

Molteno Fever on Eyetube.net

BY NATHAN M. RADCLIFFE, MD

With a seemingly infinite number of variations on the theme of placing a glaucoma drainage device, the topic of how to implant the perfect tube never seems to get old. Ligations, stents, vents, fenestrations, slits, valves, and orphan trabeculectomies can be placed in a combinatorial fashion to help regulate flow for the early postoperative period and beyond. Past “Inside Eyetube.net” columns have looked at trabeculectomy, blebless glaucoma surgery, and other alternatives to trabeculectomy. Additionally, they have considered a few augmentations of standard glaucoma drainage devices’ placement such as the use of triamcinolone to verify flow through a glaucoma drainage device and placement of a tube in the sulcus.

As a surgeon who has a strong affinity for the Ahmed Glaucoma Valve (New World Medical, Inc., Rancho Cucamonga, CA), Molteno Implants (Molteno Ophthalmic Limited, Dunedin, New Zealand), and Baerveldt Glaucoma Implants (Abbott Medical Optics Inc., Santa Ana, CA), I often discuss the many indications for and variations of each valve with my colleagues. Although the indications vary from doctor to doctor, the Molteno3 Glaucoma Drainage Device deserves consideration. This tube seems to seek neutral territory in the Baerveldt versus Ahmed battle. The Molteno3 maintains an intermediate profile and contour. (It is placed between the rectus muscles rather than underneath them.) It maintains an overall silhouette more similar to the Ahmed valve’s than to that of the lower but wider Baerveldt model BG-101-350. The Molteno3 is not valved and is made out of a stiffer polypropylene rather than the medical-grade silicone used for the Baerveldt and Ahmed model FP-7, and it comes in two sizes, 175 mm and 230 mm. The 175-mm device was designed for superonasal placement (to avoid the optic nerve and superior oblique muscle) in eyes requiring a second valve after the superotemporal placement of a Baerveldt or Ahmed valve.

SURGICAL PEARLS FOR IMPLANTING THE MOLTENO3

Recently on Eyetube.net, Anup K. Khatana, MD, provided a comprehensive series of videos demonstrating his

technique for implanting a Molteno3 230-mm glaucoma drainage device. He places the plate 8 to 10 mm posterior to the limbus, with the tube’s entering 1.5 mm posterior to the limbus under a pericardial patch graft. Complete attention to detail is provided in his narration, including the manufacturer and style of each suture. For example, after the tube is secured to the sclera, Dr. Khatana recommends using a 9-0 monofilament Vicryl suture (VAS 100; Ethicon, Inc., Somerville, NJ) to finish the surgery (Figure 1) (<http://eyetube.net/v.asp?molupo>).

The suture is the same one used by glaucoma surgical guru Garry P. Condon, MD, in the wildly popular “Closing the Fornix-Based Conjunctival Flap” video. Most readers have likely heard about Dr. Condon’s conjunctival closure after trabeculectomy or placement of the Ex-Press mini glaucoma shunt (Alcon Laboratories, Inc., Fort Worth, TX). This is the video that demonstrates the technique (Figure 2) (<http://eyetube.net/v.asp?gehotu>).

Going back to Dr. Khatana’s Molteno3 video, I highly recommend this Eyetube.net series to experienced surgeons who use Molteno implants, experienced surgeons who have yet to place a Molteno3, and ophthalmology residents or glaucoma fellows who are interested in

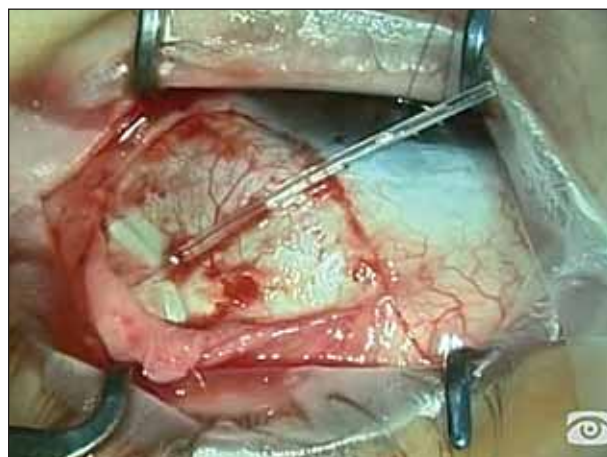


Figure 1. The surgeon implants a Molteno3 with Tutoplast Processed Human Tissue Graft (IOP Inc., Costa Mesa, CA) in the eye of a patient with primary open-angle glaucoma.

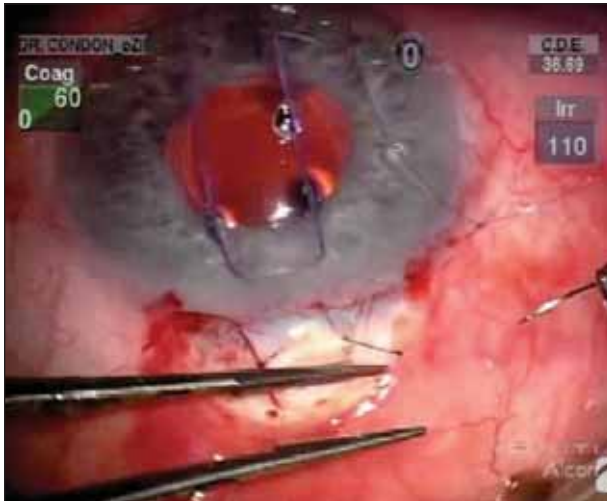


Figure 2. The surgeon shares his techniques for achieving a watertight, fornix-based closure of the conjunctival flap.

showing up to the OR with a solid foundation of knowledge on this highly nuanced surgery. Those who have never placed a Molteno3, in addition to Dr. Khatana's video, may also wish to review the Molteno3 surgical guide (<http://www.molteno.com/information/glaucoma-drainage-devices/molteno3/M3-SurgicalGuide.pdf>). It was written by Anthony C. B. Molteno, FRCS, FRACO, and contains many useful pearls applicable to shunt procedures.

ARTFULLY PLACING THE MOLTENO3

When looking for tips on how to finesse the placement of a glaucoma drainage device, whom better to learn from than Jeffrey Freedman, MD, PhD. He demonstrates his technique for a supra-Tenon's placement of a Molteno in the eye of a patient with a previously failed Ex-Press device. Dr. Freedman initiates the surgery by dissecting both the conjunctiva and Tenon's capsule from the limbus using a Bard-Parker Protected Surgical Blade (BD, Franklin Lakes, NJ). Next, using Westcott forceps, he performs an elegant dissection to separate the conjunctiva from Tenon's capsule. Dr. Freedman points out that the surgeon can titrate the anticipated capsular thickness by altering the depth of dissection between Tenon's and the conjunctiva. After pulling Tenon's capsule forward using a 7-0 Vicryl suture, he places the Molteno3 into the dissected supra-Tenon's pocket. His technique involves the use of a 3-0 supramid intraluminal suture to provide an option for short- and intermediate-term IOP reduction. After scleral fixation of the plate, a tenonectomy is performed for the capsule located between the limbus and the plate. After inserting the tube's tip into the anterior chamber but before placing the pericardial patch graft,

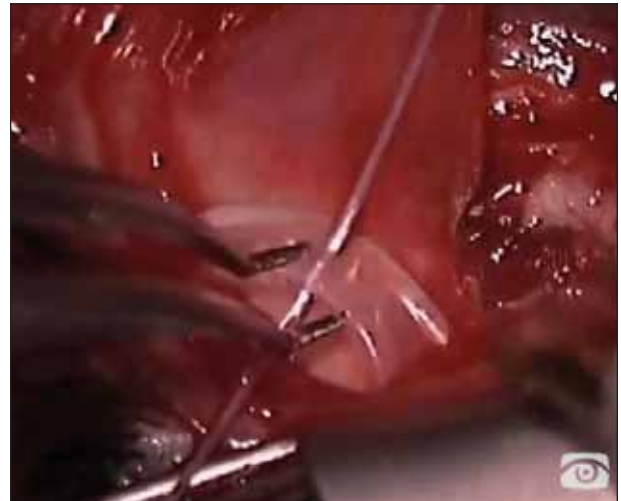


Figure 3. The surgeon implants a Molteno3 in the eye of a patient with a previously failed Ex-Press device.

Dr. Freedman uses a microsharp blade to make a 1- to 3-mm Sherwood slit, which is titratable to the level of desired short-term IOP reduction (Figure 3) (<http://www.eyetube.net/v.asp?jutovu>).¹

CONCLUSION

Many surgeons' tube shunt techniques are an art in constant evolution. When reconsidering their current technique for implanting glaucoma drainage devices, I recommend that surgeons take a look at videos on Eyetube.net that demonstrate how colleagues perform the surgery. Viewers may post comments or questions. I encourage readers who use a technique that they do not see on Eyetube.net to share it! □

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1. Sherwood MB, Smith MF. Prevention of early hypotony associated with Molteno implants by a new occluding stent technique. *Ophthalmology*. 1993;100(1):85-90.

