

Management of Complications in Eyes Containing Two Intraocular Lenses

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Objective: To describe the management of complications in eyes containing two intraocular lenses (IOLs).

Design: A retrospective noncomparative case series.

Participants: Eight patients having a dislocated posterior chamber intraocular lens (PC IOL) and a secondary anterior chamber intraocular lens (AC IOL) participated.

Intervention: Surgical treatment of complications, including mobile dislocated PC IOLs in five eyes and retinal detachment in three eyes, was performed.

Main Outcome Measures: Visual acuity and anatomic status were evaluated.

Results: Dislocated PC IOLs were removed through a pars plana incision in five eyes and a limbal incision in three eyes. Retinal detachments were repaired in three eyes. With follow-up from 7 months to 6.5 years, visual acuities ranged from 20/25 to 20/40 in five eyes and 20/60 to 20/400 in the three eyes undergoing retinal detachment repair.

Conclusion: Eyes in which dislocation of a PC IOL occurs during or after cataract surgery may have significant complications develop. Successful surgical repair is more complex in the presence of a secondary AC IOL. *Ophthalmology* 1998;105:2017-2022

A tear in the posterior lens capsule or zonular rupture at the time of cataract surgery may allow spontaneous dislocation of a posterior chamber intraocular lens (PC IOL) into the vitreous cavity,¹ either during cataract surgery or after surgery. When such an event is noted, a number of management options have been reported, including aphakic correction,² placement of a secondary anterior chamber intraocular lens (AC IOL),^{3,4} and repositioning of the dislocated IOL with⁵⁻¹¹ or without¹² a variety of suturing techniques.

Vitreous loss and/or capsular rupture as well as dislocated IOLs may be associated with an increased risk of postoperative complications, including retinal detachment,^{8,13-15} cystoid macular edema (CME),^{8,13} vitreous hemorrhage,^{8,13} and visual obscuration by a mobile dislocated lens.^{2,16}

If the primary surgeon has chosen to place a secondary AC IOL without removal of the dislocated lens, management of such subsequent complications is more complex. We report herein the management of posterior segment complications in eight eyes containing both a dislocated PC IOL and a secondary AC IOL.

Materials and Methods

Eight patients with complications associated with the presence of a dislocated PC IOL and a secondary AC IOL were included in this study. Patient data; intervals between cataract surgery, PC IOL dislocation, secondary AC IOL placement, and posterior segment surgery; and results are listed in Table 1.

Each patient underwent surgery for management of posterior segment complications. Four patients had visual disturbance induced by mobility of the dislocated PC IOL, one patient had dislocated nucleus fragments in addition to a dislocated PC IOL, and three patients had retinal detachment. The dislocated PC IOL was removed through the corneoscleral limbus in three patients and through a pars plana incision in five patients. The details of surgical technique for removal of a dislocated PC IOL through a pars plana incision are presented below.

Pars Plana Removal of a Dislocated Posterior Chamber Intraocular Lens (Cases 1-3,5,6)

The operative technique begins with a standard three-port pars plana vitrectomy. A complete vitrectomy is performed with particular attention to removing all vitreous or residual capsule attachments or both to the lens implant. Once the lens implant is freed from such attachments, it will gently float to the posterior pole of the eye. At this point, additional anterior vitrectomy with

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Table 1. Patient Characteristics and Results

Patient Number	Age	Sex	Eye	Preoperative Visual Acuity	Interval between Cataract Surgery and Dislocation	Interval between Dislocation and Secondary Implant	Interval between Cataract and Posterior Segment Surgery	Complication	PC IOL Removal Route	Final Visual Acuity	Follow-up	Comments
1	71	F	OD	20/30 (intermittently)	1 week	6 weeks	10 weeks	Mobile PC IOL	Pars plana	20/25	1 year	
2	66	F	OS	20/30 (intermittently)	1 day	4 weeks	12 weeks	Mobile PC IOL	Pars plana	20/25	1 year	
3	70	F	OS	20/800	Unknown	Approximately 1 year	Approximately 20 months	Mobile PC IOL	Pars plana	20/30	17 months	Postoperative CME responded to therapy
4	80	F	OD	20/30 (intermittently)	1 week	1 year	34 months	Mobile PC IOL CME	Limbus	20/40	4 years	Minor trauma precipitated PC IOL mobility
5	67	F	OS	20/200	Intraoperatively	Intraoperatively	6 days	Mobile PC IOL Nucleus fragments	Pars plana	20/30	6 years	
6	65	M	OD	HM	10 days	5 days	1 month	Retinal detachment	Pars plana	20/60	8 months	
7	80	F	OS	20/125	1 week	5 weeks	8 months	Retinal detachment (PVR) CME	Limbus	20/160	7 months	Remains aphakic
8	72	M	OS	HM	Intraoperatively	Intraoperatively	3 weeks	Retinal detachment (giant retinal tear)	Limbus	20/400	10 months	Developed PVR, requiring two additional surgeries

PC IOL = posterior chamber intraocular lens; PVR = proliferative vitreoretinopathy; CME = cystoid macular edema.

peripheral scleral indentation is performed to allow removal of as much anterior vitreous as possible. Particular attention is paid to the vitreous base in the region where a planned pars plana incision will be made. In this area, care is taken to shave the vitreous as close to the surface of the peripheral retina and pars plana as possible.

After the vitrectomy, a 7-mm two-thirds thickness scleral groove is made 3 mm posterior and parallel to the superior corneoscleral limbus, contiguous with one of the superior sclerotomies. Several 8-0 silk sutures are placed through the lips of the wound and the sutures looped out of the wound and arranged so they do not interfere with creation of a full-thickness pars plana incision. At this point, a vitreoretinal forceps is placed in the vitreous cavity through the sclerotomy opposite the side of the planned pars plana incision. The PC IOL is resting on the concave surface of the posterior pole, and the junction of the haptic and optic is elevated slightly above the retina. The haptic can be grasped safely at this junction, and the lens is elevated into the midvitreous cavity. The endoilluminator probe is then removed and a second intraocular forceps is introduced. Using the coaxial operating microscope light for illumination, the lens optic is grasped with the second forceps. The first forceps is then removed and a scleral plug is placed in that sclerotomy. The surgeon then creates a full-thickness pars plana incision at the site of the preplaced partial-thickness scleral groove, carrying the incision into the pre-existing sclerotomy site. At this point, the forceps grasping the lens optic is withdrawn through the wound, thus extracting the IOL. During this last maneuver, the infusion into the vitreous cavity can be momentarily slowed to avoid excessive irrigation of fluid through the vitreous cavity. During the process of IOL extraction, the surgeon or an assistant should be prepared to further incise the uveal layers of the wound, as the initial pars plana incision may not consistently or fully incise this layer; alternatively, an assistant can gape the wound immediately before

extracting the IOL to ensure that the uveal layers have been incised fully. The preplaced 8-0 silk sutures are then quickly tied to initially secure the wound as normal infusion to the eye is re-established; additional 8-0 silk sutures are placed as necessary to create a watertight closure. Indirect ophthalmoscopic examination is done to survey for any operative complications. Confluent cryopexy may optionally be placed along the ora serrata throughout the quadrant of the pars plana incision. The sclerotomies and conjunctiva are then closed in standard fashion.

Case Reports

Case 1

A 71-year-old woman underwent extracapsular cataract extraction in the right eye accompanied by placement of a PC IOL within the capsular bag. One week after surgery, the lens implant was noted to have dislocated into the inferior vitreous cavity. The patient's postoperative visual acuity was 20/25 with aphakic correction. She was followed conservatively for 6 weeks, during which time the dislocated PC IOL appeared to be in a stable position in the inferior vitreous base. Six weeks after the initial cataract extraction, she underwent secondary AC IOL insertion. The dislocated PC IOL subsequently became mobile and interfered significantly with the patient's visual function.

The patient was examined 10 weeks after the initial surgery with complaints of intermittent obscuration of vision in the right eye that was exacerbated with head or eye movement. The visual acuity was 20/100 in the right eye, improving to 20/30 with pinhole. A well-positioned AC IOL was present and the cornea and anterior chamber were clear. Posterior segment examination showed a dislocated PC IOL suspended in the midvitreous. The

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