In this issue’s Practical Retina column, James C. Major Jr., MD, PhD, FACS, and Alexander M. Rusakevich, BA, from Houston discuss the timing of surgery in the management of fovea-sparing rhegmatogenous retinal detachments.

We are all aware that there is great discussion and potential medico-legal ramifications regarding the timing of repair for macula-on retinal detachments (RDs). Although traditional thinking was that timing of repair should be emergent, recent data suggest otherwise. We know emergent surgeries can incur risks due to reduced resources, fewer staff, surgeon fatigue, and lack of medical clearance for surgery and anesthesia. Recent research has shown that surgeries performed Monday through Friday were more likely to achieve single-operation anatomic success than operations performed on Saturday or Sunday for various reasons. Most importantly, recent research suggests that time to RD repair does not appear to impact visual or anatomic outcomes.

Given evolving data, our community needs to re-evaluate the traditional thinking that repair of macula-on RDs are emergent. I am certain that Dr. Major and Mr. Rusakevich’s insights will be very valuable for updating our community on the most recent data regarding this important topic.

Developments in Fovea-Sparing RRD Repair: Reconsidering the Timing of Surgery

by James C. Major Jr., MD, PhD, FACS; Seenu M. Hariprasad, MD; and Alexander M. Rusakevich, BA

TRADITIONAL VERSUS RECENT APPROACHES TO FOVEA-SPARING RRD REPAIR

Foveal involvement in rhegmatogenous retinal detachment (RDR) has consistently been identified as one of the most important prognostic factors correlating with postoperative visual outcome.1-4 Throughout the 20th century, literature on the subject suggested a correlation between time to surgery and postoperative visual acuity (VA) and anatomic success. Traditional thinking prompted emergent surgery to preserve the fovea in fovea-sparing RDs. More recently, animal models have been used to demonstrate potentially irreversible changes occurring within minutes of retinal detachment (RD).5-8 The timing of such pathophysiologic processes suggests that, ideally, surgical repair of RD would be performed before foveal detachment, and it logically follows that time from presentation to surgical repair may correlate with ultimate outcomes.

Interestingly, however, despite the clinical concern for fovea detachment while awaiting surgical repair, the progression of subretinal fluid (SRF) into the fovea appears to be rare in most recent reported case series, occurring in 0.5% (one of 199) of fovea-on eyes in one study9 and 1.1% (10 of 930) in another study.10 Even when SRF does eclipse the fovea, however, visual outcomes can still be preserved; Kontos et al. reported that visual outcomes were not compromised after progression of 10 cases to fovea-off status out of a total of 930 fovea-sparing RD, although two of these eyes did lose one Snellen line.10

Somewhat counter-intuitively, these recent retrospective studies have documented little correlation of time from fovea-sparing RRD diagnosis to surgical repair with outcomes.9-11 In a seminal series of 199 fovea-sparing RRDs managed with scleral buckle (SB), Wykoff et al. found no statistically significant difference in visual or anatomic outcomes for eyes operated within 3 days of initial evaluation.9 Similarly in another study involving 66 macu-
la-sparing RRDs treated with SB, pars plana vitrectomy (PPV), or PPV with SB (PPV/SB), eyes operated within 24 hours of presentation did not differ in visual or anatomic success from those operated after 24 hours.\textsuperscript{13} Such retrospective analyses carry inherent biases, including the clinicians’ judgment as to which patients may have been rushed to surgery compared to those determined stable for planned surgery on the next convenient operative day. Nevertheless, these studies are invaluable guides for clinicians in the setting of managing what has traditionally been regarded as a potential surgical emergency with medical-legal implications.

**CURRENT RETROSPECTIVE DATA: URGENT BUT NOT NECESSARILY EMERGENT**

In the largest fovea-sparing RRD case series to date, Lee et al. investigated outcomes following primary repair of fovea-sparing RRDs managed with any surgical approach: pneumatic retinopexy (PR), SB, PPV, or PPV/SB in the context of a large, retina-only, metropolitan practice. The primary focus was to evaluate the impact of perioperative factors, including time to surgery, on anatomic and visual outcomes for 423 eyes.\textsuperscript{14}

Eight predefined clinical factors were evaluated for association with time to surgery: lens status, duration of RRD symptoms, number of quadrants involved, RRD posterior extent, RRD extent closest to the fovea, number of retinal breaks, quadrants with retinal breaks, and initial evaluation on Friday or Saturday versus Sunday through Thursday. Clinical history and examination findings play significant roles in determining time to surgical repair of fovea-sparing RRD. The current study identified three clinical factors that correlated significantly with a shorter time from presentation to surgery: shorter symptom duration, superior RRD location, and extension of SRF into the macula.\textsuperscript{14} Prior studies have similarly reported faster time to surgery for superior and temporal RRDs compared to inferior and nasal RRDs.\textsuperscript{9,11}

Thirteen predefined demographic and clinical factors were evaluated for association with both visual and anatomic outcomes: age, gender, lens status, preoperative VA, lifetime contralateral RRD, RRD symptom duration, time from initial evaluation to surgical repair, single operation anatomic success, number of quadrants involved, posterior RRD extent, RRD extent closest to the fovea, number of retinal breaks, quadrants with retinal breaks, and surgery on Saturday or Sunday versus Monday through Friday. Among all eyes, surgeries performed Monday through Friday were more likely to achieve single operation anatomic success compared to surgeries performed on Saturday or Sunday.\textsuperscript{14}

Traditionally, fovea-sparing RRD has been a clinical indication for emergent surgical intervention in attempting to prevent foveal detachment and preserve final VA.\textsuperscript{15} To the contrary, within the inherent biases of the clinical algorithm employed, the current study found that time from diagnosis of fovea-sparing RRD to surgical repair did not affect anatomic or visual success. The previously mentioned studies involving fovea-sparing RRDs have drawn similar conclusions.\textsuperscript{9-13}

**CONCLUSIONS**

Emergent surgeries may incur additional risks due to reduced resources, fewer staff, surgeon fatigue, and lack of medical clearance for surgery and anesthesia.\textsuperscript{16-18} Indeed, in the current series, surgeries performed Monday through Friday were more likely to achieve single-operation anatomic success than those performed on Saturday or Sunday, although any substantial conclusion from this data is restricted, both by the limited number of cases and the higher proportion of PR interventions among weekend cases compared to cases performed during the week. Notably, however, studies from other surgical subspecialties have also demonstrated inferior surgical outcomes for operations performed on Saturday or Sunday.\textsuperscript{19-22} Although the current study appears to corroborate published literature in other surgical fields, interpretation of the current data should be tempered by the inherent limitations. Additional studies, ideally prospective, are needed to better understand patient outcomes related to timing of surgical intervention for RRD.

Appropriately scheduled RRD surgery benefits both patients and medical staff by providing more time for coordination of social and psychological support and allowing the use of familiar surgical resources, respectively. Concurrently, the health care system benefits from decreased expenditure, as scheduled RRD surgeries have been reported to cost substantially less than emergent interventions.\textsuperscript{17} While awaiting RRD surgery, some authors have advocated short-term positioning, ocular immobilization, bilateral patching, and bed rest to prevent RRD progression.\textsuperscript{23-28}

In summary, the current retrospective analysis of a large database of fovea-sparing RRDs, confirmed by individual patient image analysis, identified three clinical factors that appeared to prompt faster intervention — shorter symptom duration, superior location, and posterior extension into the macula — all likely stemming from the surgeons’ desire to preserve fovea-on status. Within the context of the current biases and clinical approach employed, time to surgical repair did not appear to impact visual or anatomic outcomes, preoperative VA and single operation success correlated with visual outcomes, and surgeries performed Monday through Friday correlated with anatomic outcomes.
REFERENCES


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