

Repair of Primary Rhegmatogenous Retinal Detachment

Choose the surgery that fits the detachment and the patient.

BY KAREN M. GEHRS, MD



Retina Pearls is a column that appears regularly in Retina Today. The purpose of the column is to provide a forum for retina specialists to share informative and exciting tips or pearls with regard to specific vitreoretinal surgical techniques, diagnostics, or therapeutics. In this installment of Retina Pearls, Karen M. Gehrs discusses the importance of being proficient in a variety of techniques for primary rhegmatogenous retinal detachment.



We invite readers to submit surgical pearls for publication in Retina Today. Please send submissions for consideration to either Dean Elliott, MD (deliott@doheny.org), or Ingrid U. Scott, MD, MPH (iscott@psu.edu). We're looking forward to hearing from you.

-Dean Elliott, MD; and Ingrid U. Scott, MD, MPH

Vitreoretinal surgeons have a variety of techniques at hand to repair rhegmatogenous retinal detachment: laser demarcation or cryopexy for small detachments and pneumatic retinopexy, scleral buckle, and vitrectomy for larger retinal detachments. Vitreous surgery with or without scleral buckle is usually the obvious choice for complex retinal detachments involving factors such as giant retinal tear, large and/or postequatorial retinal breaks, vitreous hemorrhage, macular hole, and proliferative vitreoretinopathy. However, the preferred method of repair of less complex rhegmatogenous retinal detachments is not so straightforward and is sometimes controversial. Recent studies have attempted to compare various methods of primary repair for uncomplicated rhegmatogenous retinal detachment.¹⁻⁴ None of these studies, however, has demonstrated a clear benefit of one method over another. One factor that confounds all of the studies is surgeon preference and comfort with the various techniques, especially scleral buckling. In fact, some surgeons no longer employ scleral buckling techniques at all.

As a faculty member of a vitreoretinal training program, I think it is important for vitreoretinal fellows to

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become proficient in all techniques for retinal detachment repair so they can choose the best procedure for an individual patient and detachment, rather than choose one procedure (eg, vitrectomy) over another (eg, scleral buckle) because they may be less familiar with one procedure or another. If a surgeon is equally proficient at pneumatic retinopexy, scleral buckle, and vitrectomy, then the choice of procedure or combinations thereof should be based on patient and ocular features. The most important individual features I consider to help me choose the procedure I recommend for uncomplicated, rhegmatogenous retinal detachments are the following: age and lens status of the patient, location and size of retinal breaks, degree of traction on retinal breaks, presence and extent of lattice degenera-

tion, and patient preference and ability to cooperate with any postoperative positioning requirements. Postoperative air travel requirements are another factor that may influence the choice of intraocular tamponade (silicone oil rather than gas) in cases in which vitreous surgery is indicated.

AGE AND LENS STATUS

Some of the most unhappy patients I have encountered are young or middle-aged prematurely pseudophakic patients who required cataract surgery after vitrectomy to repair a retinal detachment in one eye and who remain phakic in the fellow eye for many years. Conversely, pseudophakic patients who have been enjoying good uncorrected distance vision are often dismayed to find that a scleral buckle has induced myopia. When other features of the detachment suggest to me that a patient would do equally well with pneumatic retinopexy, scleral buckle, or vitrectomy, I tend to favor pneumatic retinopexy or scleral buckle (sometimes augmented by pneumatic retinopexy) for phakic patients and primary vitrectomy for pseudophakic patients. Features that often cause me to add a low-profile scleral buckle to vitrectomy in pseudophakic patients are inferior retinal breaks and lattice degeneration.

RETINAL BREAK LOCATION, SIZE, AND DEGREE OF TRACTION

In general, retinal detachments with smaller and more peripheral breaks with mild vitreous traction do well with pneumatic retinopexy or scleral buckle. Retinal detachments with larger breaks, more posterior breaks, or retinal breaks with more than mild vitreous traction generally require the addition of gas at the time of scleral buckle or shortly thereafter or require vitreous surgery at the same time as scleral buckle. To support all retinal breaks with a scleral buckle alone, the surgeon must be able to visualize and localize the breaks. Media opacities and pupillary irregularities that prevent adequate visualization of the peripheral retina move a detachment from the “uncomplicated” to the “complicated” category, and these are factors that support the use of vitreous surgical techniques to repair a detachment.

PRESENCE AND EXTENT OF LATTICE DEGENERATION

As long as no proliferative vitreoretinopathy (PVR) is present and the lattice degeneration is anterior to the equator, I find that patients with extensive lattice degeneration do better with scleral buckle alone than

with vitrectomy, with or without scleral buckle. The vitreous base often inserts posterior to lattice degeneration, so it is difficult to remove vitreous adequately in eyes with extensive lattice. Additionally, aggressive removal of vitreous in eyes with lattice degeneration carries significant risk of creating additional retinal breaks. Usually patients with extensive lattice degeneration and rhegmatogenous retinal detachment are young and phakic. Thus, unless there is some compelling reason to perform vitrectomy in eyes with extensive lattice degeneration and retinal detachment, I typically perform scleral buckle alone. If a vitrectomy is required, I typically add a 6.5-mm encircling element and demarcate all areas of lattice degeneration with laser photocoagulation.

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POSTOPERATIVE POSITIONING

Patient preference and ability to cooperate with postoperative positioning requirements are perhaps the most important factors when considering pneumatic retinopexy. During one 24-hour period, I performed pneumatic retinopexy in three patients with retinal detachment and similar characteristics, that made them good pneumatic retinopexy candidates: all were phakic with superotemporal retinal breaks between 9:30 and 11 o'clock with minimal vitreous traction and no other retinal pathology. The procedure failed in the patient with the smallest detachment and smallest and very anterior tear, and it was successful in the other two patients, including one with a total retinal detachment and a 1.5-clock-hour break just anterior to the equator. The patient with the failed pneumatic retinopexy was a young person with childcare and work obligations, which prevented compliance with positioning recommendations. The patient with the total detachment and larger, more posterior tear was an elderly individual with cardiac disease so severe that the patient was at extremely high risk for anesthetic complications during anything other than a brief procedure. Given the patient's poor health, pneumatic retinopexy was essentially the only option for retinal detachment repair, so the patient was motivated to position adequately and the procedure was successful.

Although it is not always possible to predict a patient's ability to comply with postoperative positioning requirements, if there is an indication that a patient cannot comply because of physical or other reasons, then pneumatic retinopexy is probably not a good option even when the ocular findings are ideal for this procedure. In fact, for some detachments repaired by vitreous surgery, the addition of a scleral buckle and silicone oil tamponade (rather than vitrectomy with gas tamponade alone) may be more appropriate for patients who might have difficulty positioning as needed.

SUMMARY

In summary, I find that equal familiarity with all of the methods of retinal detachment repair allows me to choose the procedure that best fits the detachment, the eye, and the patient. Explanation of the pros and cons of each procedure and the rationale for the procedure(s) I recommend makes for a more informed and ultimately happier postoperative patient. ■

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financial interests in relation to the content of this article. She can be reached at +1 319 356 8350; or via e-mail: Karen-Gehrs@uiowa.edu.

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