As Delicate as it Gets

Releasing traction on the cystic fovea in vitreomacular traction syndrome.

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In 1994, along with our colleague C. Douglas Witherspoon, we introduced the term "traction maculopathy" to describe the group of primary macular abnormalities caused by traction forces, i.e., cellophane maculopathy, macular pucker, macular hole and vitreomacular traction syndrome (VMTS).[1] VMTS, caused by the persistent adherence of vitreous to the macula in the presence of at least a partial posterior vitreous detachment outside the macula, is the least common of these conditions. In the absence of spontaneous resolution, visual acuity progressively decreases in most symptomatic eyes.[2] Left untreated, VMTS can lead to cystoid macular changes, full thickness macular hole and occasionally to macular detachment.

Vitrectomy for VMTS

A common manifestation of VMTS is a cystic fovea that is not easily visualized clinically, especially with a noncontact lens. Therefore, optical coherence tomography (OCT) is an essential diagnostic and monitoring tool.

Spontaneous resolution of VMTS has been reported;[3] therefore, it is usually reasonable to observe patients for months without intervening. However, the majority of symptomatic VMTS does not resolve on its own, and chronic foveal cysts are associated with progressive, irreversible loss of visual acuity. Therefore, we usually recommend vitrectomy to release severe and/or persistent traction, improve visual acuity and prevent further structural/functional deterioration. We avoid a rigid visual acuity indication requirement, preferring to also assess each case with regard to anatomic severity and patient needs and preferences.

The anterior-posterior traction in VMTS can be successfully relieved with relative ease, but the need to do so without creating additional traction on the macula and unroofing a fragile foveal cyst can at times make the procedure quite daunting. One method of doing so is to gently remove the central vitreous and then circumferentially incise the posterior vitreous face peripheral to the macula, as the more anterior cortical vitreous is elevated and removed. Finally, the remaining vitreous overlying the macula is progressively lifted and removed, from its peripheral cut edge centripetally towards the fovea, utilizing judicious triamcinolone vitreous marking. (**Figures 1 and 2**) In proximity to the cystic fovea, it obviously becomes crucial to employ the lowest level of suction necessary to progress. As can be seen on postoperative OCT, a small tag of preoperatively transparent vitreous left on the fovea will rarely be clinically significant. It is thus wise at this point to recall the axiom "Perfect is the enemy of good."

Alternatively, release of VMTS traction can be achieved

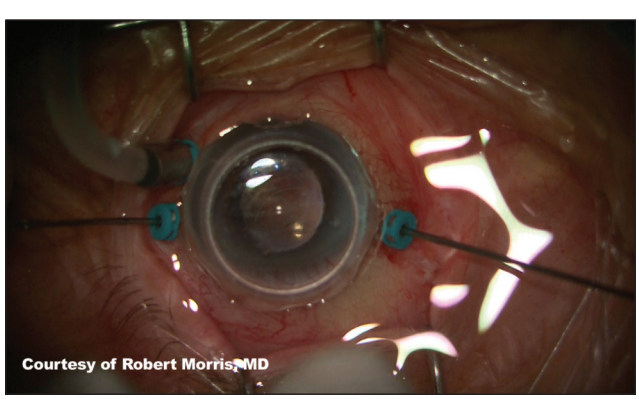

Figure 1. The GRIESHABER® DSP Aspheric Macular Lens (Alcon) facilitates an excellent view for vitrectomy in vitreomacular traction syndrome.

See adjacent page for important safety information.

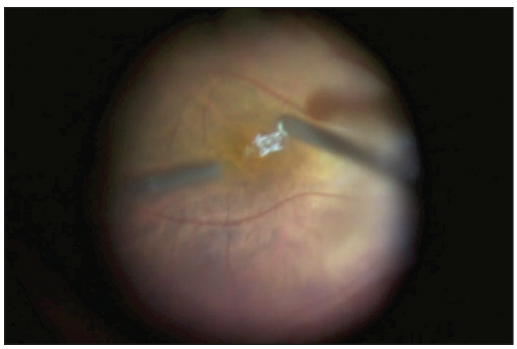

Figure 2. Removal of the triamcinolone-marked vitreous overlying the macula at the conclusion of 25-gauge vitrectomy for vitreomacular traction syndrome. This patient's visual acuity improved from 20/40 preoperatively to 20/25 postoperatively.

by performing vitrectomy from posterior to anterior, so that the macula is easily visible at the initiation of vitreous removal.

Low-End Suction Control is Crucial

In either surgical method described here, recent advances in technology have been a great help. Many surgical platforms now offer much improved control of suction at the low end. With the CONSTELLATION® Vision System (Alcon) in particular, we can take advantage of ultra-high-speed cutting (up to 5,000 cpm), 25-gauge instruments that allow excellent fluidics, a small, tip-close port, and sophisticated control of low-end suction to literally shave the vitreous to within microns of the cystic foveal surface in VMTS. With older consoles, as we approached the compromised fovea it was necessary to switch to a retinal pick, forceps or scissors to finish the traction release manually. Otherwise, poorly controlled outflow could easily unroof a cystic fovea at the slightest touch of the suction/cutter pedal.

Patients who undergo vitrectomy for VMTS involving foveal cysts may experience less vision recovery than in other forms of macular traction in which chronic cysts are not present. Nevertheless, approximately 70% of our VMTS patients have acuity improvement of two lines or more following surgery.

View Dr. Morris' vitrectomy for VMTS at http://www.retinalphysician.com/content/video/MorrisVMTS.mp4

References

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2. Hikichi T, Yoshida A, Trempe CL. Course of vitreomacular traction syndrome. *Am J Ophthalmol* 1995;119(1):55-61.
3. Odrobina D, Michalewska Z, Michalewska J, Dziegielewski K, Nawrocki J. Long-term evaluation of vitreomacular traction disorder in spectral-domain optical coherence tomography. *Retina* 2011;31:324-331.

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