Face-to-face upright seated position for removal of retained nuclear fragment from the anterior chamber after phacoemulsification

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A 75-year-old myopic woman had phacoemulsification in the left eye. One month postoperatively, a nuclear fragment was identified in the inferior part of the anterior chamber. On the day of surgical removal, the fragment could not be seen in the anterior chamber despite gonioscopy. The patient was instructed to adopt a head-down position, after which the fragment reappeared. Miosis was achieved with pilocarpine. With the face-to-face upright seated position, the patient’s head was almost vertical during surgery. Using a heavy ophthalmic viscosurgical device, low bottle height, and bimanual irrigation/aspiration, the fragment was removed without difficulty.

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Phacoemulsification is occasionally complicated by retained fragments of lens material in the anterior segment. Retained nuclear fragments may cause intraocular inflammation, corneal edema, macular edema, and elevated intraocular pressure.1–4 Surgical removal usually results in resolution of inflammation. Fragments in the anterior chamber may be easily visible with the slitlamp1,2 or gonioscopically,1,3 but occult fragments behind the iris may need specialized imaging techniques.5 Myopic eyes appear to be at increased risk.1,6

Surgical removal of retained fragments is often straightforward, using the phacoemulsification probe (for larger fragments) or bimanual irrigation/aspiration (I/A). However, the irrigation fluids may push a fragment behind the iris, from where it may be difficult or impossible to retrieve via an anterior approach.1,6 We describe a technique that should maximize the likelihood of removing a retained fragment from the anterior chamber at the first attempt.

CASE REPORT

A 75-year-old woman had uneventful phacoemulsification in the left eye. Preoperatively, the eye was myopic with an axial length of 25.27 mm and spectacle correction of −5.0 diopter sphere. One month postoperatively, a small (approximately 1.5 mm) fragment of nuclear matter was identified in the inferior part of the anterior chamber, with an associated anterior uveitis. The inflammation responded to topical steroids but recurred when steroids were discontinued. At times, the fragment was not visible in the anterior chamber, presumably because it had migrated behind the iris. Initially, the patient was reluctant to have further surgery; however, because of sustained uveitis, she agreed to fragment removal.

Fragment removal took place 3 months after the original surgery. On the day of surgery, the fragment could not be identified on slitlamp examination despite gonioscopy. The patient was asked to lean forward and look down at the floor for 5 minutes. After this, the fragment reappeared in the anterior chamber at the 6 o’clock position. The patient was instructed to remain seated upright, and pilocarpine 2.0% eyedrops were instilled.

Surgery was performed in the face-to-face upright position, with the patient seated upright so her face was almost vertical. Two paracentesis stabs were made through clear cornea at the 1 o’clock and 5 o’clock positions. A...
superviscous cohesive ophthalmic viscosurgical device (OVD) (sodium hyaluronate 1.4% [Healon GV]) was used to fill the anterior chamber before the fragment was removed using a standard bimanual I/A cannula. The height of the infusion bottle was set to a low level. The fragment remained stable in the anterior chamber during uneventful removal.

**DISCUSSION**

Removal of retained fragments from the anterior chamber can be difficult. In our experience, attempts at simple forceps removal may cause the fragment to disintegrate, so we prefer to use the phacoemulsification probe or I/A cannula. However, irrigation means that a fragment might disappear behind the iris, particularly if there is a high flow rate, a supine patient, and/or a dilated pupil. A lost fragment behind the iris may lead to difficult and prolonged surgery, or to abandonment of surgery with the fragment in situ if it cannot be found. Previous authors have suggested the use of miotics to keep the fragment in the anterior chamber.

We believe it is desirable to keep a nuclear fragment in the anterior chamber to facilitate removal. We achieved this with a combination of miotic drops, heavy OVD, low flow rate (low bottle height), and positioning the patient so her face and eye were upright instead of in the standard supine position. We believe the use of the upright positioning was helpful because it allowed gravity to assist in keeping the fragment in the lower part of the anterior chamber. We did not want to perform a simple forceps removal because it would have required a larger incision and may have required I/A to remove residual lens matter.

We have been using the face-to-face upright seated position for over a decade in patients who cannot position normally for cataract surgery. In this case, we used face-to-face positioning for an ocular problem, not a patient-positioning problem. The technique requires a microscope that rotates forward to face the patient and a patient chair with a headrest. Topical intracameral anesthesia enables the patient to look toward the microscope light, keeping the eye on axis. To our knowledge, this is the first report of face-to-face upright positioning for a patient who can position normally.

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