MANAGEMENT OF POSTERIOR DISLOCATED IOLs BY INTERNAL REPOSITIONING

Dr. Ashish Vaidya
Vitreoretinal Consultant,
Bombay City Eye Institute, Pramukhswami Eye Hospital.
Dr. Rohini Mudras,
Clinical Assistant, Bombay City Eye Institute.

Introduction

Posterior chamber intraocular lenses, which are implanted at the time of cataract surgery in the presence of a posterior capsular rupture or a zonular dialysis, can dislocate into the vitreous cavity. This can happen in the early or late postoperative period and can be managed in various ways [1,2]. During surgical intervention, an important consideration is whether to remove, reposition, fixate with suture, or exchange the dislocated IOL after performing a pars plana vitrectomy. Repositioning these IOLs is a satisfactory technique in cases where adequate capsular support is present.

Aim

This retrospective study was conducted to evaluate the benefits of repositioning dislocated IOLs internally in the vitreous cavity in terms of technique, indications, and eventual visual outcome. The complications, if any and the long-term results were also studied.

Materials and methods

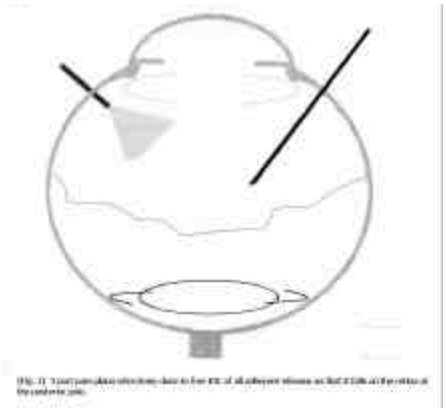
Participants

This study includes 7 patients who had undergone cataract surgery between October 1999 and September 2001. Out of these, 6 were male and 1 was female. These patients were in the age group ranging from 55- 75 years (mean age 70.71 years). Out of these, 4 patients had undergone phacoemulsification, 2 had undergone small incision non-phaco surgery, and 1 had undergone extracapsular cataract surgery. All the patients had been implanted with a non-foldable single piece PMMA IOL with a diameter of 12.5- 13.5 mm and optic size of 5.5- 6.0 mm.

The cause of the dislocation in all the cases seemed to be at least one untoward incident occurring at the time of the primary surgery, including posterior capsular rupture, zonular dialysis, and vitreous loss.Visual symptoms were present in all patients after the IOL dislocation and included decreased vision, glare, monocular diplopia, or pain.

In all the cases, the PCIOL was completely dislocated into the vitreous cavity. All the subjects underwent surgery between 2 weeks to 6months after PCIOL dislocation. Follow up ranged from 3 months to 1 year.

Post- operatively the patients were evaluated for visual acuity, IOP and retinal examination to rule out CME, RD, and vitreous haemorrhage.



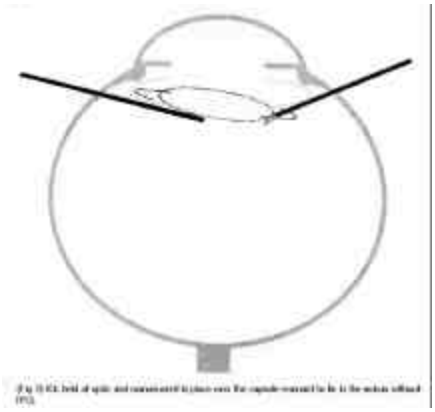
Technique *

The surgical technique, in general, consisted of performing a pars plana vitrectomy through 3 ports made with a MVR blade, situated 3- 3.5 mm

*The technique is illustrated in the accompanying CDROM video

Patient	Sex	Age	Final BCVA at most recent follow up	Other Findings
1	M	70	6/6	-
2	F	65	6/60	-
3	M	55	6/12	CME
4	M	75	6/36	Dry ARMD
5	M	55	6/6	-
6	M	60	6/6	-
7	M	60	6/36	H/o glaucoma surgery done

posterior to the limbus. The vitreous was also removed from the anterior chamber, around the



capsule and from the vitreous base. The IOL was completely freed of any adherent vitreous. The capsular remnants were then inspected to determine the axis of the final IOL placement. In order to retrieve the IOL it was picked up by holding the optic-haptic junction where the shadow of one of the haptics was cast on the retinal surface by the light from the endoillumination probe, thus showing that it was above the level of the retina. The IOL was then retrieved from the retinal surface and brought anteriorly with the help of end-gripping forceps grasping the haptic optic junction, taking care to avoid breakage of the haptic. The IOL was then firmly grasped by introducing a second end gripping forceps from the second sclerotomy and grasping the IOL at the optic. Then, using the first technique, one haptic was brought anterior to the iris and the other haptic was directly placed under and parallel to the iris into the sulcus over the capsular remnants. Depending on capsular anatomy and pupillary dilatation, a Sinskey hook was used to manipulate the second haptic into the sulcus. In the second technique, with a bimanual technique, both the haptics were directly placed into the sulcus, one after the other from under the capsule. The orientation of the lens was then confirmed to be in the axis of the maximum capsular support. The stability of the IOL was confirmed by tapping the IOL and ensuring that there was no decentration or tilt.

Results

The visual acuity at the most recent follow up, which ranged from 1 month to 1 year, was as follows:

The IOLs remained well positioned throughout the follow up interval in all the eyes

The intraocular pressure recorded postoperatively for all the patients was between 12- 18 mm Hg, well within normal limits.

A retinal examination done postoperatively, showed the presence of persistent CME in patient 3, preexistent dry ARMD in patient 4, and optic atrophy in patient 7, which limited the visual recovery to 6/12, 6/36 and 6/36, respectively, in these patients. In all the other patients, the final visual acuity was 6/6.

Discussion

The best approach for dislocated IOLs must be determined individually for each patient and is based on factors such as clinical circumstances and co- existing complications.

Selected cases with a dislocated or even freely mobile IOL may be managed by observation alone. [1]

The most common indications for surgery would include decreased visual acuity, persistent CME, increased IOP, inflammation, and coexisting RD. Other indications include monocular diplopia, halo phenomenon, and fluctuating vision caused by shifting IOL.

IOL removal with or without exchange is usually performed for IOLs with damaged haptics, small optics, or highly flexible haptics unsuitable for suture support [2]. In addition, IOL removal is considered for eyes with coexisting complex RD. Although removal and exchange of a subluxated or dislocated PC IOL using the limbal approach may be easier than repositioning the lens, the former approach often induces intraoperative fluctuation in intraocular pressure, postoperative astigmatism and corneal endothelial damage[2].

In eyes with inadequate capsular support, transscleral suture fixation is often a good surgical option [3,4]. Numerous modifications of this technique have been described [3,4]. It can be done through a limbal approach using end- gripping intraocular forceps [4]. Another method of placing a suture around the haptic is the suture suture-loop technique in which a hypodermic needle is threaded with 10-0 Prolene to make a loop and is

used to lasso the displaced haptic [5].

Suturing of a dislocated IOL to the sclera could be technically demanding, potentially resulting in an increased number of intraoperative and postoperative complications such as intraocular haemorrhage, suture knot exposure, broken suture causing repeat dislocation and retinal tears, and retinal detachment, with a long term risk of lens rotation, as well as endophthalmitis. Thus, closed-eye repositioning of a dislocated IOL is preferable to an open-eye technique.

The IOL can be repositioned with the help of Perfluorocarbon liquids, using them to float the IOL up in the vitreous cavity, after performing a complete vitrectomy [6]. Haptic fixation may be achieved by several techniques including multiple-needle manipulations [7] or haptic externalization by a suture loop held by a pair of forceps or a hypodermic needle. But the potential side effects of these PFCL liquids as well as the cost have to be kept in mind.

To summarize the advantages of internal repositioning, it avoids the intraoperative fluctuation in intraocular pressure and postoperative astigmatism, which may be induced by using the limbal approach. Also, it does not cause knot exposure, intraocular haemorrhage, retinal tears, and retinal detachment; all of which can be caused by fixation by scleral sutures. It does not require placement of a second IOL as the same IOL can be used; which in turn avoids the need for a repeat A scan biometry.

A complete vitrectomy is essential. The IOL has to be freed from any adherent vitreous. Also, the vitreous has to be removed from the anterior chamber, from around the capsule and from the vitreous base; otherwise the manipulation of instruments inside the vitreous may cause traction on the vitreous and the retina and its attendant complications. A complete vitrectomy around the capsular remnants also ensures that the vitreous does not tend to push the IOL and reduces the chances of redislocation. Corneal endothelial damage is also avoided during the procedure. A stable PCIOL has significant advantages over an ACIOL like reduced endothelial damage and lesser chances of glaucoma and inflammation.

Conclusion

Dislocated IOLs represent a serious complication of cataract surgery. Many treatment options are available; IOL repositioning is an ideal approach. It can be satisfactorily carried out by evaluating both the remaining capsular support and the IOL characteristics. Visual outcome after vitrectomy and IOL repositioning is usually good.

References

1. Mello MO Jr, Scott IU, Smiddy WE, Flynn HW, Feuer W. Surgical management and outcomes of dislocated intraocular lenses. Ophthalmology 2000; 107:62-67.
2. Smiddy WE, Ibanez GV, Alfonso E, Flynn HW Jr. Surgical management of dislocated intraocular lenses. J Cataract Refract Surg 1995; 21:64-9.
3. Hu BV, Shin DH, Gibbs KA, Hong YJ. Implantation of posterior chamber lens in the absence of capsular and zonular support. Arch Ophthalmol 1998;106:416-420
4. Lee SC, Chen FK, Tseng SH, Cheng HC. Repositioning a subluxated sutured intraocular lens in a vitrectomized eye. J Cataract Refract Surg 2000;26:1577-1580
5. Lawrence FC II, Hubbard WA. “Lens lasso” repositioning of dislocated posterior chamber lenses. Retina 1994;14:47-50
6. Fanous MM, Friedman SM. Ciliary sulcus fixation of a dislocated posterior chamber intraocular lenses using liquid perfluorophenanthrene. Ophthalmic Surg 1992;23:551-552
7. Sarrafizadeh R, Ruby AJ, Hassan JS, et al. A comparison of visual results and complications in eyes with posterior chamber intraocular lens dislocation treated with pars plana vitrectomy and lens repositioning or lens exchange. Ophthalmology 2001;108(1):82-9

The wounded surgeon plies the steel
That questions the distempered part;
Beneath the bleeding hands we feel
The sharp compassion of the healer's art
Resolving the enigma of the fever chart.
Eliot, T. S. (Thomas Stearns Eliot) (1888 - 1965)