

How to Prevent Wound Leak From Sutureless Cataract Incisions

BY RICHARD J. DUFFEY, MD; LUTHER L. FRY, MD; AND R. BRUCE WALLACE III, MD

What methods do you recommend?

—Topic prepared by R. Bruce Wallace III, MD.

RICHARD J. DUFFEY, MD

I prefer a temporal clear corneal incision with a single-plane stab incision that is 2.8 mm wide and averages 2 mm in length (range, 1.25-2.5 mm). Hydrating the wound is the key to a successful watertight closure in this setting. Using a 27-gauge cannula, I inject balanced salt solution into the lateral walls of the wound, followed by an injection centrally into the wound's roof midway between the anterior and posterior lips of the incision. If the wound is short and the iris prolapses into the incision, I find that it is best to lower the IOP and shallow the anterior chamber. I do so by pushing on the posterior lip of the paracentesis site for fluid egress, and then I gently massage the anterior most portion of the roof of the clear corneal wound (where the iris first prolapses into the tunnel) with a cannula placed flat on the corneal surface above the site of prolapse at the anterior lip of the incision. This approach allows the iris to fall back into the anterior chamber before I proceed with hydration and prevents the hydration process from further prolapsing the iris through the tunnel and out of the eye itself. The balanced salt solution should simultaneously close the wound and deepen/reinflate the anterior chamber to a normal IOP, creating the watertight closure necessary to lessen the risk of postoperative hypotony and endophthalmitis.

LUTHER L. FRY, MD

I prefer the incision developed by Michael Wong, MD (www.youtube.com/watch?v=F-yaXnpyW-o). I nick Bowman membrane anterior to the clear corneal incision to allow hydration of the stroma anterior to the main incision at the end of the case. During hydration, I position the cannula perpendicular to the corneal surface and slowly stroke toward the center until I encounter the notch through Bowman membrane. Next, I inject vancomycin in BSS Plus (Alcon Laboratories, Inc.)



(Courtesy of R. Bruce Wallace III, MD)

Figure. The 0.8-mm Wallace-Maloney Fixation Diamond Knife has blunt sides and can be used as a fixation device when constructing phaco incisions temporally.

1 mg/0.1 mL until the desired amount of hydration is achieved. On occasion, if I am unable to locate this notch, I hydrate the edges of the incision as usual. I then hydrate the sideport incision and fill the anterior chamber with the vancomycin solution.

If I did not create a Wong incision and the wound leaked, I would construct a Wong incision at the end of the case with a diamond knife and hydrate the roof of the main incision. Alternatively, a disposable 30-gauge needle on a syringe could be used to perform hydration anterior to the incision without making a separate nick. (This technique is courtesy of J. E. "Jay" McDonald II, MD.) I do not hesitate to place a 10-0 nylon suture (Ethicon, Inc.) if wound integrity is questionable. At the end of surgery, I inject vancomycin (1 mg/0.1 mL balanced salt solution) to hydrate the Wong and sideport incisions.

I also like to perform a quick slit-lamp examination on all patients 30 minutes postoperatively. I look for (in order of frequency) footplates out of the bag, retained nuclear chips, or a wound leak. If I observe any of these, I immediately take the patient back to the OR. The incidence of needing

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to do so is low but prevalent enough that I check all of my patients before they leave the surgicenter. Interestingly, I have had as many wound leaks from the 1-mm sideport incision as I have had from the 2-mm main incision.

R. BRUCE WALLACE III, MD

My goal is to make the corneal tunnel as long as possible, basically attempting to make a square incision. The sideport diamond instrument that I use (Wallace-Maloney Fixation Diamond Knife; Rhein Medical, Inc.) is a 0.8-mm diamond knife with blunt sides that can be used as a fixation device when constructing phaco incisions temporally (Figure). Compared with other instruments, I have found diamond keratomes provide more control and create longer incisions in the corneal stroma. Certainly, stepped incisions with stainless steel blades can compete with those created with a diamond knife, but in my experience, diamond-knife incisions offer better postoperative self-sealing.

After I remove the viscoelastic and insert an IOL, I hydrate the stroma on both sides of the phaco incision and the sideport incision with balanced salt solution through a 30-gauge cannula. I confirm that the incisions are closed via massage with a Weck-Cel sponge (Beaver-Visitec International). I ask my patients to sleep with an eye shield for the next 10 nights.

Although femtosecond lasers offer alternatives such as a reverse trapezoid incision, time will tell as to their

proven superiority to diamond-knife incisions when one factors in the increased cost of this modality. ■

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