Back and forth in-the-bag intraocular lens dislocation

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A 65-year-old man with high axial myopia had uneventful bilateral phacoemulsification. Postoperatively, the patient experienced blunt trauma to his right eye resulting in traumatic mydriasis, a retinal giant tear, and rhegmatogenous retinal detachment that was repaired by pars plana vitrectomy, fluid–air exchange, endolaser, and octafluoropropane tamponade. Four years later, the condition was complicated by posterior dislocation of the in-the-bag intraocular lens (IOL) that was misdiagnosed by the ophthalmologist as aphakia because dilated fundus examination was not performed. A year later, the patient presented to our clinic with decreased vision from a decompensated cornea and anterior dislocation of the in-the-bag IOL into the anterior chamber.

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Late dislocation of an intraocular lens (IOL) is an infrequent but serious complication of cataract surgery. Intraocular lens dislocations can be divided into in-the-bag and out-of-the-bag with correspondingly different etiologies.1–3 The most common etiologies for in-the-bag dislocation are pseudoexfoliation and prior vitreoretinal surgery, whereas out-of-the-bag dislocation usually occurs because of capsule rupture during cataract surgery. Intraocular lens dislocation may be immediate (out-of-the-bag dislocation) or may develop months or years after surgery (in-the-bag dislocation). Risk factors for in-the-bag dislocation include pseudoexfoliation, high myopia, trauma, connective tissue disorders, uveitis, and retinitis pigmentosa.4 Vision loss after IOL dislocation is typically sudden, but it may be gradual when associated with progressive IOL dislocation, cystoid macular edema, retinal detachment, or corneal decompensation secondary to endothelial cell loss.

The purpose of this report is to highlight the importance of regular dilated fundus examination of pseudophakic patients, especially those with risk factors such as pseudoexfoliation, trauma, high myopia, history of vitreoretinal surgery, and presence of other ocular or systemic comorbidities.

CASE REPORT

A 65-year-old highly myopic man was referred to the King Khaled Eye Specialist Hospital with a history of gradual decrease of vision in both eyes because of cataract and a corneal scar. Bilateral phacoemulsification and posterior chamber IOL implantation were performed, and lamellar keratoplasty was performed at a later date in the left eye. All surgeries were uneventful.

Five months postoperatively, the patient sustained ocular trauma to his right eye that resulted in traumatic mydriasis, a self-sealed scleral laceration, and macula-on rhegmatogenous retinal detachment, which was repaired with pars plana vitrectomy, fluid–air exchange, and endolaser followed by air–gas exchange with octafluoropropane. The right eye remained stable with a corrected distance visual acuity (CDVA) of 20/80 for 4 years. Subsequently, the patient was seen in a clinic elsewhere; the CDVA was 20/125 and slitlamp examination documented aphakia at 3 consecutive visits. Posterior dislocation of the in-the-bag IOL was missed because dilated fundus examination was not performed at any of the 3 visits. A year later, the patient presented to our clinic with a 2-month history of decreased vision in the right eye.

On examination, the CDVA was 20/200 with a decompensated scarred edematous cornea and an anteriorly dislocated in-the-bag IOL (Figure 1). The axial length (AL) in the right eye was 30.0 mm. A decision was made to manage the case surgically. Preoperative evaluation revealed an anteriorly
dislocated in-the-bag IOL when the patient was sitting; however, in the operating room, the in-the-bag IOL was on the retina while the patient was supine. Penetrating keratoplasty, explantation of the entire in-the-bag IOL, and implantation of a tinted (aniridia) scleral-fixated IOL were performed (Figure 2). Currently, the patient’s condition is stable with a CDVA of 20/80 and a stable scleral-fixated aniridia IOL.

DISCUSSION

Late dislocation of a posterior chamber IOL is an uncommon but potentially serious complication after cataract surgery. Intraocular lens dislocation may occur in the absence of appropriate capsule or zonule support. Predisposing factors include high myopia, ocular trauma, pseudoexfoliation, uveitis, pars planitis, myotonic dystrophy, diabetes mellitus, increased age, retinitis pigmentosa, and a history of vitreoretinal surgery.4 Although IOL dislocation has been reported for all types of IOLs, anterior dislocation of posterior chamber IOLs occurs less frequently than posterior dislocation.5

In the case we describe, the clinical scenario can be explained by progressive zonular dialysis that resulted in late in-the-bag IOL posterior dislocation followed by anterior dislocation to the anterior chamber in a highly myopic vitrectomized eye; the dislocation was facilitated by the presence of traumatic mydriasis. The patient had known risk factors for in-the-bag IOL dislocation, such as high myopia, previous vitreoretinal surgery, and blunt trauma. High myopia is an important predisposing factor for late in-the-bag IOL dislocation due to excessive elongation of the zonular fibers, which have to support greater stress than in eyes with normal ALs.6 External and internal surgical trauma can affect the zonular integrity, leading to a lack of adequate support that enables anterior or posterior dislocation of the capsular bag. Zonular integrity can be compromised by...
sudden positive pressure in the vitreous cavity following blunt trauma behind the iris in an enlarged globe of highly myopic eyes; this can affect the lens–iris diaphragm, leading to sudden anterior movement or retropulsion. Zonular trauma may occur during vitrectomy, especially during peripheral indentation. Our patient differs from those in previous reports in that he had posterior dislocation followed by an anterior dislocation and then posterior dislocation within 5 years of the trauma and the retinal detachment repair. The patient’s eye was long (30.0 mm) and had had a vitrectomy. The traumatic mydriasis likely facilitated movement of the posteriorly dislocated in-the-bag IOL to the anterior chamber and then back to the vitreous cavity. This free back-and-forth movement increased the risk for IOL-related complications due to mechanical trauma to the intraocular structures, resulting in corneal endothelial cells loss, retinal detachment, inflammation, and visual problems.

To our knowledge, this is the first report to describe the free movement of a dislocated in-the-bag IOL from the vitreous cavity to the anterior chamber and back to the vitreous cavity. This movement was influenced by the patient’s position, which affected the intraocular structures, mainly the corneal endothelium, resulting in corneal deccompensation. Careful history taking and proper examination including dilated slitlamp examination are imperative to detect warning signs of zonular dialysis, such as phacodonesis, pseudophacodonesis, iridodonesis, vitreous in the anterior chamber, or a visible defect in the zonular region. Regular follow-up and dilated examination of high-risk patients are extremely important in early detection of zonular dialysis and IOL subluxation or dislocation, which warrant immediate surgical treatment to avoid ocular damage.

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