

A Defense of Scleral Buckling for Retinal Reattachment

The procedure remains a valuable element in repair of RRD.

BY EDWIN H. RYAN JR., MD

Rhegmatogenous retinal detachment (RRD) is a heterogeneous condition with multiple anatomic presentations. An individualized approach to repair of RRD is preferable to a single stereotyped procedure. Scleral buckling can be a valuable component for repair of RRD because it supports both the existing tears and the vitreous base, impeding the introduction of new tears.

However, the use of scleral buckling as an element in RRD repair has decreased in recent years. The reasons cited as supporting this decline include the success of vitrectomy alone and the avoidance of complications associated with scleral buckle, including buckle erosion and strabismus.

We reviewed the charts for all consecutive RRDs managed by three surgeons who adhered to a defined strategy, and we recently reported the anatomic and visual results and complications seen in these cases.¹ This article summarizes that presentation.

SURGICAL PRINCIPLES

This retrospective study reviews all RRDs managed by three surgeons who use the following principles:

- Phakic RRD is best treated by scleral buckling alone, unless other problems, such as opaque media, blood in the vitreous, proliferative vitreoretinopathy, or posterior tear, necessitate vitrectomy as well.
- Pseudophakic RRD is treated with vitrectomy combined with scleral buckling, with vitrectomy alone acceptable in some settings.

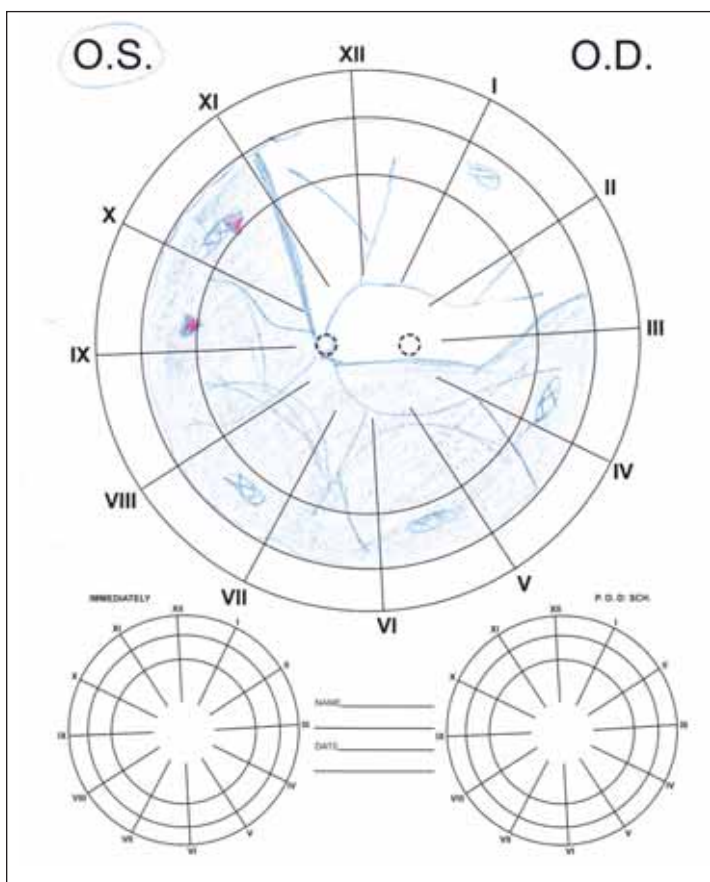


Figure 1. Retinal drawing of a typical scleral-buckling-only patient, a man aged 50 years with myopia.

- Office management is reserved for only very simple RRDs.

To restate this another way: Very simple phakic RRDs were managed in the office; noncomplex phakic RRDs were treated with scleral buckle; noncomplex

pseudophakic RRDs were treated with scleral buckle plus vitrectomy or with vitrectomy alone; and complex RRDs were treated with scleral buckle plus vitrectomy.

STUDY DESIGN, RESULTS

All primary retinal detachments seen in 2008-2009 were included in this review. Excluded were patients who had previous OR surgery for RRD or who had diabetic rhegmatogenous traction retinal detachment. All other RRDs were included, including patients with trauma or previous vitrectomy for other pathology such as cystoid macular edema, retinopathy of prematurity, and giant retinal tear.

We identified 440 patients who fit the criteria. Of these, 24 were managed in the office: nine with pneumatic retinopexy and 15 with laser. All of these were successful and will not be discussed further. The other 416 were taken to the OR and of these, 129 underwent scleral buckling alone, 261 underwent vitrectomy and scleral buckling, and 26 underwent vitrectomy alone.

Among patients who underwent scleral buckling alone, average age was 50 (range, 13–83) years, and most (82; 64%) were male. Almost all were phakic (123; 95%), and 83 were macula-on RRDs (65%).

In the scleral-buckling-alone group, the typical patient was a 50-year-old phakic, myopic male with a posterior macula-on vitreous detachment (Figure 1), and the typical treatment for this patient was an encircling band and drainage.

In this group, 117 (90.6%) achieved anatomic success with one surgery; in macula-on cases the success rate was 94%, and if the macula was off it was 85%. All failures were successfully treated with a single reoperation, which was vitrectomy with SF₆ gas. In this group, 11 patients had segmental scleral buckling, and all of these were successful.

With an average of 6 months follow-up in the buckle-only group, the average visual acuity (VA) was 20/34. For macula-on RRDs, the mean VA was 20/29, and for macula-off it was 20/42. Nine patients had a vitrectomy at a later time for reasons not related to the RRD: five for vitreous opacities, four for epiretinal membrane.

This group as a whole, therefore, typically underwent only one surgery, with no cataract surgery needed. No buckle erosion was seen in this group. No strabismus surgery was needed, and one patient required spectacle prisms.

In the group that underwent scleral buckle plus vitrectomy or vitrectomy alone (n=287), the average age was 61 (range, 17–96) years, and most (174; 60%) were male. A majority of patients were pseudophakic (166; 57%), and most of the RRDs were macula-off (166; 57%).

Some cite complications as a reason to move away from scleral buckling, although in our experience they are infrequent.

This group included almost all of the pseudophakic RRDs seen in this series, as well as complex RRDs in phakic patients. The simplest RRDs in this group (10%) were managed with vitrectomy alone.

In the vitrectomy-buckle group, 276 (96.2%) achieved anatomic success with one surgery; in macula-on cases the success rate was 98%, and if the macula was off it was 94%. With one reoperation, success was achieved in 99% of cases; two patients underwent two reoperations for a total success rate of 100%.

With average follow-up of 6 months in the vitrectomy-buckle group, the average VA was 20/44; in patients with macula-on RRDs, the mean was 20/34, and with macula-off it was 20/53. No buckle erosions were seen, and two patients required prisms. Most of the phakic patients developed cataract.

DISCUSSION

Why is scleral buckling falling out of favor? A number of factors may be in play. This technique requires a long learning curve during fellowship. The surgeon must see a lot of cases before developing confidence that the fluid left at the end of surgery will resorb. The surgery takes a little longer than vitrectomy alone, although not much. Some cite complications as a reason to move away from scleral buckling, although in our experience they are infrequent. It is true, however, that reimbursement is less for scleral buckling than vitrectomy.

Our conclusions from this series are that good anatomic and visual outcomes can be achieved using this strategy for management of primary RRD; that scleral buckling alone avoids development of cataract; that scleral buckling plus vitrectomy works well for complex cases; and that very few complications are related to scleral buckling. ■

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1. Ryan EH, Mittra RA, Bennett SR. Scleral Buckling Remains Valuable for Retina Reattachment. Paper presented at: Retina Society annual meeting; September 23-26, 2010; San Francisco, CA.