



A study of outcome of implanting intraocular lens after posterior capsular rent in phacoemulsification.

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ABSTRACT

AIM: To study the visual outcome of IOL implantation after posterior capsular rent and complications associated with it

MATERIAL AND METHODS: 29 patients who had posterior capsule rent during cataract surgery, done at our institute during last 3 years were evaluated prospectively and retrospectively. All patients underwent visual acuity testing, slit lamp examination, applanation tonometry and fundoscopy. Results are noted according to type of the cataract, type of IOL used, visual acuity, position of IOL and other complications associated with it.

RESULTS: Out of 29 patients, we were able to implant IOL in the bag in 14 (48%) patients. While, in 6 (21%) patients IOL was kept in sulcus, in 5 (17%) patients retroiris claw lens and in 4 (14%) patients sclera fixated IOL was implanted. Visual acuity recorded at the time of study was better than 6/12 in 23 (80%) patients. One patient had visual acuity less than 6/60. Rest 5 (17%) patients were having visual acuity between 6/12 to 6/60. Post operative cystoid macular edema was seen in 8 (27%) patients. None of the patients had corneal decompensation. Raised IOP was seen in 6 (21%) of our patients which were controlled medically and responded to treatment.

CONCLUSION: IOL implant can safely be done after vitreous loss with reasonable visual results. An adequate and careful anterior vitrectomy helps in keeping the post-operative complications low.

KEYWORDS: PCR, IOL, visual acuity

With the advent of better quality microscopes, instruments and technologies, results of cataract surgery are getting better and better. Even then, complications do take place. Posterior capsular (PC) rent is the most dreaded complication that leads to unwanted squeal. Though the incidence of vitreous loss has reduced dramatically with modern microsurgical extra-capsular cataract extraction techniques and adequate pre-operative precautions to obtain a soft eye, it still remains far from negligible. A decade ago, vitreous loss was considered to be a definite contraindication for IOL implant by most surgeons. Though the situation has changed, many still hesitate from implanting an IOL after vitreous loss for fear of worsening the complications of the vitreous loss. A majority of those who proceed with implantation despite the vitreous loss, use an anterior chamber-IOL. Posterior chamber-IOLs are sometimes used, mostly with trans-scleral fixation. Intraocular lens (IOL) placement in eyes without adequate capsular support can be achieved in several ways, including anterior chamber angle-supported IOLs, anterior chamber iris-fixated IOLs, posterior chamber iris-fixated IOLs, and posterior chamber scleral-fixated IOLs. Although the anterior chamber IOL is easily inserted, ensuring proper size of the lens and its fixation in the angle can be difficult. As a result, these lenses have been associated with increased risk for glaucoma, iritis, and corneal edema. In contrast, posterior chamber IOL implantation is the most suitable method for IOL implantation as it preserves the eye anatomy. Being nearer to the nodal point, it achieves better optical correction and less pseudophacodonesis. Trans-scleral fixation of a polymethyl methacrylate (PMMA) IOL through a large incision is the traditional surgical method that most surgeons prefer to use in aphakic eyes without enough capsular support. However, after the appearance of the foldable IOL, trans-scleral fixation of posterior chamber foldable IOLs in such eyes through a small incision takes less operative time and results in fewer complications and achieves better visual outcomes.

MATERIALS AND METHODS

29 patients who had posterior capsule rent during cataract surgery, done at our institute during last 3 years were evaluated prospectively and retrospectively. Patients in whom IOL implantation (PCIOL, retro iris claw IOL and scleral fixation IOL) was done after posterior capsular rent during cataract surgery were included in study. Patients with aphakia, lens coloboma and pre existing corneal opacity were excluded from our study. Patients having zonular dialysis or with subluxation of lens pre operatively were excluded from study. A thorough history including date of operation was taken. Case records were checked regarding type of cataract, preoperative IOP and any associated ocular abnormalities. Visual acuity was recorded using Snellen's chart. Detailed slit lamp

examination was done for shape of pupil, iritis, corneal condition, residual lens matter, status of IOL whether in the bag or in the sulcus or in anterior chamber, IOL centration and vitreous present in anterior chamber. Intraocular pressure was recorded in patients using applanation tonometer. Fundus examination was done using both direct and indirect ophthalmoscopy, wherever possible. Macular OCT was done in all post operative cystoid macular edema patients, both before and after treatment.

RESULTS

Out of 34 patients with posterior capsular rent, 29 patients were included in our study. 4 patients with aphakia and one with corneal opacity were excluded from our study. Out of 29 patients, 12 (41%) were male and 17 (59%) were female patients. 14 (48%) patients were having mature cataract, 3 (11%) patients were having traumatic cataract, one (3%) congenital cataract, 7 (24%) patients were having posterior polar cataract and 4 (14%) patients were having immature cataract. Out of 29 patients, we were able to implant IOL in the bag in 14 (48%) patients. While, in 6 (21%) patients IOL was kept in sulcus, in 5 (17%) patients retroiris claw lens and in 4 (14%) patients sclera fixated IOL was implanted (table 1). Visual acuity recorded at the time of study was better than 6/12 in 23 (80%) patients. One patient had visual acuity less than 6/60. Rest 5 (17%) patients were having visual acuity between 6/12 to 6/60. Post operative cystoid macular edema was seen in 8 (27%) patients, out of whom 6 resolved after medical treatment and 2 patients needed injection. None of the patients had corneal decompensation. Recurrent iritis was seen in 2 (7%) patients with retroiris claw lens and one (3%) patient of sulcus IOL. Raised IOP was seen in 6 (21%) of our patients which were controlled medically and responded to treatment. IOL tilting was noted in 3 (10%) patients. One patient with SFIOL developed retinal detachment for which secondary surgery was performed.

DISCUSSION

Vitreous loss during cataract surgery can lead to poor visual results along with other complications. However, as Alpar and Fechner have stated, IOL implant can safely be done following vitreous loss provided a generous and careful anterior vitrectomy is performed. Most of the reported series of IOL implants after vitreous loss have used the AC lenses. Jaffe reported VA of 20/40 (or 6/12 approximately) and better in 80% of his series with an incidence of complications not significantly higher than with routine IOL implantation. However, the Binkhorst iris-clip lens he used, is now obsolete. In Mazzocco's series of 38 cases, (35 AC-IOLs and 3 PC-IOLs), 27 (71%) had VA 20/40 or better. Nine cases (23%) developed CME and 10 (26%) had post-operative raised intra ocular pressure

controlled medically. Both concluded that the procedure was safe in the hands of an experienced surgeon. In a series of 24 cases reported by Pearson et al 18 patients (75%) had VA 20/40 or better while the remaining 6 (25%) had VA 20/200 (6/60) approximately or worse. There were 5 cases (21%) of cystoid macular edema CME, 3 of glaucoma and 3 of uveitis. Three cases showed evidence of corneal decompensation and another 3 developed retinal detachment. They concluded that the complications of vitreous loss and AC-IOL's may be acting in concert in some and advocated caution in IOL implantation after vitreous loss. Spigelman et al reported a series of 26 patients (20 PC- IOL, 6 AC-IOL) where all patients with PC-IOL and 4 with AC-IOL had VA 6/12 or better. One case had retinal detachment. They concluded that a meticulous anterior vitrectomy was essential for good results and risk of retinal detachment is higher than otherwise.

The 12:17, male : female ratio in this series when the incidence of cataract is the same in both sexes reflects perhaps the illiteracy of the patients attending our clinic and their social attitudes. This complication occurred more in mature and posterior polar cataracts. In mature cataract status of posterior capsule cannot be assessed pre operatively, so rate of complication is high as most of them have thin and weak posterior capsule. Due to hard nucleus, manipulation also makes things complicated. So chances of PC rent are higher in patients with mature cataract. In posterior polar cataract, some of patients have weak posterior capsule as well as posterior capsular dehiscence. So in these patients, chances of posterior capsular rent are higher even in experienced hands. But as the size of the rent is smaller in most of the cases and nucleus was soft, rent was not extended in size and we were able to implant PCIOL in this patients thus minimizing risk of other complications. In patients with traumatic cataract, 2 patients were having pre existing pc rent, which was extended intraoperatively and we were not able to implant PCIOL in these patients. In experienced hands, this complication can be managed well. If the rent is small, it is possible to implant IOL in the bag. If the size of rent is large, but rhexis margin is intact we can put 3 piece IOL in sulcus. In large rent and if rhexis margin is not intact, we preferred to implant retroiris claw lens, which was tucked behind the iris as ACIOL has more complications. In patients who developed rent at time of chopping the nucleus, through vitrectomy was needed, in such patients, anterior vitrectomy with scleral fixated IOL was done.

In the present series, Visual acuity recorded at the time of study was better than 6/12 in 23 (80%) patients. One patient had visual acuity less than 6/60 which was due to retinal detachment. Rest 5 (17%) patients were having visual acuity between 6/12 to 6/60 due to pigments on IOL and CME (chart 1). Good visual outcome was associated with type of rent and type of IOL implantation. If the rent is small and vitreous loss was less, post operative complications were less and visual prognosis was good. In patients with large rent, rent occurring in beginning of the surgery and more amount of vitreous loss, this all leads to more manipulations and less visual outcome. So it is necessary to detect posterior capsular rent as early as possible during surgery, taking due care to make eye soft thus minimizing vitreous loss and with proper use of viscoelastic agents and gentle manipulation, to achieve better post operative results.

Cystoid macular edema occurred in 8 patients, out of which 3 patients were having sulcus IOL, one SFIOL and 2 with retroiris claw. This is due to the fact that in this patients vitreous disturbance was greater due to the larger rent in posterior capsule, some I/A done in presence of vitreous in AC and a greater loss of vitreous volume. This may have been responsible for greater incidence of CME thus a reduced VA. However, no firm conclusions can be drawn from this series alone due to the small size. There were no cases of corneal decompensation due to the surgery, as all manipulations were done under proper viscoelastics and with utmost care not to damage endothelial cells. In our study 6 patients developed increase in intraocular pressure, out of which 4 patients were having sulcus supported IOL. This may be due to pigment dispersion or long term use of steroids for treatment of iritis. All were well controlled

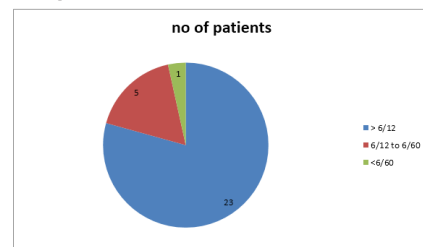
medically. Recurrent iritis was seen in 2 patients with retro iris claw lenses.

In conclusion IOL implant can safely be done after vitreous loss with reasonable visual results. An adequate and careful anterior vitrectomy helps in keeping the post-operative complications low. A PC-IOL can be chosen for the implant if adequate posterior capsular support is present in the periphery despite the loss of vitreous. If PCR detected well in time intraoperatively and managed well with proper use of viscoelastics and proper IOL, a surgeon and patient can have good visual outcomes.

TABLE 1 : Type of IOL and post operative complications

Type of IOL	No. of patients	Cystoid macular edema	Iritis
PCIOL	14	2	0
SULCUS IOL	6	3	1
SFIOL	4	1	0
RETRO IRIS CLAW IOL	5	2	2

Chart 1: Post operative visual outcome



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