

Epiretinal Membrane Management

WITH JORDAN HEFFEZ, MD; AZIZ A. KHANIFAR, MD; AND BYRON S. LADD, MD



Visual dysfunction from epiretinal membranes constitutes 1 of the more common conditions that vitreoretinal surgeons evaluate and treat. Despite their prevalence, careful presurgical evaluation along with proper surgical technique and postoperative management are key to successful outcomes. This month, a panel of VBS members discusses their approach to the surgical management of patients with epiretinal membranes.

—Jorge A. Fortun, MD; and Rohit Ross Lakhanpal, MD

Q: What are your criteria for determining an adequate surgical candidate?

Jordan Heffez, MD: A good surgical candidate for a membrane peel procedure is a relatively healthy individual that has demonstrated a symptomatic decrease in BCVA with metamorphopsia, a visible epiretinal membrane (ERM) with striae, and no comorbid conditions. I don't have a visual acuity cutoff, but I expect the most improvement with a focal ERM and preoperative vision between 20/60 and 20/200. A poor candidate is someone with worse visual acuity than you would expect from the clinical exam and ancillary testing. This can be seen in patients with chronic edema from longstanding ERM or patients with comorbid conditions (age-related macular degeneration [AMD], uveitis, retinal vein occlusion [RVO], ischemic optic neuropathy, high myopia, staphylococcal). Although these conditions make it more difficult to manage expectations and advise patients, they do not make the surgery any more difficult. Patients with uveitis tend to have more adherent membranes that can be difficult to incise and peel and seem to recur more frequently, particularly with recurrent inflammation. Other factors that relate to poor candidacy are physical characteristics making it difficult to position the patient on the surgical table or a condition that causes heavy breathing.

Aziz Khanifar, MD: Most importantly, the ERM has to cause macular edema and/or distortion of the vitreoretinal interface that leads to a decrease in visual acuity and/or metamorphopsia. Of course, there's the usual: does the patient understand all the risks, benefits, and alternatives to surgery as well as the goals of surgery (primarily prevention of further loss and likely



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improvement of distortion)? Additionally, a good surgical candidate is systemically healthy, ie, is not in acute renal or heart failure, or is not immunocompromised with an opportunistic infection. Otherwise, we're talking about a relatively short surgery under minimal anesthesia, so most patients should be able to have surgery. I would counsel my patients to understand that if the associated edema and vitreoretinal distortion is long-standing, then the surgical outcome may be suboptimal, meaning slower recovery of vision and potentially less-than-ideal visual acuity.

Byron Ladd, MD: A good candidate for surgical ease is a pseudophakic patient with a posterior vitreous detachment (PVD). Although most ERMs already have a PVD, the ones that don't seem to have abnormal vitreous adherence and can be difficult to elevate the hyaloid and more likely to have a peripheral break. I do believe the better the preoperative vision, the better the visual outcome. For this reason, I will perform surgery on ERMs with vision better than 20/40 if the patient is symptomatic with difficulty performing daily activities. Patients with severely thickened maculas but no CME tend to have poorer outcomes. Their maculas seem less able to resume normal thickness postoperatively, as if the retinal tissue has been irreversibly stretched out. Patients with preoperative CME seem to recover quicker with better

visual outcomes. Patients with preoperative lamellar degenerative changes also do worse.

Q: When, if ever, do you consider an angiogram in addition to optical coherence tomography (OCT) as part of the preoperative evaluation?

Dr. Heffez: I use fluorescein angiography (FA) to help determine the etiology of vision loss when comorbid conditions exist, most frequently AMD and pseudophakic CME. Otherwise, I don't routinely use FA for these cases.

Dr. Khanifar: I order FA when subretinal fluid is present to look for evidence of simultaneous choroidal neovascularization (CNV). I would treat the CNV prior to treating the ERM. Also, if the edema is overwhelmingly cystoid and is asymmetric (predominantly superior or inferior to the fovea), I order an FA to look for evidence of branch retinal vein occlusion (BRVO). Similarly, for patients with diabetic retinopathy, history of (or suspected history of) RVO or other ischemic disease, I recommend an FA to evaluate for macular ischemia. Macular ischemia is another risk factor for a suboptimal surgical outcome.

Dr. Ladd: Occasional ERMs can have associated microvascular changes with telangiectasias and microaneurysms resulting from vascular distortion. Some are so significant that it can have the false appearance of a BRVO. In these cases, an FA can reveal if there are any capillary nonperfusory changes that would limit visual prognosis and confirm an additional BRVO.

Q: How do you manage a coexistent visually significant cataract?

Dr. Heffez: I will usually have 1 of my anterior segment colleagues perform cataract surgery first and then perform the membrane peel as a separate procedure at a later date.

Dr. Khanifar: If the cataract is visually significant or at least significant enough to affect surgery, then I recommend either doing a combined case if possible, or at least having the cataract removed first before performing the vitrectomy.

Dr. Ladd: I manage this on an individual basis, but if both the cataract and ERM appear equally responsible for the decline in vision, I will do a combined case. I operate in our own ambulatory surgery center, however, and it is convenient to perform a combined case with a cataract surgeon. If it was inconvenient to do a combined case, I would have the cataract removed first.

Q: Describe your surgical technique including choice of instrumentation, use of stains, and role of internal limiting membrane (ILM) removal.

Dr. Heffez: I use 25-gauge instrumentation and stain the ERM with dilute triamcinolone (1:3 with BSS). I initiate and perform the peel with disposable ILM forceps in a "pinch-and-peel" technique. I always prefer to initiate the peel in an area of ILM and peel both concomitantly. If this proves difficult or time consuming, I directly peel the ERM and try to continue tangentially and remove the ILM. I do not restrain to peel the ILM and do not use indocyanine green (ICG) for ERM cases. My experience with Alcon and Synergetics disposable ILM forceps has been favorable, and I prefer them to the Alcon reusable handle. If I need a second instrument, I use the Tano scraper; however, the ILM forceps are usually sufficient.

Dr. Khanifar: I perform the vast majority of these cases with 25-gauge equipment. In the unusual circumstance of a young patient with an ERM, then I will use 23 gauge to improve the chances of elevating the posterior hyaloid. I purposely remove ILM only in the setting of recurrent ERM, macular hole, or in the very small minority of cases where the pucker is actually difficult to visualize without OCT. Also, if with OCT the ERM appears to have more than 1 layer, I'll go ahead and remove ILM in that case also.

I like to use ICG to "negatively stain" the ERM. This allows me to better visualize the boundaries of the pucker. I restrain after removing the ERM to see whether the ILM was also removed.

I like to use the Alcon Grieshaber Revolution ILM forceps. Most of the time, a "grab-and-go" technique is enough to get the job done. If the ILM or ERM is very adherent, I use the Tano membrane scraper to form a flap. Either way, once I have a flap, I remove as much pucker or ILM as I can at once, re-grabbing at the base of the flap frequently to maintain control.

Dr. Ladd: I prefer 25-gauge instrumentation. After removal of vitreous and as-needed elevation of hyaloid, I use the Alcon ILM forceps to pinch and peel the ERM without adjuvants initially. I like to start the peel temporal to the macula and prefer not to pinch the retina in the papillomacular bundle. Often, the ILM will come with the ERM and you can visualize the bilayer peel. It is important to distinguish the more friable and stretchy ERM from the rigid and stiff ILM to know when you have peeled both layers. If the ILM was not removed with the initial peel, I will dust the surface with steroids to aid in visualization of the ILM peel. I peel both layers with a pinch-and-peel technique.

Q: Do you administer any intravitreal or periocular steroids at the time of surgery? What is your postoperative antiinflammatory regimen? How do you manage persistent cystoid macular edema (CME) and/or thickening?

VITRECTOMY WITH MEMBRANE PEEL**By John Kitchens, MD**

In this video, which can be viewed by scanning the QR code or using the quick link here, John W. Kitchens, MD, performs vitrectomy with a membrane peel. Figures 1 A-C show the peeling maneuver and Figure 2 shows the gas bubble that is placed toward the end of the procedure.

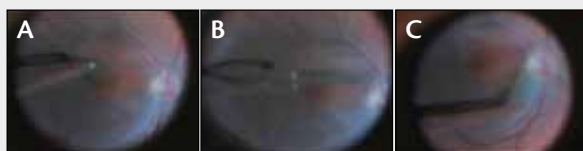


Figure 1. Membrane peeling using dye for visualization (A-C).



Figure 2. A gas tamponade is utilized.

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Dr. Heffez: Perioperatively, I use subconjunctival dexamethasone and cefazolin unless it is contraindicated. Postoperatively, I combine a prednisolone taper over 1 month with an antibiotic drop for 1 week. Patients expect a slow recovery. I only consider reimplementing antiinflammatory therapy should CME persist after 3 months in the absence of a cause or with worsening CME. I welcome a normal foveal contour at any time after surgery, however, and more realistically, expect an irregular but improved macular contour to persist possibly indefinitely.

Dr. Khanifar: I do not routinely administer intraocular or sub-Tenon corticosteroids at the conclusion of the case. I do, however, give dexamethasone subconjunctivally. In the

absence of underlying uveitis as the etiology for the ERM, I like to use tobramycin/dexamethasone combined ophthalmic solution. Otherwise, prednisolone is usually enough. I don't routinely use NSAIDs or cycloplegics for these cases. I treat the cystoid component of the edema if it persists past 6 weeks. In these cases, I will use both an NSAID and prednisolone. For my patients with persistent, noncystoid macular edema, in the absence of residual or recurrent ERM, observation has worked just as well as aggressive treatment with intraocular triamcinolone.

Dr. Ladd: Using triamcinolone as an adjuvant to peeling has the added benefit of quickly reducing and controlling postoperative CME, which results in faster visual recovery. I use ofloxacin twice daily and prednisolone 4 times daily for a week stopping without taper at 1 week. In my experience, most CME will resolve in 4 to 6 weeks. This could be an ascertainment bias, however, as I use steroid to assist with membrane peeling. If CME persists longer than 6 weeks, I will initiate a topical NSAID, typically bromfenac (Bromday, Bausch + Lomb). Retinal thickening without CME is structural and does not respond to medical therapy. ■

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