

- ◆ The use of topical corticosteroids following corneal surgery may hasten PSC development.
- ◆ Cataract surgery after corneal transplantation may damage the corneal graft.
- ◆ Surgery is limited to a single procedure.
- ◆ Visual rehabilitation is quicker.

Cataract surgery at the time of penetrating keratoplasty (PK) presents surgical challenges. Intraocular lens power calculation is complicated because the post-penetrating keratoplasty corneal curvature can only be estimated. Since IOL power calculations are less accurate, toric and multifocal IOLs should generally be avoided.¹⁰⁹⁵ Some surgeons prefer to perform PK first, followed by cataract removal later after sutures are out and the corneal graft has stabilized. If a cataract is removed following suture removal and stabilization of corneal graft keratometry, a more predictable IOL power and, hence, refractive result may be possible.^{1096, 1097}

Surgeons should attempt to limit “open-sky” time (the time between corneal trephination and replacement) in whatever approach is taken because of the increased risk of expulsive hemorrhage during hypotony. Performing the PK first and following it with later cataract extraction decreases the open-sky time. These considerations apply to deep anterior lamellar keratoplasty as well. In combined cases, phacoemulsification should be performed before PK if visualization is adequate to limit the amount of open-sky time.¹⁰⁹⁸ Capsular staining dyes may improve the likelihood of achieving an intact capsulorrhexis when performing cataract extraction through a cloudy cornea.¹⁰⁹⁹

Cataract surgery and vitreoretinal procedures

Cataract surgery following intravitreal injections

A history of intravitreal injection can make cataract surgery more complicated. Intravitreal injections are an increasingly common for a variety of conditions including macular degeneration and diabetes.^{1100, 1101} Intravitreal injection of corticosteroids can increase the rate of cataract progression.¹¹⁰² Iatrogenic capsular damage from intravitreal injections can be difficult to detect preoperatively and may complicate surgery.¹¹⁰³ Several studies reported a several-fold increase in capsular rupture and retained nuclear material in patients with a history of intravitreal injections.^{782, 1005, 1104, 1105} Careful preoperative and intraoperative evaluation of the capsule can sometimes detect capsular damage from intravitreal injections. The surgical approach with known damage to the capsule is similar to other conditions where there is a breach in the posterior capsule (e.g., posterior polar cataract). The surgeon should counsel the patient about the increased risk of complications due to the history of intravitreal injections.

Cataract surgery after pars plana vitrectomy

Cataract surgery is often necessary before, during, or following vitreoretinal surgery. Vitreoretinal procedures may cause pre-existing cataracts to progress, typically manifesting as increased nuclear sclerosis, and a predilection for the development of posterior capsular plaques.¹¹⁰⁶⁻¹¹¹¹ Management of such cataracts may be more complex, because capsular defects or weakened zonular fibers may be present.^{782, 1004, 1105} The anterior chamber depth may also be unstable during surgery. Iris hooks can be helpful in these situations. Adequate visual rehabilitation may occur with cataract surgery alone for some retinal pathologies. In silicone oil-filled eyes, bubbles can migrate to the anterior segment and may have to be managed intraoperatively.

Cataract surgery before pars plana vitrectomy

Phacoemulsification may be recommended before a planned vitrectomy to improve visualization of the posterior segment. Secure wound closure is important to permit safe subsequent vitreoretinal maneuvers.¹¹¹²⁻¹¹¹⁴ Surgeons should avoid silicone or hydrophilic optic materials when a patient is having a planned vitrectomy following the cataract