

Macula-on Detachments Can be Managed With Selectively Urgent Timing

With clinical judgment, many fovea-sparing detachments can be delayed.

BY CHARLES C. WYKOFF, MD, PhD; AND WILLIAM E. SMIDDY, MD

Rhegmatogenous retinal detachment (RRD) is a common and serious ocular disorder.¹ The strongest predictor of final visual outcome after RRD is whether the fovea, the most important element of the retina for central vision, is attached at the time of presentation.² With the aim of preventing foveal detachment, prompt surgery is considered a priority in patients with fovea-sparing RRDs of recent onset. Some advocate emergency surgery for these patients, but there have been few studies to evaluate the efficacy of this approach.^{3,4}

A consecutive, retrospective analysis of patients with primary RRD who underwent scleral buckling procedures over a 15-year period at Bascom Palmer Eye Institute was performed with the primary focus to assess the effect of the duration of time from initial patient evaluation to surgical repair on visual and anatomic outcomes.⁵

CLINICAL BIAS

For this retrospective study, the medical records for all patients who underwent scleral buckling without vitrectomy for fovea-sparing primary RRD by a single surgeon (WES) between July 1989 and April 2004 were reviewed. The study focused on the effect of time to surgery on visual and anatomic outcomes.

These cases were managed using a common treatment algorithm to determine how urgently the patients

were taken to surgery. Scleral buckling alone was performed in primary cases, and vitrectomy was reserved for exceptional cases with advanced media opacities, epiretinal membranes, or large retinal breaks. The clinical bias was to operate more quickly in certain cases: RRDs that extended more posteriorly; RRDs that were superior or temporally located; eyes with superior retinal breaks; and patients with shorter duration of symptoms.



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All eyes underwent primary scleral buckling procedures using standard techniques. Cryotherapy was applied to treat retinal breaks. A variety of exophts was used as determined based on the retinal pathology and the status of the lens.

RESULTS

The review identified 199 patients with primary, fovea-sparing RRDs treated by scleral buckling alone in the specified period. Mean age was 54 years, and 56% of patients were male. More than half the eyes (109; 55%) had undergone previous surgical or laser interventions, including cataract surgery, Nd:YAG capsulotomy, refrac-

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tive surgery, glaucoma surgery, and treatment of retinal tears with cryopexy or laser. Time from onset of symptoms to evaluation was less than 1 week for 109 eyes (55%) and more than 1 month for 22 eyes (11%).

Because all patients had macula-on RRDs, preoperative best corrected visual acuity (BCVA) was excellent in most patients; it was 20/40 or better in 83% of eyes and 20/25 or better in 54% (median 20/25; range 20/15 to hand motions). However, some patients had poor presenting BCVA (worse than 20/40 in 17%). Reasons for presenting vision of worse than 20/40 included macular disease, cataract, vitreous hemorrhage, amblyopia, and corneal opacity.

In the majority of eyes (55%), the RRD involved only one quadrant; in 9% of eyes, three or four quadrants were involved.

Surgery was performed on a weekend or holiday for 12 eyes (6%). There were 187 patients for whom time from initial evaluation to operating room was available; in these patients, the time was less than 24 hours in 56% and less than 72 hours in 85%. For the 38 patients initially evaluated on a Friday, there was a bimodal distribution, with some operated within 24 hours but most operated 3 days later. Patients seen on a Friday with a superior or temporal RRD were operated sooner if their duration of symptoms was 3 days or less ($P=.03$).

Three clinical variables were correlated with a shorter time from evaluation to surgery: shorter duration of symptoms ($P<.001$); an RRD whose closest approach to the macula was superior or temporal, rather than inferior or nasal ($P=.02$); and superior retinal breaks rather than inferior or no retinal breaks ($P=.009$). Number of quadrants involved and posterior extent of the RRD were not correlated with time from initial evaluation to surgery.

Only one patient had a macula-on RRD that progressed to involve the fovea preoperatively. This patient was initially evaluated 2 days before the onset of Hurricane Andrew. When he returned 4 days after the initial evaluation he had foveal involvement of the RRD

and 3/200 BCVA. Surgery was performed the next day, and his vision ultimately recovered to 20/40.

The retina was reattached with a single operation in 175 eyes (88%); in 24 (12%) eyes, persistent subretinal fluid required reoperation. Final anatomic success was achieved in 198 eyes (99.5%), with one patient refusing reoperation.

In 172 patients with 2 months postoperative follow-up, median BCVA was 20/30 (range 20/15 to counting fingers). BCVA was 20/40 or better in 73% of eyes at 2 months. There were no statistical differences in median or mean BCVA at 2-, 6-, and 12-month follow-ups. The strongest predictor of BCVA at all postoperative intervals was presenting BCVA. There were no significant differences in BCVA or anatomic outcomes related to the time between initial evaluation and surgery.

Patients with RRD involving only one quadrant were more likely to have better BCVA outcomes than those with more quadrants involved. This was the only other prognostic factor beside presenting BCVA that correlated with visual outcomes; there was no correlation of visual outcomes with age, sex, lens status, duration of symptoms, refractive error, location of RRD, location and number of retinal breaks, intraoperative complications, need for additional surgery, and several other factors examined.

When patients initially evaluated on each day of the week—including Friday and Saturday—were analyzed, those presenting on Friday or Saturday (49, 25%) had a significantly longer time to surgery (median 68 hours) than for other days of the week (median 22 hours; $P<.001$). Despite this difference in time from initial presentation to surgery, there were no significant differences in visual or anatomic outcomes among the groups.

DISCUSSION

The involvement of the fovea is the greatest predictor of anatomic and visual outcomes in RRD. Therefore, surgery is pursued more urgently in patients with a fovea-sparing RRD in whom the fovea is threatened. This study evaluated a common management algorithm in which eyes that met any one of three criteria were, overall, brought to surgery more urgently. The three criteria were shorter duration of symptoms, superior or temporally located RRDs, and superiorly located retinal breaks. All three factors were independent predictors of time to surgery in this study.

The main finding of the study was that, given the clinical bias inherent in this algorithm, the duration from initial evaluation to surgery did not affect anatomic or visual outcomes. Progression to macula-off detachment was rare when a selectively urgent approach was

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used. This finding is important for a number of reasons.

There have been concerns about the medicolegal implications of delaying surgery for macula-on RRD of recent onset. What is the standard of care? If a patient with a new macula-on RRD is seen on a Friday, or in a hospital emergency department in the middle of a weekend—or even on an afternoon in the middle of the week—should we rush the patient to surgery, or can we safely wait until the next scheduled surgery session?

The reasons not to operate on a weekend, or to drop the office schedule and rush patient and surgeon to the surgical facility, are numerous. First, on a Saturday or an emergency afternoon trip to the surgery center, the surgeon may not have his or her optimal surgical team around him, and may have to rely instead on backup or on-call personnel. Second, for operations performed outside of normal hours or on a weekend, there is a higher cost to the health care system. Third, the patient may need time to make arrangements for care or transportation. It might be better for all involved if this service were delivered in a more deliberate and cost-effective manner.

As a retrospective consecutive case series, this study is also important because no patients fitting the study criteria were excluded. Studies of this issue in the past have often used a visual acuity cutoff, so that for instance only patients better than or equal to 20/30 BCVA were included. This study included all comers with macula-on RRD over a period of 15 years, including patients with poor initial BCVA.

It is important to note that the study was based on a treatment algorithm with an inherent clinical bias. The surgeon did not delay surgery for all patients by 3 days. In a real-world population, the surgeon used a few clinical criteria to determine which patients should be operated sooner. It would be ideal to study such a patient population in a prospective clinical trial.

This study provides support for the idea that, based on this clinical algorithm, many patients can wait a brief period of time for surgical repair without compromising visual or anatomic outcomes. Surgeons and patients can be assured that surgery for many patients with a macula-on RRD may be able to be delayed until the next operative day. ■

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