

Extreme Buckling

BY JOHN W. KITCHENS, MD

As a group, retina specialists like to live on the edge and do daring things. I am no exception, and I like to think that this daring is evident in my approach to scleral buckling—or, as I call it, extreme buckling. To follow is a primer on how to transition to becoming an extreme buckler.

RULE NO. 1: START OUT EASY

When first learning the buckle technique in preparation to become an extreme buckler, you should begin with a buckle vitrectomy. If vitrectomy is your primary approach for retinal detachments, add in a buckle with a Type 41 band. Not only will this allow you to become more comfortable with buckling, but it also increases your chances for success. I believe that using a buckle with vitrectomy can reduce redetachment rates from 15% to 5%.

RULE NO. 2: KEEP IT SIMPLE

When you begin to perform scleral buckling, use a Type 41 band, as this is the simplest approach. There is no concern of where to place the band—it should be 3 mm posterior to the insertion of the recti muscles. Using a few basic encircling bands can also enhance the simplicity of the procedure—I prefer the Type 41 because I am able to create scleral tunnels to attach the buckle. A Type 42 band is a bit wider, and, although I can still tunnel with it, it is harder and takes longer. If I do use a Type 42 band, I will usually put in a 5-0 nylon suture with an RD-1 needle.

At Bascom Palmer Eye Institute in Miami (where I performed my fellowship), Donald Gass, MD, was known not only for his legendary medical retina knowledge and skill, but also for his scleral buckling skills. The OR nurses used to say that Dr. Gass could efficiently fix most retinas with only a Type 240 band and a sleeve.

Keeping it simple is also an important consideration for sleeve choice. I use a Type 270 sleeve regardless of what buckle I am putting on the eye because it is pliable, fits around anything, and holds a buckle nicely.

RULE NO. 3: KNOW WHEN TO BUCKLE

If you are a surgeon who uses scleral buckles on every patient this point is not as important, but, for most surgeons who selectively use scleral buckles, knowing for whom to use buckles is critical to success. Figure 1 shows a case that at first glance appears to be too complicated



Figure 1. Patient is 18 years old with a macular hole and proliferative vitreoretinopathy with subretinal bands.



Figure 2. For the patient in Figure 1, one of my partners placed a 287 wide groove (WG) silicone tire inferiorly and encircled the eye with a 41 band. The retina was reattached with a single slow buckle procedure, after which macular hole surgery was performed.

for a buckle. The patient is approximately 18 years old with a macular hole and proliferative vitreoretinopathy with subretinal bands. One of my partners, however, is an extreme buckler and performed the case.

He placed a Type 287 wide groove (WG) silicone tire inferiorly and encircled the eye with a Type 41 band. He was able to reattach the patient's retina with a single slow buckle



Figure 3. A single, superior break and some vitreous traction on the anterior edge.



Figure 5. Scleral ectasia is the thinning of the sclera that is sometimes seen in patients who are pseudophakic who may have been previously highly myopic.

procedure, and after he performed macular hole surgery the patient did well (Figure 2). Although this proved to be a good case for a buckle, I would not advise those who are beginning buckle-only surgeons to do this as an initial case.

Figure 3 shows an eye for which many surgeons might choose primary vitrectomy—there is a single, superior break and some vitreous traction on the anterior edge. These are the types of cases, however, that respond very well to buckling. Encircling this eye with a Type 41 band will catch the tear and will also support any peripheral areas of traction. I like to use a primary buckle for superior detachments and some easier detachments because, if I need to use gas and am hesitant about draining subretinal fluid, the patient's retina will be flat the next morning with minimal positioning.

Figure 4 shows another case for which primary buckle would be a good choice. The patient is younger in age and has an inferior detachment and retinal dialysis, which responds well to scleral buckling. For this patient I would encircle the eye with a Type 41 band and place a Type 287WG silicone tire inferiorly and inferotemporally in the location of the dialysis.



Figure 4. A younger patient with inferior detachment and retinal dialysis.

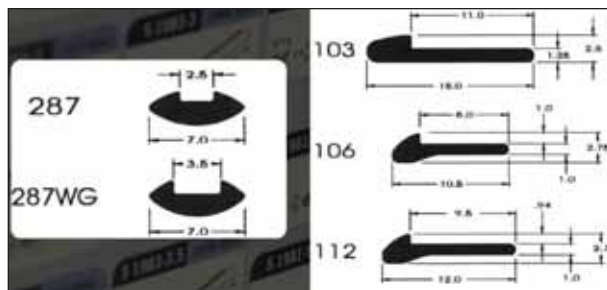


Figure 6. My 5 favorite elements: Types 287 and 287WG silicone tires, and Types 103, 106, and 112 meridional implants.

I would caution surgeons who are primary vitrectomists to be alert to any incidences of scleral ectasia (Figure 5), which is the thinning of the sclera sometimes seen in patients who are pseudophakic who may have been previously highly myopic. Often these patients will have superotemporal or superior macula-on detachments. Although it may be instinctive to perform a primary vitrectomy for a patient in whom you want to maintain emmetropic status, in these cases the sclera will appear to have moved away from the retina, possibly contributing to the redetachment and even the initial detachment. In these eyes, a buckle should be placed so that the sclera is moved back into position with the retina. It is important to note that you should be gentle with these eyes when you are pulling on and depressing the muscles and performing cryotherapy because it is easy to rupture the globe.

RULE NO. 4: USE ELEMENTS

Although the use of elements is more advanced, it makes buckling more rewarding and successful. In my opinion, there is nothing more beautiful than when you look inside an eye and see a variety of appropriately placed elements that inferiorly reattach a proliferative vitreoretinal (PVR) detachment. My 5 favorite elements are the Type 287 and Type 287WG silicone tires, and the Types 103, 106, and 112

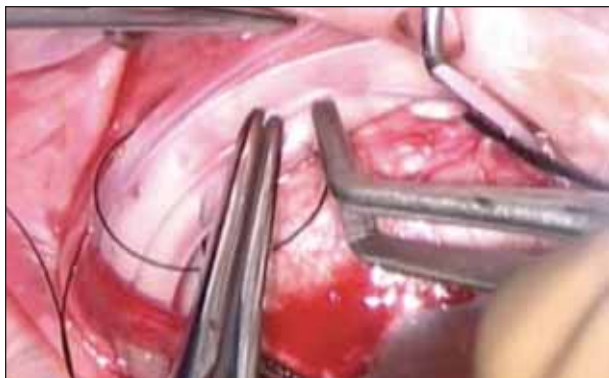


Figure 7. When using a primary buckle on a giant retinal tear or a retinal dialysis, I suture the Type 287WG using a horizontal mattress suture, rotating the knots posteriorly.

meridional implants (Figure 6). The 12-mm width of the Type 112 meridional buckle implant allows a surgeon to completely encompass the quadrant if desired. All 3 buckles slide nicely under a Type 41 band and do not require sutures to hold them in place. The foot notch locks into place on the buckle, and that area that appears to gently indent on the left of the buckle provides posterior “kick” and greater anterior support.

When using a primary buckle on a giant retinal tear or a retinal dialysis, I suture the Type 287WG using a horizontal mattress suture, rotating the knots posteriorly (Figure 7). Figure 8 shows the Type 287 in the eye.

RULE NO. 5: WHEN IN DOUBT, GAS IT OUT

If there are any concerns when using a primary buckle on a patient—for example, if the retina is not totally flat—use a gas bubble in the eye. Using gas will offer flexibility to either position the patient overnight or in the next day to ensure a flat retina. I use SF₆ and do an anterior chamber tap. For patients who do not have sulfa allergies, I also use acetazolamide to keep their pressures down.

SUMMARY

Buckling can be an extremely effective and rewarding procedure. Unfortunately, it is not taught in the same manner that it was years ago. These tips can help aid in



Figure 8. The Type 287 silicone tire placed in the eye.

transitioning those who do not routinely buckle into the realm of this art form. ■

Stay tuned for part 2 in a future issue of Retina Today: Advanced Extreme Buckling for the Hard Core Vitreoretinal Master Surgeon.

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