

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

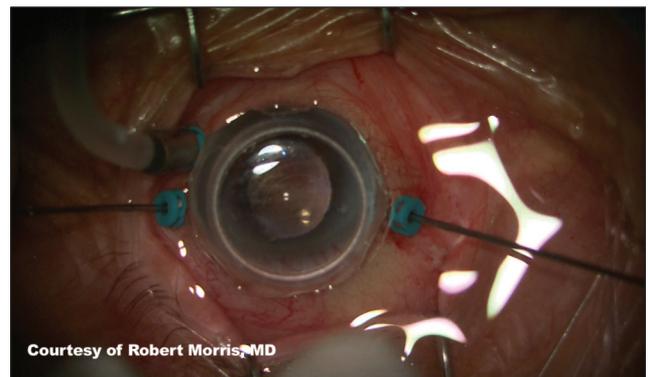


Figure 1. The GRIESHABER® DSP Aspheric Macular Lens (Alcon) facilitates an excellent view for vitrectomy in vitreomacular traction syndrome.

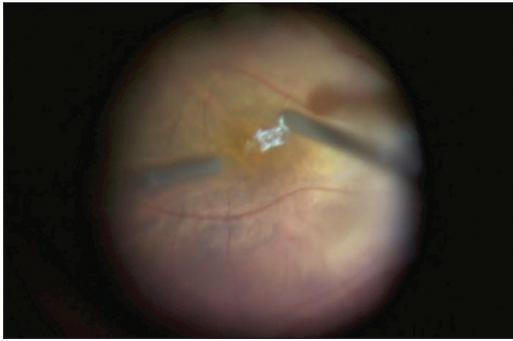


Figure 2. Removal of the triamcinolone-marked vitreous overlying the macula at the conclusion of 25-gauge vitrectomy for vitreomacular traction syndrome. This patient's visual acuity improved from 20/40 preoperatively to 20/25 postoperatively.

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

1. Morris R, Kuhn F, Witherspoon CD. Hemorrhagic macular cysts. *Ophthalmology* 1994;101(1):1-2.
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.

CONSTELLATION® Vision System Indications for Use

Indications for Use: The CONSTELLATION® Vision System is an ophthalmic microsurgical system that is indicated for both anterior segment (i.e., phacoemulsification and removal of cataracts) and posterior segment (i.e., vitreoretinal) ophthalmic surgery.

Caution: Federal (USA) law restricts this device to sale by, or on the order of, a physician.

Warnings and Precautions:

- The disposables used in conjunction with ALCON® instrument products constitute a complete surgical system. Use of disposables and handpieces other than those manufactured by Alcon may affect system performance and create potential hazards.
- Attach only ALCON® supplied consumables to console and cassette luer fittings. Do not connect consumables to the patient's intravenous connections.
- Mismatch of consumable components and use of settings not specifically adjusted for a particular combination of consumable components may create a patient hazard.
- Vitreous traction has been known to create retinal tears and retinal detachments.
- The closed loop system of the CONSTELLATION® Vision System that adjusts IOP cannot replace the standard of care in judging IOP intraoperatively. If the surgeon believes that the IOP is not responding to the system settings and is dangerously high or low, this may represent a system failure. Note: To ensure proper IOP Compensation calibration, place infusion tubing and infusion cannula on a sterile draped tray at mid-cassette level during the priming cycle.
- Leaking sclerotomy may lead to post operative hypotony.

Important Safety Information: Warnings and Cautions: A complete listing is available in the CONSTELLATION® Vision System Operators Manual. To obtain a copy, please contact Alcon Customer Service.

Attention: Reference the Directions for Use for a complete listing of indications, warnings, and precautions.

GRIESHABER® Aspheric Lens Indications for Use

Indications for Use: The GRIESHABER® DSP Aspheric Macular Lens is used to visualize the fundus and retinal structures during vitreoretinal surgery. It is designed as a self-retaining contact lens to allow hands-free operation.

Caution: Federal (USA) law restricts this device to sale by, or on the order of, a physician.

Warnings and Precautions:

- The device may be used only by well trained physicians and personnel.
- Potential risk from reuse or reprocessing include: reduced optical quality, surface damage on the optics, and foreign particle introduction to the eye.
- The surgeon's team has to ensure that sufficient viscous fluid is available throughout usage of the lens for continuous humidification of the cornea.

Attention: Reference the Directions for Use for a complete listing of indications, warnings, and precautions.

Dr. Morris is President of the Helen Keller Foundation for Research and Education. **Dr. Kuhn** is President of the American Society of Ocular Trauma. **Dr. Sapp** is the managing physician at Retina Specialists of Alabama, the practice with which Dr. Morris and Dr. Kuhn are also associated. Each of the physicians is a clinical faculty member in the University of Alabama at Birmingham Department of Ophthalmology. They have no financial relationship with Alcon Laboratories.