Late subluxation of IOL–capsular bag complex

Edited by Rupert Menapace, MD

An 84-year-old man presented reporting a semilunar reflex in the right eye for 2 weeks, in particular when supine. The patient had cataract surgery with intraocular lens (IOL) implantation in the left eye and right eye 15 years and 10 years earlier, respectively. The left eye had a secondary intervention 5 years ago, with removal of the luxated IOL–capsule complex and replacement with an angle-supported anterior chamber IOL (AC IOL). Subsequently, the right eye now also showed an inferiorly subluxated wobbling IOL with a 1.5 mm optic overlap by a heavily fibrosed anterior capsule leaf. Maximum mydriasis to 4.0 mm with the patient looking to his far left showed 1 loop of the 3-piece foldable acrylic IOL inserting in the optic at 3 o’clock. No pseudoexfoliation (PXF) material was detected at the pupillary margin, and the intraocular pressure was 15 mm Hg in both eyes. The endothelial cell count (ECC) was 2350 cells/mm² in the right eye and 2550 cells/mm² in the left eye, with no corneal astigmatism. The left eye showed signs of AC IOL oversizing with slight horizontal ovalization of the pupil and the 4 footplates of the multiflex-style AC IOL penetrating the iris root. The corrected distance visual acuity (decimal) was 0.6 in the right eye and 0.2 in the left eye because of drusen maculopathy in both eyes and a history of cystoid macular edema (CME) in the left eye.

Given the disturbing visual symptoms and that the contralateral eye developed CME after the IOL exchange, what would be your preferred surgical approach to stabilize or remedy impending luxation of the IOL–capsular bag complex?

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The risk that the IOL–capsular bag complex in the right eye will completely luxate into the vitreous over a short period is extremely high. Furthermore, the patient already reported visual symptoms such as the semilunar reflex. Therefore, I would not wait until the lens luxates completely into the vitreous and I prefer the following surgical approach.

The ECC is 2350 cells/mm² in the right eye, which is pretty good for the age of the patient and thus allows surgical intervention. First, however, I would perform fundoscopy to exclude retina holes and optical coherence tomography to check the condition of the macula and to exclude vitreomacular traction syndrome, which could lead to CME after surgery. If the macula does not show severe pathology I recommend extracting the IOL through a sclerocorneal tunnel and implanting a retropupillary fixated Artisan IOL (Ophtec Bv). Surgery should be performed under parabulbar, sub-Tenon, or general anesthesia to ensure the surgeon and the patient are unstressed. A dispersive ophthalmic viscosurgical device (OVD) would help keep the capsular bag from luxating more toward the vitreous during surgery. I would try to lift the IOL–capsule complex into the anterior chamber and extract it through the tunnel. Prolapsing vitreous has to be removed by anterior vitrectomy. Implantation of the IOL retropupillary should be performed under a cohesive OVD.

During surgery, dexamethasone 100 mg should be given intravenously. The postoperative treatment should consist of cortisone and antibiotic eyedrops 4 times per day and nonsteroidal antiinflammatory drugs (NSAIDs) to prevent CME.

There is no explanation for the CME in left eye, which means there could be vitreomacular traction syndrome in the left eye, which would perpetuate the CME.

In my opinion, the extraction of the posterior chamber IOL (PC IOL)–capsule complex is less invasive than fixing the existing subluxated IOL with sutures in the sclera. Sutures often cause problems over time.

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This patient had in-the-bag IOL dislocation, and such occurrences have become more frequent over the past few years. One risk factor for this increase is the longer pseudo-phakic lifespan in the population. Although no PXF material was observed in this patient, the reason for the zonular fiber weakness remains unknown. However, because a similar problem did occur in the left eye, a general disease that affects the zonular fibers can be assumed.

Because the left eye developed CME after an IOL exchange, the surgical approach for the right eye should be as minimally traumatic as possible. Every disturbance of the blood–aqueous barrier (BAB) would increase the risk for CME development.