

SWITCH FROM PPV BACK TO SB?

A cost comparison reveals that an older method of repairing retinal detachment may be the best option.

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As physicians, we continually strive to improve clinical results and efficiencies in our procedures. Although newer technologies have increased procedural success rates in the repair of retinal detachment (RD), costs have also risen dramatically. Pressure to control costs continues to increase along with the potential for financial incentives to be

built into reimbursement structures for RD repair.

In response to these forces, we believe that innovation will beget effective, less expensive, more efficient methods that reduce some common side effects of current RD repair technologies. Sometimes these methods may borrow from what is already available. This article examines how certain changes in health care trends have affected the types of procedures surgeons turn to in the repair of RD.

SURGICAL EXPECTATIONS: AN OVERVIEW

When surgery is on tap to repair an RD, there are different perspectives to consider with regard to expectations. Below is a brief breakdown of these perspectives related to the patient, the surgeon, and the payer.

The Patient's Perspective

Visual acuity and vision are not synonymous. Visual acuity is tested at the Division of Motor Vehicles with an E chart on the wall, whereas vision is what we need for the road test. It encompasses visual acuity plus harmony between the two eyes working together. Patients elect to undergo surgery to restore their quality of life. The goal of RD surgery is to restore the vision they had before their detachment, not to restore their visual acuity.

The Surgeon's Perspective

The surgeon's surgical expectations may differ somewhat from the patient's. Many retina surgeons have traditionally based their definition of surgical success on whether a procedure works after just one operation, believing this to be best for restoring visual acuity. However, when the aim is for single-operation success, evaluation of vision as defined

above tends to be neglected. Surgeons are also concerned with safety, efficacy, and time. A surgical procedure should not take long to perform, should not be difficult, and should, of course, be well compensated.

The Payer's Perspective

Payers are interested in patient satisfaction, but they are also concerned about costs. Payers look at all costs, including the surgeon's fee, the facility fee, lab testing costs, costs associated with the use of anesthesia and an anesthesiologist, and additional RD-related costs, which may include reoperations for the primary RD, a laser touch-up, subsequent cataract surgery, or management of any medical complications that might develop as a result of the initial surgery.

A LOOK INSIDE OUR TOOLKIT

Retina surgeons typically choose one of three operations to repair a detached retina: pars plana vitrectomy (PPV), scleral buckle (SB), or pneumatic retinopexy (PR). All have advantages and disadvantages (Tables 1 and 2). Over the past decade, the tendency has been to repair most RDs with PPV.

PPV and PR are most likely to restore predetachment vision; however, PPV will almost always result in progressive



AT A GLANCE

- Surgeons may want to take a second look at buckling as they become more responsible for the total cost of providing care to patients with RD.
- Use of a removable buckle may result in better outcomes, lower costs, lower incidence of repeat procedures, and movement out of the conventional OR to less overhead-intensive facilities.

TABLE 1. BENEFITS OF AVAILABLE RD TREATMENT OPTIONS

	Vitrectomy	Permanent SB	Removable SB	PR
Vision Restoration	++++	+++	++++	++++
Single-Operation Success	+++	++++	+++	++
Cost-Effectiveness	+	+++	+++ (if removed in office)	++++
Applicable RDs	++++	+++	+++ (most RDs can be repaired with SB)	++ (superior pathology only)
Abbreviations: PR, pneumatic retinopexy; RD, retinal detachment; SB, scleral buckle				

TABLE 2. DRAWBACKS OF AVAILABLE RD TREATMENT OPTIONS

Vitrectomy	Permanent SB	PR
- return to OR (primarily for cataract surgery) - late-onset glaucoma - expensive startup costs (equipment) - expensive per-case costs - OR issues - need for blood work - anesthesia issues (eg, urinary retention)	- increased myopia - double vision - image disparity - chronic discomfort - buckle extrusion - OR-related issues	- lower SOS - not applicable to all types of RD - time-intensive - skill-intensive
Abbreviations: OR, operating room; PR, pneumatic retinopexy; RD, retinal detachment; SB, scleral buckle; SOS, single operation success		

cataract formation and cataract surgery within a few years in patients older than 50 years.¹ PPV is the most expensive of the three procedures, but it can be used to treat RD of almost any severity. Although PR restores vision fairly well,² it has a lower single-operation success rate and is limited to RDs with pathology in the superior retina. Because it is performed in the office it is the most cost-effective of the three procedures.

According to the American Academy of Ophthalmology's Intelligent Research in Sight (IRIS) Registry, return to the OR was 15 times more frequent after PPV than after SB for RD repair. This is most likely due to either the treatment of the inevitable cataract following PPV or possibly to laser touch-up treatment, rather than a failure of the PPV to reattach the retina. Unfortunately, SB is not emphasized in fellowship training programs today.

Over the past decade, retina surgery has moved from hospital-based OR procedures to surgery center–based OR procedures, primarily because Medicare has recognized that surgery centers are more cost-effective. The next big move will be out of the surgery center and into an office-based setting, in what we might designate as a *clean procedure room*. A recent Kaiser Permanente study reported results in which more than 13,500 patients underwent cataract surgery in a clean procedure room with no anesthesiologist. Outcomes were comparable with those for patients who underwent surgery in an OR.³

DOLLARS OF DIFFERENCE

There is no longer a significant difference in financial reimbursement to motivate surgeons to perform PPV over SB for the repair of an RD. In fact, reimbursement for PPV has decreased and reimbursement for SB has increased. Now the financial pressure for surgeons is to lower costs without compromising quality, which can be accomplished by operating in a clean procedure room rather than in an OR.

Retina surgeons will soon realize that the startup costs to perform PPV in a clean room are prohibitive. A vitrectomy setup requires a sophisticated microscope, a vitrectomy machine, a laser, and expensive incidentals such as long-acting gases and reusable instruments. There are also ongoing procedure costs that include vitrectomy setup packs, disposable instruments such as forceps and scissors, perfluorocarbon liquid, and silicone oil. Thus, to equip a clean room for PPV may cost several hundred thousand dollars and will require maintaining supplies of disposable instruments and other supplies.

An SB set up, on the other hand, is much less expensive. All that is needed is an indirect ophthalmoscope, a cryopexy machine, a laser indirect ophthalmoscope, gas, and a few inexpensive reusable instruments. The per-procedure cost basically consists of the cost of the exoplane and sutures. Therefore, the startup costs for SB surgery might

TABLE 3. SOME TYPES OF RD ARE BEST REPAIRED WITH A REMOVABLE SB

Type of RD	PPV	Removable SB	PR
Superior Phakic RD	+ (cataract)	++++	++++
Inferior Phakic RD	+ (cataract)	++++	NA
Phakic Dialysis	+ (cataract)	++++	NA
Subclinical RD	+ (overkill)	++++	++++ (if superior)
Inferior Pseudophakic RD	+ (if face down)	++++ (no posturing)	NA
Abbreviations: PPV, pars plana vitrectomy; RD, retinal detachment; SB, scleral buckle; NA, not applicable			

be in the \$40,000 range, whereas startup for PPV might be in the \$300,000 range.

The least expensive startup and maintenance costs belong to PR, which requires only an indirect ophthalmoscope, gas, a cryopexy machine, possibly a laser, and a few reusable instruments.

I predict that surgeons will begin to take a second look at SB as they become more responsible for the total cost of providing care to patients with RD. If SB surgery can be simplified and made more efficient, and if its side effects can be overcome, hospitals will find it difficult to justify constantly upgrading to more expensive vitreoretinal surgical and viewing systems. Startup costs in the move to clean procedure rooms will require a less equipment-intensive environment.

WHEN A NONPERMANENT SB IS THE ANSWER

When an SB is removed, so too are its associated side effects. Consequently, a nonpermanent, removable SB, once removed, will restore vision as well as PPV or PR, but the procedure will be more cost-effective than PPV.

In phakic patients with an RD, particularly those older than 50, PPV will cause cataract development, and thus they will require cataract surgery. However, SBs are not associated with cataract formation, and they may therefore be the procedure of choice for superior phakic, inferior phakic, and phakic patients who require dialysis repair (Table 3).

In pseudophakic eyes with inferior breaks, a removable SB does not require facedown positioning. In cases of localized subclinical RD, performing PPV is overkill. A removable SB has no permanent side effects and would be the procedure of choice, especially in patients not amenable to PR.

Patients who have had refractive surgery (ie, those who have had LASIK surgery and pseudophakic patients with premium intraocular lenses) would likely also prefer a

removable SB, which would not negate the effects of their expensive refractive surgery.

DISRUPTIVE CHANGE IS COMING

A removable SB can result in better vision than that offered with permanent buckles and in fewer surgeries in phakic eyes than can be achieved with vitrectomy. A removable SB can also lower costs, lower incidence of repeat procedures, and can lead to movement out of the conventional OR to less overhead-intensive facilities. This practice is aligned with the concept of incentive-based physician compensation. This “new old” operation may represent a key enabler for change. ■

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