

Tips for Advanced Cataract Surgery
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Posterior Capsule Tears

If the posterior capsule tears during cataract surgery, the natural tendency is to continue phacoemulsification and remove as much of the nucleus as possible before resorting to mechanical irrigation-aspiration or vitrectomy. However, this approach may extend the capsular tear and worsen prolapse of vitreous. When confronted with a capsular tear, consider this alternative approach:

- a) On recognizing a tear in the posterior capsule, STOP! Suspend phacoemulsification.
- b) Infuse viscoelastic in the anterior chamber to maintain the anterior chamber and tamponade the hyaloid face. Use the viscoelastic to separate the posterior capsule from nuclear lens fragments. Using the phaco tip or other instruments, move nuclear lens fragments into angle of the anterior chamber. The isolated nuclear fragments will not drop into the vitreous with the iris as a barrier.
- c) Remove residual cortex with a 27-gauge canula on a 3-mL syringe. Do not use the mechanical irrigation-aspiration unit at this time since it tends to exacerbate capsular tearing and vitreous prolapse into the anterior chamber.
- d) Insert a three-piece lens implant in the ciliary sulcus (a one-piece lens implant is unstable without an intact capsular bag). Use miochol or miostat to constrict the pupil.
- e) Resume phacoemulsification. A constricted pupil and intact lens implant serves as an effective barrier to prevent vitreous prolapse and displacement of cataract material into the vitreous.

Viscodissection

Hydrodissection creates a plane of cleavage between the cortex and capsule. Separation of the cortex and capsule creates a “safety zone” that prevents the ultrasound from the phaco probe from injuring the posterior capsule. A plane of cleavage also allows for rotation of the nucleus within the capsular bag. The addition of viscoelastic between the cortex and capsule (viscodissection) may enhance safety of cataract surgery by producing greater separation of the cortex and capsule, and also by providing a cushion that absorbs ultrasound energy. This is particularly useful with high-energy emulsification of a hard nucleus close to the posterior capsule.

Viscodissection technique: First apply hydrodissection as usual with BSS. Using a small canula, carefully inject viscoelastic while moving the canula under the lip of the anterior lens capsule in a sweeping motion. It is important to inject viscoelastic slowly since too forceful an injection may damage the posterior lens capsule. A fluid wave as seen with hydrodissection is not necessary; the presence of viscoelastic in four quadrants is sufficient.