

Trabeculectomy Alternatives

BY NATHAN M. RADCLIFFE, MD

If you are thinking of adding an alternative to standard trabeculectomy to your surgical armamentarium, Eyetube.net offers a wealth of ideas. This month's article focuses on videos that showcase a variety of conjunctiva-based filtering surgeries other than trabeculectomy.

The Ex-Press Mini Glaucoma Shunt (Optonol Inc., Kansas City, KS) is gaining popularity among glaucoma surgeons. If you don't know why, Eyetube.net has the answer. In a video titled "Ex-Press Mini Shunt Implantation," Peter A. Netland, MD, PhD, shows us his very first Ex-Press shunt placed under a scleral flap (Figure 1) (<http://eyetube.net/v.asp?vogose>). The procedure begins as a standard limbus-based trabeculectomy. After dissecting the scleral flap and applying mitomycin C (MMC), instead of a sclerectomy and iridectomy, Dr. Netland uses a bevel-up 27-gauge needle to enter the anterior chamber at the bottom of the scleral flap in the gray zone. He then injects the Ex-Press into the anterior chamber after confirming its motility from the injector. Aqueous begins flowing through the shunt, and Dr. Netland completes the surgery in a standard fashion with scleral flap sutures that can be lysed at a future date.

At Eyetube.net, you can also find a high-quality animation and explanation of the Ex-Press procedure provided by Optonol Inc. (Figure 2) (<http://eyetube.net/v.asp?nusill>).

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For a few additional pointers, be sure to check out "Ex-Press Shunt Implantation Pearls and Technique" by Robert Stamper, MD (Figure 3) (<http://eyetube.net/v.asp?rurobe>). In his video, Dr. Stamper offers a variety of tips for optimizing this procedure. For example, he suggests changing from your standard trabeculectomy as little as possible and describes a method of lubricating the needle tract to facilitate the shunt's entry in which viscoelastic is applied upon the needle's withdrawal.

With nonpenetrating deep sclerectomy and its variants, surgeons attempt to achieve filtration while avoiding bleb formation and its associated complications. Rafael Bohorquez, MD, demonstrates his nonpenetrating deep sclerectomy technique with canalectomy using MMC (Figure 4) (<http://eyetube.net/v.asp?penogu>). After a fornix-based conjunctival dissection, he creates a double flap: a 5-mm superficial scleral flap that extends into

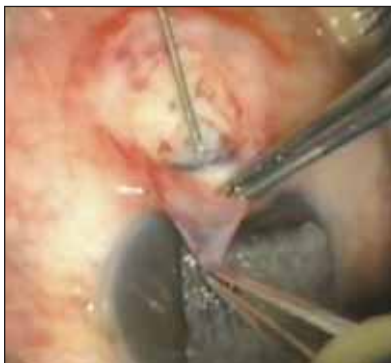


Figure 1. The surgeon demonstrates implantation of the Ex-Press Mini Glaucoma Shunt.



Figure 2. Optonol presents an animated overview of how to implant the Ex-Press.



Figure 3. The surgeon inserts the Ex-Press through a needle wound.



Figure 4. The surgeon peels away the inner wall and endothelium of Schlemm's canal.



Figure 5. The surgeon uses Tisseel glue to seal the scleral flap following non-penetrating deep sclerectomy and collagen implant surgery.



Figure 6. The surgeon withdraws a micro-catheter during a canaloplasty procedure.

clear cornea (with subsequent MMC and irrigation) followed by a smaller, essentially full-thickness (down to the choroid) flap that enters Schlemm's canal. Dr. Bohorquez excises the deep scleral flap and performs a canaloplasty by peeling away the inner wall of Schlemm's canal. He instills viscoelastic in the scleral lake to maintain the space and tightly seals the sclera and conjunctiva with a suture. To see this same procedure but with closure using Tisseel fibrin glue (Baxter International Inc., Deerfield, IL), access the video "Sealing Nonpenetrating Deep Sclerectomy Flap with Fibrin Glue" by James Lewis, MD (Figure 5) (<http://eyetube.net/v.asp?rifema>). The Tisseel closure is remarkable because it appears to save a tremendous amount of time. Moreover, this approach should make inadvertent bleb formation impossible, because the conjunctiva and sclera are sealed together.

For entertainment along with your glaucoma surgical education, the video "Canaloplasty: a Piece of Cake?" is a must click (<http://eyetube.net/v.asp?wamojo>). The popularity of this procedure is also growing due to its potential to eliminate the bleb. In addition to poking fun at the complications of trabeculectomy, this high-quality video by John Kearney, MD, and Robert Stegmann, MD, demonstrates the canaloplasty procedure, which begins similarly to nonpenetrating deep sclerectomy. The surgeon creates a double flap and "unroofs" Schlemm's canal; the beauty of the dissection is evident. The surgeon then maneuvers the iTrack 250A Microcatheter (iScience Interventional, Menlo Park, CA) 360° through Schlemm's canal. The catheter can be visualized throughout the canal by the flashing red beacon at its tip, shown in this video from gonioscopic and external perspectives. After completely encircling the canal, a 10-0 Prolene suture (Ethicon, Inc., Somerville, NJ) is tied to the catheter's distal tip. Upon withdrawing the catheter, the surgeon threads the suture through the canal and per-

forms viscodilation through the catheter's tip. The Prolene suture is tied with appropriate tension in order to cinch the trabecular meshwork. If desired, high-frequency ultrasound of the canal can be employed to assist in titrating the tension of the suture. The surgeon resects the inner flap to form a scleral lake and tightly closes the outer flap and conjunctiva. To emphasize this point, Richard A. Lewis, MD, who narrates a video on Eyetube.net of canaloplasty performed by Dr. Stegmann, says, "I would love to end my career saying I've never ever had a bleb with this procedure" (Figure 6) (<http://eyetube.net/v.asp?lediwu>).

Whether you are just starting to contemplate alternatives to trabeculectomy or whether you have already adopted one of the techniques described in this article, Eyetube.net has many helpful resources for refining your techniques. If you find a better way to do something, share your video online. □

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