

**Table 63-1****VIT KIT ITEMS (NOT EXHAUSTIVE)**

- Vitrectomy pack for phaco
- Calipers
- Microvitreoretinal blades
- Trocars
- 23-gauge angled infusion cannula if not included in vit pack
- Triesence (triamcinolone acetonide)
- Arbisser nuclear spears
- Scissors
- Nonirrigating vectus
- Rings and segments for zonular defects
- Intraocular instruments
- Sutures: 8-0 polyglactin, 10-0 nylon, 9-0 and 10-0 polypropylene, CV-8 Gore-Tex (off-label)
- Back-up implants (3-piece, anterior chamber IOLs)
- Extra OVD (dispersive and cohesive)
- Acetylcholine chloride
- Preservative-free epinephrine
- Trypan blue
- 2% lidocaine for sub-Tenon's anesthesia
- 26-gauge straight and J cannulas
- Syringes for dry cortex removal



**Figure 63-2.** Biaxial incisions with new anterior paracentesis to fit the vitrector. The simplest choice for minimal vitreous presentation and the only choice when the view behind pupil is obscured.

are sure signs of zonular loss with possible vitreous prolapse through the defect. A subtle sign of the presence of a forward strand of vitreous may be the inability to seal a properly constructed incision.

## Vitrectomy Options

To avoid vitreous traction, consider the best approach based on the particular condition of the eye. We need not always use an automated vitrector. If a small wisp of vitreous presents around zonules, it can be amputated with scissors and repositioned to the posterior segment with OVD.

A simple wisp that can be controlled is rare when vitreous prolapses through a broken posterior capsule. In the face of prolapse, automated vitrectomy is almost universally needed. In all cases, the clear corneal paracentesis will be used for the irrigation cannula. When there is a small amount of prolapse without vitreous loss through incisions, vitrectomy can be nicely handled with the vitrector inserted through a clear corneal incision sized to fit the bare vitrector shaft. This is also always the right choice when there is no view through the pupil or there is extreme or abnormal dimensional anatomy.

In the presence of copious vitreous prolapse, vitreous loss through incisions, or significant herniation around the bag equator, a pars plana sclerotomy approach to anterior vitrectomy is most efficient and preferable in my experience. The irrigating cannula is still placed through the clear corneal paracentesis. A direct entry sclerotomy is created under a fornix-based conjunctival flap with a microvitreoretinal blade. At the end of the case, this sclerotomy should be sutured whatever the vitrector gauge. Alternatively, a trocar system that allows a transconjunctival sutureless entry is theoretically the best option as long as the globe can withstand the pressure required to make the sclerotomy. Trocars have the advantage of allowing repeated entry without trauma to the sclera or choroid. They are less likely to have incarceration at the incision site, which can result in vitreous traction. Any incision, anterior or posterior, should be closed when not in use. Sclerotomies can be closed with a temporarily tied suture (preferably 8-0 polyglactin), a scleral plug, or with a valved trocar (Figure 63-2).

## First Signs of Complication

A rupture in the posterior capsule and, in particular, the anterior hyaloid changes the pressure relationship between the anterior and posterior chambers and the posterior segment. This change in the distribution of fluid will in turn affect the anterior chamber's depth and, often, the pupil's size. The pupil may suddenly bounce or snap (Video 63-1). An increase or decrease in the anterior chamber's depth during phacoemulsification or irrigation/aspiration (I/A) is a warning sign, so unless there is a good explanation for the change, stabilize and explore.

A momentary spider of the posterior capsule is likely associated with a tear and must be inspected after stabilizing the chamber and protecting the hyaloid with OVD. An unusually clear appearance of the posterior capsule is usually a rent or hole (Video 63-2).

Because vitreous follows a gradient from high to low pressure, it will always preferentially seek the flow into the phaco or I/A tip and obstruct its action. If lenticular material suddenly stops coming to the phaco tip, there is likely vitreous in the way. Vitreous cannot be refluxed out of an I/A tip but must be sharply cut to avoid traction.

The classic later signs of vitreous loss are an asymmetrically enlarged pupil and remote movement of the iris when touching the incision. Another ominous sign of vitreous loss is tilting of the nucleus' equator or loss of mobility in a previously rotatable nucleus. Seeing clear space beyond the equator or having the equator come into view after removing the nucleus