A VARIETY OF APPROACHES TO BUCKLE PLACEMENT

Wills Eye Hospital attendings weigh in on their preferred approaches.

INTERVIEW BY PHILIP STOREY, MD, MPH; WITH ALLEN C. HO, MD; JASON HSU, MD; RICHARD S. KAISER, MD; ARUNAN SIVALINGAM, MD; AND JAMES F. VANDER, MD

One of the greatest opportunities we have in fellowship is learning a range of surgical techniques and approaches from our different attendings. At Wills Eye Hospital, we have a monthly surgical conference with lively (sometimes too lively) discussions among attendings and fellows. During a recent conference, I asked the attendings about their varied approaches for buckle placement during a combined scleral buckle—pars plana vitrectomy.

Following are edited highlights from our discussion. The surgical video of the case we discussed can be viewed on Eyetube here: bit.ly/Wills0419.

―Philip Storey, MD, MPH

CASE PRESENTATION

A 72-year-old phakic woman with a history of retinoschisis presented with a macula-involving rhegmatogenous retinal detachment (Figure 1). A combined scleral buckle—pars plana vitrectomy was performed.

Retina Today: I’ve noticed that, even at the beginning of a case, approaches to the conjunctival peritomy can vary. Some attendings cut right at the limbus, others leave up to a 3-mm skirt. What is your approach?

Arunan Sivalingam, MD: If the patient wears a contact lens, I leave a skirt. Otherwise, there’s no reason to.

Allen C. Ho, MD: Cosmesis is generally better with a 1-to-2 mm limbal skirt. If you go too far back, you can cut a rectus muscle. If you make relaxing incisions, I suggest making the incisions off axis and under the lids. I usually go at 10 o’clock and 4 o’clock. I’ve found that this improves postoperative appearance as patients often develop
more vascularization where sutures are placed.

**RT:** Hooking the muscles can also vary. Some attendings always use two muscle hooks on every rectus muscle. Some attendings want the Tenon capsule fully retracted over the muscle belly up to 10 mm posterior to the muscle insertion, whereas others encourage minimal manipulation.

**Dr. Sivalingam:** It depends on what band you are placing. If you are using a type 40 or type 41 band, Tenon resection can be minimal. With a type 277 band or a larger element, more exposure is needed.

**Jason Hsu, MD:** If you don’t clean off too much of the fascia surrounding the muscles, patients seem to be more comfortable postoperatively. As long as you’re down to bare sclera and hooking the entire muscle, the exposure can be sufficient without excessive cleaning. Don’t forget that the superior rectus has a large insertion. Start further away from the muscle insertion, and keep your hook parallel with the limbus and directly on the sclera. Don’t lift your hook, and don’t dip it backward.

**Richard S. Kaiser, MD:** If you use two muscle hooks for the superior rectus, you can push one toward the insertion and the other posterior to retract the superior oblique, giving direct visualization of where your suture passes. I don’t think it matters for the other rectus muscles.

**RT:** How do you chose what type of band to place and where to place it? Is the goal just to support the vitreous base, or do you aim to place the band directly over breaks?

**Dr. Kaiser:** It depends on the patient. If you think posterior pathology needs support, a wider band placed more posteriorly can be helpful. If you aim only to support the vitreous base, a 240 band is perfect. I have found a more posterior location—say, 5 mm posterior to the rectus insertions—can minimize distortion of the globe and patient discomfort.

**James F. Vander, MD:** I like to see the apex of the band slightly posterior to the vitreous base. The slope of the band will support the vitreous base.

**Dr. Hsu:** Don’t forget that many patients in whom we place scleral buckles are myopic with abnormal vitreous bases that may insert more posteriorly than normal. I want to be anterior to the vortex veins but near the equator.

**RT:** How far apart do you place your sutures?

**Dr. Kaiser:** The wider your sutures, the more imbrication you will get. With a thin band like a 270, you won’t get much imbrication. If I want more of a kick inferiorly, I’ll
place wide sutures, and I find that I don’t have to pull the band as tight to achieve a good buckle effect.

Dr. Ho: For an encircling band, the sutures serve as belt loops. The key placement of the sutures is the anterior bite, as it will determine where the encircling band will be. I usually don’t think about imbrication, but I compress the band to get more effect. If a patient needs more buckling effect, I don’t have a problem tightening the buckle.

Dr. Vander: Back in the day, when we relied on buckles almost exclusively, suturing technique mattered a lot. It was critical when you placed imbricating sutures that the sutures were contiguous; otherwise, you had peaks and valleys, which might open a hole. If you’re truly trying to imbricate, you can’t have just one small suture in each quadrant because valleys will form between the peaks.

RT: Do you mark the breaks prior to placing the buckle in a combined case?

Dr. Kaiser: No, the purpose of the buckle is to support the vitreous base. By placing the buckle at the equator, you’ll get great support of the vitreous base. You may or may not cover the pathology, but that’s not a major issue.

Dr. Vander: Location is key. I’ve never placed a buckle and wished I’d placed it more anteriorly. A tight buckle can also help you with scleral depression if you don’t have a skilled assistant.

RT: When do you place the trocars? Some attendings want the trocars placed before tightening so the IOP won’t go too high. Others believe the inherent pressure of the eye prior to trocar placement will prevent overtightening.

Dr. Hsu: I place the cannulas first because I don’t like the pressure to be high for extended periods of time. Now, with valved cannulas, I’ve never seen an issue of pulling too tight because of insufficient valve pressure. We have found that there can be optic neuropathy after pars plana vitrectomy, which can be related to high pressure.

Dr. Vander: I like to put the microscope in place and tighten the buckle just before placing the cannulas. You need to be all set up before tightening so there’s not a big delay.