantation+DSEK+retropupillary iris-claw IOL	Secondary glaucoma/ failed graft	Penetrating keratoplasty (1 year after surgery)

Contd...

Table 2: Contd...

Age/ gender	Eye (RE/LE)	Indication for surgery	Surgery performed	Postoperative complications	Additional surgery required during follow-up
84/ male	LE	ABK (15 years after complicated cataract surgery)	DSEK+retropupillary iris-claw IOL		

RE: Right eye, LE: Left eye, ABK: Aphakic bullous keratopathy, PBK: Pseudophakic bullous keratopathy, IOL: Intraocular lens, AC-IOL: Anterior chamber intraocular lens, PC-IOL: Posterior chamber intraocular lens, PPV: Pars plana vitrectomy, CNVM: Choroidal neovascular membrane, OHT: Ocular hypertension, AGV: Ahmed glaucoma valve, DSEK: Descemet's stripping endothelial keratoplasty

Table 3: Preoperative and postoperative corrected distance visual acuity and intraocular pressure of the patients who underwent Descemet's stripping endothelial keratoplasty and retropupillary iris-claw intraocular lens implantation

Age/ gender	Eye (RE/LE)	Preoperative CDVA	Postoperative CDVA at the last follow-up visit	Preoperative intraocular pressure (mmHg)	Postoperative intraocular pressure (mmHg) at the last follow-up visit	Postoperative antiglaucoma medications	Glaucoma surgery advised
52/male	LE	PL accurate	HM	12	38	Timolol maleate/ brimonidine tartrate/ dorzolamide hydrochloride/travoprost	AGV
74/male	LE	6/60	PL accurate	16	Digitally soft (not recordable on GAT)	Timolol maleate/ brimonidine tartrate/ dorzolamide hydrochloride/travoprost/ tablet acetazoamide	
65/female	RE	HM	6/18	Not recorded	12	Timolol maleate/ brimonidine tartrate	
61/male	RE	CF 0.5 m	CF 3 m	12	20	Brimonidine tartrate/ brinzolamide/travoprost	
61/female	RE	CF CF	CF 3 m	14	20	Timolol maleate/ brimonidine tartrate	
60/female	LE	6/24	6/18	10	10	Timolol maleate/ brimonidine tartrate/ dorzolamide hydrochloride	
76/female	LE	CF 0.5 m	6/36	10	12		
56/male	LE	CF 2 m	6/60	12	12		
68/male	LE	CF 0.5 m	6/36	14	20		
63/female	RE	CF 1 m	CF 1 m	14	10		
75/male	RE	CF 0.5 m	CF 1 m	12	14	Travoprost	
60/female	RE	HM	6/24	16	12		
51/male	RE	CF 1 m	CF 1 m	8	10		
64/male	LE	CF CF	CF 1.5 m	Not recorded	20	Timolol maleate	
60/male	RE	CF CF	CF 1 m	12	22	Timolol maleate/ brimonidine tartrate	
61/male	LE	CF CF	CF 3 m	9	18		
76/male	LE	CF 1 m	CF 1 m	16	18		
73/male	RE	CF CF	CF 1.5 m	14	18		
61/female	LE	CF 1.5 m	HM	12	18		
76/male	LE	CF 1 m	HM	18	38	Timolol maleate/ brimonidine tartrate/ tablet acetazolamide	AGV
43/male	LE	CF CF	CF CF	40	18	Timolol maleate/ brimonidine tartrate/ dorzolamide hydrochloride	
84/male	LE	PL accurate	HM	12	12		

RE: Right eye, LE: Left eye, CDVA: Corrected distance visual acuity, PL: Projection of light, HM: Hand motion, CF: Counting fingers, CF CF: Counting fingers, close to face, AGV: Ahmed glaucoma valve, GAT: Goldmann applanation tonometry

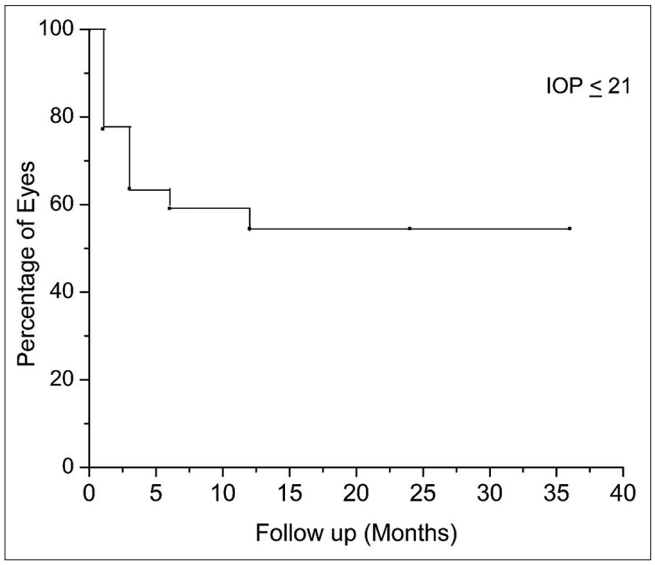

Figure 3: Kaplan–Meier plot showing the percentage of eyes that had raised intraocular pressure (mmHg) after the surgery

Discussion

In our study, we describe good visual outcomes after retropupillar iris-claw IOL implantation and DSEK. To the best of our knowledge, this is the largest case series of DSEK and concurrent retropupillary iris-claw IOL implantation with a long duration of follow-up. We did not observe any cases of IOL dislocation or decentration in the postoperative period. Postoperative complications included graft detachment in three eyes (13.6%) and were successfully reattached with a rebubbling procedure. Six eyes (27.3%) had graft failure and required PK.

Wylegala and Tarnawska[1] published a case series of 11 eyes that had undergone DSEK combined with AC-IOL removal and scleral-fixated IOL implantation. They noted a 27% graft dislocation rate with no primary graft failures and a mean endothelial cell loss of 36%.

Retropupillary iris-fixated IOL implantation is an alternative to scleral-fixated IOL implantation in aphakic patients without capsular support, as it is technically more challenging, whereas iris-fixated IOL implantation seems to have a short learning curve and relatively easy to perform for these eyes.[5]

In 2011, Karimian and Sadoughi[17] first reported a novel procedure of DSEK with posterior iris-claw IOL implantation in ABK and PBK. There are few data in the literature on DSEK with simultaneous iris-claw IOL implantation.[16-18] Vélez *et al*.[16] reported a case series of nine eyes (mean age, 72.1 years) with ABK that had undergone concurrent retropupillary iris-claw IOL implantation (Artisan; Ophtec, Groningen, The Netherlands) and DSEK. They reported a mean postoperative CDVA of 0.60 logMAR, 14.3% graft dislocation rate, and no significant endothelial cell loss between the 1st month and 6th month after the surgery. In their case series, none of the patients developed postsurgical ocular hypertension, over a mean follow-up duration of 7.7 months. Cagini *et al*.[18] reported good surgical outcomes in the three cases of simultaneous DSEK and aphakic iris-fixated IOL implantation in patients with ABK.

Various mechanisms can cause IOP elevation after DSEK surgery, such as preexisting glaucoma, retained viscoelastics, steroid responder, damage to trabecular outflow mechanisms, loss of angle support, and synechial angle closure. In our study, only one patient had preexisting glaucoma, preoperative gonioscopy was not performed because of BK, and postoperatively, one patient (out of 4) had synechial angle closure. Unfortunately, gonioscopic data were not available for 18 eyes. Previous study has demonstrated a role of steroid-induced IOP elevation following DSEK.[19] We postulate that steroid-induced glaucoma could be the major reason for IOP elevation in our study. Our patients were treated with topical prednisolone acetate for 1 year, as long as no steroid-induced IOP elevation occurred, and switched over to less potent topical loteprednol etabonate or fluorometholone. AGM was added to the medical regimen for the management of raised IOP. As a peripheral iridectomy was performed in all the eyes, we did not find any case of secondary pupillary block glaucoma in our study. Eleven eyes (50%) had a sustained rise in the IOP, and 9 eyes (40.9%) progressed to glaucoma. Of these, nine eyes had IOP controlled with AGM, and 2 eyes required Ahmed glaucoma valve implantation, at 2 and 3 months, respectively, after the surgery.

These two patients had irregular follow-up and were noncompliant with AGM. The measurement of IOP has been an additional critical point in cases of BK, as precise measurement of the IOP with GAT was not possible preoperatively because of corneal irregularity and increased corneal thickness, which can influence the validity of GAT measurement.

Limitations of our study include its retrospective design, lack of control group (as it was a noncomparative study), variable duration of follow-up, and the corneal endothelial cell density was not measured for any of the patients. Although limited by its noncomparative, retrospective design, this series provides valuable information on 22 eyes with retropupillary iris-fixated IOL implanted concurrent with DSEK, for visual rehabilitation. Our follow-up rate was approximately 60% at 1 year and 27% at 3 years which is more than the other reported case series, although a greater long-term follow-up would have been desirable. However, a significant proportion of the patients in this series were referred from outstation and returned to have follow-up with the primary surgeon.

Although the air bubble management and graft unfolding after donor insertion can prove to be technically challenging, DSEK combined with a retropupillary fixated iris-claw lens is a feasible option for the management of ABK/PBK, who require secondary IOL or IOL exchange. Our study shows the need for regular IOP monitoring after the surgery, and one must be aware of high incidence of IOP rise and glaucoma in the

postoperative period and need for clinician to be vigilant and educate the patients regarding the same.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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