

Management of Aphakia with Implantation of Posterior Chamber Intraocular Lens as a Secondary Procedure

Maqbool Ashraf

Department of Ophthalmology, Shaikh Zayed Hospital, Lahore.

SUMMARY

Thirty five eyes undergoing a posterior chamber Intraocular lens implantation as a secondary procedure were studied. All of these had undergone previous uncomplicated extra-capsular cataract extraction and had good best-correct vision. This study was undertaken to confirm that secondary lens implantation is a safe procedure. All of our patients had excellent post-operative visual results.

INTRODUCTION

Secondary intraocular lens implantation implies that the eye is already aphakic at the time of the lens implantation. Intraocular lens implantation is now a well established and safe procedure and is routinely performed at the time of cataract extraction unless there is some contraindication. Things were different until a few years back when aphakic spectacles were considered as the obvious treatment for the management of aphakia in a majority of the patients, with contact lenses being reserved for especially difficult situations, like monocular aphakia. There is a large pool of aphakic patients in Pakistan who had their surgery at a time when the intraocular lenses were not being implanted. Even today, there are many busy eye centres in Pakistan, catering to thousands of cataract patients, where intraocular lenses are not being implanted. This means that there is a constantly increasing pool of aphakic patients who were never given the choice of having a primary implant. Many of these patients are very keen to have intraocular lenses implanted as secondary procedures. Spectacle intolerance is the main reason for this desire in a majority of these patients. Aphakic spectacles are heavy, produce unnatural image size due to magnification, and produce a large number of distortions¹. Contact lenses form a better option but still there is a high incidence of intolerance because

of allergies and infections².

This retrospective study was carried out to review the risks of a second intraocular procedure. The responsibility of surgery on a seeing eye is obviously far grater than that when the eye has poor vision to start with.

PATIENTS AND METHODS

Thirty five aphakic eyes underwent a secondary posterior chamber intraocular lens implantation from May 1992 to December 1995. Five patients had bilateral secondary surgery. 28 (93.3%) patients were male and 2 (6.6%) were female. The age of the patients ranged from 14 years to 55 years. The duration of aphakia was more than 6 months in 28 patients and 2 days in 2 patients. These two patient had decided to have the IOLs immediately after having the cataract extraction on observing good results in other patients who had IOLs on the same operating days while they themselves had refused IOL implantation due to previous baseless fears.

A review of all the secondary lens implantation was made. Cases were selected for this study which fulfilled the criteria of having good vision, i.e. 6/12 or better, and a clean previous extra-capsular cataract extraction with no previous known risk factors for poor vision, like glaucoma, diabetic maculopathy, macular damage, nystagmus or amblyopia. The only

exception to the 6/12 vision were the two patients who had their cataract surgery done just two days earlier. In these patients, the level of the best-corrected vision was not representative of the best visual potential. All of the eyes included in this study had clear corneas, round and reacting pupils with no synechiae, and intact posterior capsules. The optic discs and maculae were grossly normal. Eyes receiving anterior chamber IOLs or scleral fixation of posterior chamber IOLs were excluded from this study. Fifteen patients had their surgery as in-patients and the remaining 15 patients were operated upon as out patient day-cases, being discharged from the hospital 15 minutes after the operation.

A medical history was taken and a general physical examination was performed including detailed ocular examination in all of these patients. Any associated medical problems like diabetes mellitus and hypertension were controlled before the surgery. General Anaesthesia was used in patients younger than 40 years. Older patients were operated upon under retrobulbar anaesthesia and facial block using 1:1 mixture of 2% xylocaine and bupivacaine. The same surgical technique was used for all of these cases. Proper biometry using SRK-II linear regression formula was done for accurate IOL power calculation. A 6-7mm anterior limbal corneo-scleral incision was given. Posterior capsular polishing was done where required. Anterior chamber was reformed using a viscoelastic (Methylcellulose) material. Posterior-chamber all-PMMA IOL was placed in the posterior chamber. Pupillary miosis was achieved with few drops of miostat injected into the anterior chamber. Corneoscleral incision was closed with 10/0 Nylon interrupted sutures. A 1 cc injection was given subconjunctivally, containing 20 mg of gentamycin and 2 mg of dexamethasone.

All the patients were examined about 24 hours after the surgery. None of these patients required antiglaucoma medication. A short course of systemic steroids was given in two cases where excessive anterior chamber reaction was encountered.

RESULTS

The results of this study were evaluated regarding the complications of the second surgical procedure, the final best corrected visual acuity achieved, and the satisfaction of the patients at having a secondary implantation of a posterior

chamber intraocular lens.

Slight threatening, serious complications like endophthalmitis, retinal detachment, and macular puckering did not occur in the patients studied. Slightly excessive anterior chamber inflammatory response was observed in two patients. Insignificant decentration of the posterior chamber intraocular lens was observed in five patients. This did not affect the visual acuity and the expected effects such as diplopia and glare did not occur even in these patients because the decentration was minimal.

The visual acuity achieved in each of our patients was as good as, or better than the best corrected pre-operative vision.

The results were very encouraging from the point of view of patient satisfaction. The accuracy of our biometry was confirmed by the minimal i.e. less than 1.00 D spectacle correction required for distance vision. Majority of our patients opted not to use any glasses for distance.

All patients did well. All patients achieved the final best corrected visual acuity which was as good, or better than the best corrected pre-operative vision. The results were very encouraging from the point of view of patient satisfaction. All of our patients were quite pleased with the results.

DISCUSSION

This study was performed on low-risk eyes with good vision and excellent prognosis of retaining good vision after having the posterior chamber intraocular lens implantation as a secondary procedure. Previous studies² have shown that secondary intraocular lens implantation is a safe procedure with a high rate of success. Secondary implantation has been reported to help even in microphthalmic eyes¹. Secondary intraocular lens implantation gives better results when a posterior chamber lens is implanted⁵ as compared with the anterior chamber lenses. Anterior chamber lenses should be used with caution during secondary implantation as these have been reported to produce serious and blinding complications⁶, especially when anterior vitrectomy is also required⁷. Posterior chamber lenses are safe even when implanted in eyes which have experienced suprachoroidal haemorrhage during the primary cataract surgery⁸. These lenses may be implanted even in the absence of capsular support, using scleral-suture and iris-suturing technique⁹.

Preoperative evaluation of eyes and patient selection are extremely important for obtaining optimal results in secondary implantation¹⁰. The presence of any deviation in an eye which is under consideration for a secondary implantation is a very tricky situation. The tropia may or may not disappear after surgery, and there is no reliable preoperative clinical test to predict the final outcome. The patient may continue to have the tropia, and sometimes, annoying diplopia may be induced by the secondary IOL which improves the vision in an already deviated eye. In a majority of the cases, the tropia disappears as the vision improves and allows the fusional mechanisms to come into play¹¹.

Secondary intraocular lens implantation gives comparable visual results when compared with epikeratophakia, but the latter is associated with fewer sight-threatening complications¹².

Secondary intraocular lens implantation may be performed safely at the same line when a corneal transplantation is being performed¹³. Viscoelastic materials like sodium hyaluronate significantly reduce the endothelial cell damage during intraocular lens implantation¹⁴.

The accuracy of power calculation in our cases was very much acceptable. We used the linear regression formula, which is known to be more accurate than the refraction method¹⁵. All of our patients were within 1 D of emmetropia.

CONCLUSION

The visual outcome and patient satisfaction from secondary posterior chamber intraocular lens has confirmed that secondary IOL implantation is a safe procedure. When performed in the eyes which have had previous uncomplicated extracapsular cataract extraction, this is indeed an extremely safe procedure and should be performed without any hesitation. The rate of complications is virtually nil. This rate is far less than that encountered in the primary surgery. This is perhaps due to smaller incision size, absence of any residual cortex and a shorter duration of surgery. Secondary lens implantation in our two patients who had their cataract surgery just one day prior to the secondary surgery also showed remarkably good results and no extra inflammatory reaction was observed even in these cases.

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The Author:

Maqbool Ashraf
Assistant Professor of Ophthalmology,
Federal Postgraduate Medical Institute,
and Consultant Ophthalmologist Shaikh Zayed Hospital,
Lahore.

Address for correspondence:

Maqbool Ashraf
Assistant Professor of Ophthalmology,
Residence
115-W Phase-3, LCCHS,
Lahore Cantt.
Pakistan