OUR EXPERIENCE IN PC IOL IMPLANTATION IN CASES OF POSTERIOR CAPSULAR BREAKS

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ABSTRACT

We implanted posterior chamber intra ocular lenses (PC IOL) in 107 eyes with posterior capsular breaks. Left over posterior capsular frill at the periphery was used to hold and support the PC IOL. After a median follow up of 2.5 years, 96.9% of the patients who developed per operative posterior capsular break and 67.56% who had pre-existing capsular breaks achieved 6/12 or better visual acuity. Remaining 32.44% of the patients with pre-existing capsular break due to previous surgical intervention or trauma achieved 6/18 or worse visual acuity.

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KEY WORDS : Posterior capsular break; Posterior chamber intra-ocular lens (PC IOL); Capsular frill; Vitrectomy.

Introduction

PCIOL implantation is the greatest breakthrough in the modern management of cataract. Posterior capsular break with vitreous disturbance during cleaning of capsular bag is a dreaded complication of IOL surgery [1]. A sizeable frill of capsule is however left in the periphery in these eyes and also in the eyes with posterior capsular break due to trauma having traumatic cataracts [2]. The peripheral capsular frill, even if concealed behind iris is adequate to hold, glide and slide haptic of IOL into sulcus. We report our experience at Army Hospital Delhi Cantt.

Material and Methods

The cases were divided into two groups.

- I. *Primary Procedure* : There were 33 eyes where inadvertent rupture of the posterior capsule occurred with vitreous disturbance during extra-capsular cataract extraction (ECCE) with PC IOL implantation surgery or who had congenitally deficient posterior capsules with congenital/developmental cataracts.
- II. *Secondary Procedure* : There were 74

eyes in which IOL implantation was attempted at peripheral centres but abandoned as they developed posterior capsular breaks. 20 eyes had traumatic cataracts and 54 eyes senile cataracts. All the 74 eyes had pupillary distortion. In 66 vitreous was present in anterior chamber and 15 had corneal opacities.

Patients with dense corneal opacities in pupillary area, corneal endothelial cell count less than 1200 cells/mm² and secondary glaucoma were excluded from the study.

The eyes were examined for size and margins of the capsular break under microscope, consistency of vitreous i.e., formed or fluid, any residual lens matter in the anterior chamber, presence of opaque membrane with posterior capsular rent to consider the surgical enlargement of rent. In traumatic cataracts ultrasonography (USG) was done routinely for posterior segment evaluation to rule out associated vitreous haemorrhage, retinal detachment etc.

In cases of posterior capsular breaks with vitreous presentation per operatively, the pupil was dilated with intracameral adrenaline,

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rent margins and size identified and lower haptic of IOL guided at 6 o'clock position behind the iris into the sulcus saving the rent margins. In cases of big rents (more than 3 mm), iris was lifted at 6 o'clock with a lens dialer and the lower haptic was slid between the iris and capsular frill. In some cases the lower haptic was even taken anterior to the iris and then pulled back and gently slipped behind the iris anterior to the capsular frill. The upper margin of the rent was identified by pulling the iris through the incision at 12 o'clock and upper haptic of the lens was placed just behind the iris anterior to the capsular remnants. Dialing was not done in cases with large rents (more the 3 mm). Anterior vitrectomy was carried out with ocutome or Vannas scissors. Residual lens matter was cleared by doing post-insertion-chamber wash. The anterior chamber was formed with sterile air and the pupil was constricted with intracameral pilocarpine.

In the secondary procedure, lens matter was cleared from the anterior chamber and localised anterior vitrectomy was done. Synaechiae were broken and in cases of thick opaque membrane, the rent was enlarged to 3-4 mm by excising the membrane and PC IOL was implanted as explained. In cases where capsular frill was inadequate at 6 o'clock and 12 o'clock position, the corneo-scleral incision was extended to the side where adequate opposing capsular frills were available. Meticulous anterior vitrectomy was repeated, anterior chamber was formed with sterile air and the wound closed with 10-0 sutures.

Topical steroids, mydriatics and oral non-steroid anti-inflammatory drugs were used for a longer duration in cases showing enhanced inflammatory tissue response due to vitreous disturbance. We prefer 7 mm, one piece C loop IOLs as these have tough haptics, are easy to guide, have larger contact area, and their 7 mm large optic fully covers the rent.

Results

The post operative visual acuity was 6/12 or better in 32 eyes in Group I (97%) and 50 eyes in Group II (67.6%). One eye in Group I

(3%) and 22 eyes in Group II (29.7%) had post operative visual acuity between 6/18 and 6/36. Only 2 eyes in Group II (2.7%) had visual acuity of 6/60 or less due to corneal opacities and cystoid macular edema (Tables 1 & 2). Complications are shown in Table 2.

TABLE 1
Post operative visual acuity

Visual acuity	Group I (33 eyes)	Group (74 eyes)
6/12 or better	32 (97.0%)	50 (67.6%)
6/18 - 6/36	1 (3.0%)	22 (29.7%)
6/60 or less	—	2 (2.7%)

TABLE 2
Associated complications with primary (Group I) and secondary (Group II) procedures

Complications	Number of eyes (%)	
	Group I (33 eyes)	Group II (74 eyes)
Corneal opacities	—	* 15 (20.3%)
Hyphaema	—	2 (2.7%)
Uveitis/vitritis		
(a) mild	20 (60.6%)	42 (56.8%)
(b) severe	—	10 (13.5%)
Pupillary distortion	2 (6.1%)	60 (81.1%)
Dislocation of lens	—	1 (1.4%)
Cystoid macular edema	1 (3.0%)	4 (5.4%)
Astigmatism (More than $\pm 3D$)	—	5 (6.8%)

* The corneal opacities were because of trauma/surgical intervention in past.

Discussion

PC IOL implantation is the procedure of choice for correction of aphakia as IOL is more close to the physiological position of the natural lens. AC IOLs due to angle related and corneal complications, and scleral - sutured lenses due to vitreous disturbance while suturing, swinging lens, bio-degradation of the sutures and displacement, are not popular [3].

PC IOL implantation in cases of posterior capsular breaks obviates the requirement of AC IOL and scleral sutured lenses. Lens haptics glided over the capsular frill or remnants

as described are very safely placed in the sulcus and blocks the rent thus preventing further vitreous herniation into AC. We prefer to do anterior vitrectomy or anterior chamber toilet after lens implantation, because it prevents unwarranted vitreous loss and enlargement of rent due to irrigation and aspiration. Once the anterior chamber has been cleared of vitreous and lens matter, the pupil can be constricted with pilocarpine and if need be the pupillary catch or distortion can be corrected by gentle stroking with lens dialer. In majority of the primary procedure cases, we achieved a round mobile pupil and results were nearly as good as in uncomplicated implantation except for a little more vitreous reaction which was easily managed with topical and systemic nonsteroid antiinflammatory drugs and steroids.

Presence of IOL blocking the vitreous also saves the eyes from vitreous related anterior segment complications. Incidence of pupillary distortion (81.1%) has been more in secondary procedure due to pre-existing distortion as a result of trauma and previous surgical intervention. In large number of cases, pupillary distortion got corrected following synechiolysis during surgery and inability of synechiae to stay on IOL surface. Corneal opacities were also due to pre-existing trauma the eyes had sustained. In none of the eyes there was corneal decompensation leading to bullous keratopathy and no eye had retinal detachment following surgery.

Mild uveitis/vitritis was seen in 60.6% of cases in Group I and 56.8% of cases in Group II and severe uveitis/vitritis in 13.5% cases in Group II. The incidence of cystoid macular edema was more in cases of vitreous disturbance which was as expected [4].

We had to explant a lens due to gross decentration and exchange it with AC lens in one eye. We prefer the one piece lens because of the tougher haptics and bigger optic (7 mm) which provide proper anchor and better sealing of the rent. 7 mm optic is also preferable over smaller optics in eyes with pupillary distortion.

Visual results in the second group are on the lower side due to pre-existing corneal opacities and post surgical cystoid macular edema. Posterior capsular rents are an insurance against after cataract.

In majority of cases of posterior capsular breaks, PC IOLs can still be implanted making use of the annular frill of capsular remnant [5]. Successful IOL implantation in unioocular aphakics rehabilitates the trained combatants and technical manpower in the Armed Forces saving a soldier from financial and psychological trauma of being invalided out of service.

REFERENCES

1. Angra SK, Vajpayee RB. Types of posterior capsular breaks and their surgical implications. *Ophthalmic Surg* 1991; 22 : 388-91.
2. Angra SK, Vajpayee RB, Titiyol JS. Intra-ocular lens implantation in posterior capsule defects. *Advances in intra ocular lens implants*, Macmillan India Limited 1991; 172-4.
3. Nicholas BD, Lindquist TD. Visual results following vitreous loss and primary lens implantation. *J Cataract Refract Surg* 1989; 15 : 201-4.
4. Pasricha JK. Posterior capsular rupture and IOL implants. *Advances in intra ocular lens implants*. Macmillan India Limited 1994; 194-8.
5. Jacob P, Thomas R, Sen S, Raju RL. Anterior capsular support for posterior chamber intra-ocular lenses following vitreous loss in endocapsular surgery. *Indian Journal of Ophthalmology* 1993; 41 : 15-6.