

Capsular Cleansing and Primary Posterior Continuous Curvilinear Capsulorhexis

Constant improvement of the cataract procedure yields dividends.

BY JASON JONES, MD

Cataract surgery constantly evolves. I always seek to improve my surgical outcomes through new methods. Two recent changes I made are a technique to meticulously cleanse the capsular bag and the use of a posterior continuous curvilinear capsulorhexis (PCCC).

METICULOUS CLEANSING OF THE CAPSULAR BAG

With advanced-technology IOLs, I need to be able to readily exchange a lens. I have used other techniques to clean the undersurface of the anterior capsule, but I recently began relying on a combination of the Rentsch capsule curette (Geuder AG, Heidelberg, Germany) for most of the capsule and the Singer Sweep (Epsilon, Ontario, Canada) to reach subincisionally via the paracentesis incision. In my hands, the benefits of cleaning the anterior capsule are reduced posterior capsular opacification (PCO), less capsular fibrosis, easier IOL exchanges, and a reduced reaction in the anterior chamber (Figure 1).

Often, these devices liberate not only anterior capsular lens epithelial cells but also more significant cortical material from the fornix. This may not ultimately prevent PCO and the need for an Nd:YAG capsulotomy, but it reduces the burden of cellular debris that contributes to PCO and delays the formation of any significant opacity. This may allow neuroadaptation to occur by avoiding the need for an early Nd:YAG procedure in patients receiving a multifocal lens. I now use this technique on all patients undergoing cataract surgery, regardless of the type of IOL implanted.

PCCC

For many years, I have polished the central posterior capsule with a silicone-tipped cannula on a 5-mL saline-filled



Figure 1. Anterior subcapsular lens epithelial cells are removed using a Rentsch capsule curette.

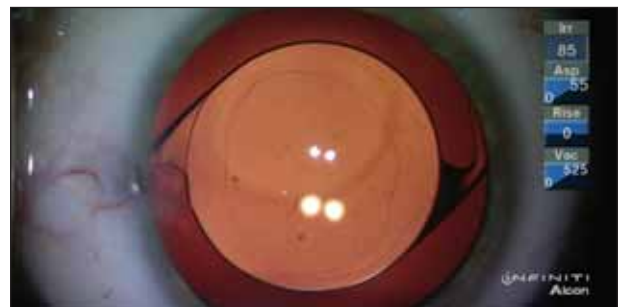


Figure 2. A well-positioned IOL in the capsular bag with a primary PCCC. Note the clean peripheral capsule.

syringe. I still use this technique, but it is inefficient in certain cases. Significant posterior subcapsular cataracts often have adherent central material, and sometimes, considerable opacity remains despite extensive polishing. In rare instances, I have even ruptured the posterior capsule.

Recently, I began making a PCCC to create a clear visual axis. Because this procedure is performed in a controlled

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environment, I have found it to be safe and predictable. I create a primary PCCC in eyes with adherent central posterior material or when I anticipate difficulty in performing an Nd:YAG capsulotomy (ie, nystagmus, patient's mental inability to cooperate, or significant tremors [under sedative control during surgery], advanced kyphosis, and pediatric cataract surgery). After creating a continuous tear in the posterior capsule and curetting the anterior undersurface and fornix of the capsular bag, an IOL exchange should still be a reasonable option (as opposed to one in the presence of an Nd:YAG-performed posterior opening), although I have no experience with this situation to date.

The technique involves limited polishing of the midperipheral posterior capsule with a silicone-tipped cannula to remove material that could inhibit a smooth tear. Next, injecting a small amount of a cohesive ophthalmic viscosurgical device (OVD) inflates the capsular bag; it is important to create some space, not a taut posterior capsule (Figure 2). The posterior surface of the anterior capsule can now be polished if desired. A 30-gauge hypodermic needle bent at the hub opposite the bevel is introduced through the paracentesis, and the tip is advanced into the posterior capsule centrally or paracentrally. The tip catches a fold of capsule, is elevated anteriorly from the hyaloid face, and is then advanced through the membrane using the bevel to incise a small tear with a slight sideways motion. After withdrawing the needle, I instill a cohesive OVD through this opening to inflate Berger's space and inject viscoelastic anterior to the capsule to suspend it in OVD. Utrata forceps are used to tear a capsulorhexis. The nasal bag is inflated with an OVD, and the lens is introduced in a routine manner. The OVD in the anterior chamber and peripheral capsular bag is evacuated, but the material posterior to the lens remains. I have had no problems with postoperative elevations in IOP despite retained viscoelastic posterior to the lens. Nor have I observed other complications such as cystoid macular edema, vitreous prolapse, IOL decentration, or retinal detachment, although I have performed a relatively small series in this manner. The evolution of cataract surgery continues! ■

Please visit eyetube.net/video/capsule-cleansing-and-primary-pccc and eyetube.net/video/capsule-cleansing/ to view the companion videos demonstrating these techniques.



Jason Jones, MD, is medical director of Jones Eye Clinic in Sioux City, Iowa. He acknowledged no financial interest in the products or companies mentioned herein. Dr. Jones may be reached at (712) 239-3937; jasonjonesmd@mac.com.

