

Tube Coverage: Another Approach

BY JONATHAN S. MYERS, MD

In September, the Centers for Medicare & Medicaid Services announced that it will bundle and revalue tube shunt and patch graft surgeries. That makes Dr. Rafael Bohórquez's video on Eyetube.net of a patchless technique for tube shunt surgery quite timely. For decades, glaucoma surgeons have placed a patch graft over the tube to reduce the risk of tubal erosion through the overlying conjunctiva. Many materials have been used, including the patient's sclera, donor sclera, cornea, pericardium, amniotic membrane, fascia lata, and lamellar porcine submucosa. Rates of erosion ranging from 2% to 9% have been reported with various materials, techniques, duration of follow-up, and patient populations.¹⁻³

PATCHLESS TUBE SHUNT SURGERY

In his video, Dr. Bohórquez demonstrates the use of a 6-mm tunnel to cover the tube on its way to the anterior chamber. A 22-gauge needle is used to create the tube's entry into the anterior chamber (Figure). Others have suggested using the needle to make a long tunnel for the tube.⁴

For either approach, it can be challenging to create the sharp angle of entry required to maintain the tube's position parallel to the iris, because the tube may naturally assume an orientation toward the cornea. Dr. Bohórquez recommends inserting the needle parallel to the iris, and he offers suggestions to aid the process. The tunnel does not need to be secured in place like donor patch grafts. Dr. Bohórquez closes the back of the tunnel with a Vicryl suture (Ethicon) to reduce the chance of filtration around the tube.

SIMILAR TECHNIQUES

There are other techniques for autologous coverage of the tube. Surgeons have used a partial-thickness scleral

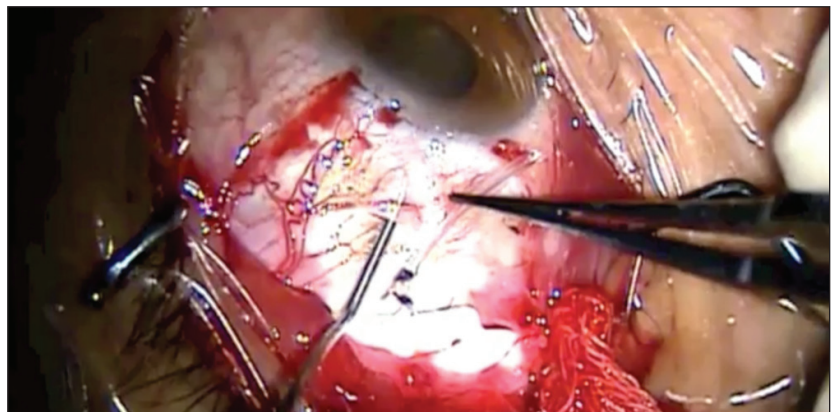


Figure. Dr. Bohórquez uses a 22-gauge needle to create the tube's entry into the anterior chamber.

patch graft cut from the patient's inferior sclera to cover a superior tube. Another option is to fashion a partial-thickness trabeculectomy flap to cover the tube. Because this approach leaves thinner tissue

underneath to support and direct the tube, it may predispose eyes to more anteriorly directed tubes within the anterior chamber. A partial-thickness flap that is approximately 4 mm wide and 6 mm long can be dissected parallel and adjacent to the length of the tube. This flap can be folded over to the side to cover the adjacent tube.

Although these techniques involve more work than a donor patch graft, many surgeons claim these methods reduce the erosion rate, because the autologous tissue may be less likely to thin or be removed by the host over time. On the other hand, autologous grafts tend to be thinner and leave areas of thinner sclera behind at the site of harvest compared with donor patch grafts.

CONSIDERATIONS

The clarity and appearance of patch graft material merit consideration. Clear grafts such as donor cornea and, to a lesser extent, porcine submucosa may be less noticeable, especially with inferiorly located tubes. Clear



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grafts also allow laser suture lysis of ligature sutures in more anterior locations if desired.

It is important that the tube be placed and secured so as to minimize any tendency for it to vault away from the sclera. The tube should not extend too anteriorly at the limbus before entry, because elevations and sharp angulations into the eye at the limbus may predispose the patient to erosions and dellen.

Some grafts more easily allow re-epithelialization than others. If there is inadequate conjunctiva for full closure over the graft, lamellar porcine submucosa is not an ideal choice, because this material has been associated with erosions.⁵ Autologous materials, donor cornea, sclera, and amniotic membrane may be better options in these challenging cases. ■

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