Vitreous hemorrhage adhering to the posterior lens capsule prevents adequate visualization of the vitreous cavity and fundus during vitreous surgery and during the dissection of fibrovascular membranes. This type of hemorrhage is difficult to remove by aspiration or resection using a vitreous cutter. We have developed a new technique designed to detach surgically the anterior vitreous for the removal of hemorrhage in patients with proliferative diabetic retinopathy. In this hydrodissection technique, the anterior vitreous is detached from the posterior lens capsule by a forced injection of infusion fluid into the anterior chamber. This technique separates the vitreous hemorrhage adhering to the posterior lens capsule and allows its removal.

PATIENTS AND METHODS

We performed vitreous surgery using the standard 20-gauge, 3-port incision with an infusion cannula, endoillumination, and a vitreous cutter in 2 patients with proliferative diabetic retinopathy. One patient was a 36-year-old woman with a 2-year history of non–insulin-dependent diabetes mellitus; the other was a 49-year-old man with a 16-year history of the same disease. Both patients underwent vitreous surgery for vitreous hemorrhage and tractional retinal detachment associated with proliferative diabetic retinopathy. During their surgery, a vitreous hemorrhage adhering to the posterior lens capsule prevented adequate visualization of the posterior segment, which made it difficult to dissect the fibrovascular membrane. We therefore removed the hemorrhage using the hydrodissection technique reported here.

SURGICAL TECHNIQUE

Hydrodissection of the anterior hyaloid membrane was performed as follows. After core vitrectomy was performed, a side port was created at the limbus. A dull 27-gauge needle was attached to the tip of a 10-mL disposable syringe filled with infusion fluid. The infusion bottle was positioned approximately 10 to 15 cm above the level of the patient's head, and infusion fluid was infused into the anterior chamber (Figure 2). The plunger of the syringe was depressed firmly for a few seconds to force the infusion fluid into the anterior chamber, which caused the anterior vitreous to suddenly detach from the posterior lens capsule (Figure 3). The detached vitreous hem-

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Figure 1. Attachment of the vitreous to the lens and vitreous base.

Figure 2. Infusion of fluid into the anterior chamber from the side port in the limbus.

Figure 3. Disruption of the Wieger ligament, leading to artificial induction of anterior vitreous detachment.

The infusion of fluid into the anterior chamber from the side port in the limbus.

We have used this technique without complication in 2 patients with proliferative diabetic retinopathy. This technique allowed the separation and removal of the vitreous hemorrhage adhering to the posterior lens capsule.

The conventional method for removal of vitreous hemorrhage adhering to the posterior lens capsule is aspiration and resection with a vitreous cutter. However, because the anterior hyaloid adheres firmly to the posterior lens capsule via the hyaloid capsular ligament of Wieger, forming a ring (Figure 1), removal of vitreous hemorrhage by this method is difficult. The ring-shaped attachment site has a diameter of 8 to 9 mm and a width of 1 to 2 mm. This attachment is more firm in young eyes but becomes weaker with increasing age. This anatomical feature accounts for the difficulty in removing a vitreous hemorrhage adhering to the posterior lens capsule.

Disruption of the Wieger ligament is a condition known as anterior vitreous detachment. The technique of surgically inducing an anterior vitreous detachment results in the formation of adequate space between the posterior lens capsule and the anterior hyaloid to allow safe and easy removal of the anterior hyaloid hemorrhage.

Some surgeons use pars plana lensectomy to remove the vitreous hemorrhage with the posterior capsule. The advent of endophotocoagulation and indirect delivery of laser, as well as more aggressive photocoagulation therapy, has diminished the risk of neovascular glaucoma after vitreous surgery with lensectomy, as compared with that previously reported. Nevertheless, there still may be a slightly increased risk of inducing neovascular glaucoma with lensectomy surgery. Therefore, we recommend preserving a clear lens whenever possible.

Our technique will work best when the pupil is widely dilated to facilitate movement of the infusion fluid around the lens and through the zonules. Without wide pupillary dilatation, the movement of the infusion fluid into the posterior chamber may be more difficult. If pupillary dilatation is insufficient, the access to the posterior chamber may be blocked, leading to posterior displacement of the lens-iris dia-


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