When Cataracts Complicate Surgery for Vitreoretinal Disease

Visually significant cataracts may develop in isolation or in conjunction with other ocular diseases. In cases where cataracts occur with vitreoretinal diseases such as macular holes or rhegmatogenous retinal detachments, the treating surgeon faces a unique set of surgical challenges.

When intraocular gas is injected during surgery to treat these vitreoretinal diseases, for example, a newly placed or malpositioned intraocular lens implant can shift—especially if the lens is placed in the sulcus or if a large capsulorhexis is performed. Likewise, placing an encircling scleral buckle during retinal detachment repair may lead to unexpected post-operative refractive outcomes.

Another consideration is that even mild cataracts may progress to visual significance after routine pars plana vitrectomy (PPV). Removing the cataract before or at the same time as the PPV may be technically easier than doing so afterward. In some instances, therefore, it may be advisable to stage the 2 procedures—while in other cases, surgical staging may be impractical or unsafe. With these clinical scenarios in mind, we asked several key opinion leaders how they address cases where cataracts complicate vitreoretinal disease surgery.

A 60-year-old phakic patient presents with vision loss from a moderate epiretinal membrane (ERM) associated with macular edema. She also has a nuclear sclerotic cataract and you believe the cataract and ERM are both contributing to her vision loss. How do you time the cataract surgery relative to the PPV—staged or simultaneously? If staged, in what order? Do you perform the cataract extraction yourself, or do you refer to an anterior-segment colleague?

**Jorge Arroyo:** If the nuclear sclerotic cataract would impair my view of the macula, I would offer the patient either combined cataract and vitrectomy with membrane peel, or staged cataract extraction followed by vitrectomy and membrane peel. Most patients in our practice prefer the combined phacoemulsification, posterior-chamber intraocular lens (PCIOL) placement, 23-gauge pars plana vitrectomy with ERM and internal limiting membrane (ILM) peeling. We are in the process of publishing our 10-year experience of combined surgery for patients with ERM. Of the 81 patients who met our inclusion criteria, the outcomes of the combined group \( n = 41 \) were similar to those of vitrectomy and membrane peel alone \( n = 40 \).

**Paul Tornambe:** Most of the time, one can determine if vision loss is caused by the ERM. If the patient complains of macropsia or metamorphopsia, the ERM—

---

**THE KOL CORNER**

**This Issue’s Key Opinion Leaders**

Paul E. Tornambe, MD
Paul President, ASRS
President
Retina Consultants San Diego
Poway, California

Jorge G. Arroyo, MD, MPH
Director, Retina Service
Beth Israel Deaconess Medical Center
Boston, Massachusetts

Sunir J. Garg, MD
Associate Professor of Ophthalmology
Wills Eye Institute
Philadelphia, Pennsylvania

---

**In cases where cataracts occur with vitreoretinal diseases... the treating surgeon faces a unique set of surgical challenges.’**
not the cataract—is the cause. In such a case, I would advise that the cataract be removed first or in combination with the ERM surgery. If the referring doctor is a cataract surgeon, we give him or her the choice of doing the procedure separately prior to the vitrectomy, or invite the cataract surgeon to join us in the OR to perform the surgery sequentially.

Most of the time, schedules are such that the cataract surgeon performs the surgery first and we then operate a week or 2 later. We always ask the cataract surgeon to suture the corneal wound and use a large optic, non-silicone IOL. Usually we discourage premium lenses that might affect contrast sensitivity. In most cases, we do not perform cataract surgery ourselves, but ask the referring doctor or one of our cataract surgeons to perform the procedure.

In cases where the patient just complains of blurred vision and we can’t be sure whether the ERM is playing a role, we suggest the cataract be removed first. We proceed with vitrectomy only if the cataract surgery does not improve vision to the level that satisfies the patient’s visual needs. I have been impressed that cystoid macular edema (CME) rarely develops when the cataract surgery is performed prior to or at the same time as the vitrectomy (for ERMs and macular holes).

Sunir Garg: Much depends on the status of the cataract. If it is just trace to 1+ nuclear sclerosis, I will proceed with vitrectomy, letting the patient and anterior-segment surgeon know that the cataract will likely progress and need to be removed within the next 6 to 12 months.

‘For people with more than just a mild cataract, I am proactive in encouraging cataract surgery first.’
—Sunir J. Garg, MD

However, for people with more than just a mild cataract, I am proactive in encouraging cataract surgery first. For me, there is no downside and a great upside. The cataract surgeons usually appreciate doing the cataract surgery in a non-vitrectomized eye. It helps me intraoperatively, as I do not have to worry about hitting the crystalline lens. I can also more aggressively remove the peripheral gel as well as disrupt the anterior hyaloid face. And it speeds up the patient’s visual rehabilitation.

‘In the event we were able to do combined phacoemulsification, PCIOL placement, and PPV, I would not typically add a scleral buckle’
—Jorge G. Arroyo, MD, MPH

If people are phakic and then have vitrectomy, often they will be quite happy with their vision a month after surgery. They will stay happy for a few months, but 6 months or so later, they start to notice some deterioration in their vision. That is usually due to cataract progression and can be upsetting to the patient. By having the cataract surgery performed first, once my vitrectomy is done, we can all be fairly confident that as the vision improves, it will stay stable.

I almost always ask my anterior-segment colleagues to do the case, as they are better at cataract surgery and in figuring out the newer lenses than I am. I encourage patients to get their cataract surgery done 1 to 2 weeks prior to vitrectomy. This allows patients to continue to use the same pre-operative blood work, but gives the lens time to heal in position.

A 75-year-old phakic patient presents with a macula-sparing rhegmatogenous detachment, moderate vitreous hemorrhage, and significant posterior subcapsular (PSC) cataract. The detachment is caused by multiple horseshoe tears. You are planning a vitrectomy (with or without scleral buckling) to repair the detachment.

Do you leave the lens alone if you are able to see well enough during the vitrectomy? If the decision is made to remove the lens at the time of retinal detachment (RD) repair, would you remove the lens via pars plana vitrectomy or via phacoemulsification? Would you place an intraocular lens (IOL) implant? If so, what type of lens would you choose and how would you account for the potential change in axial length associated with the scleral buckle?

Jorge Arroyo: In general, phakic patients who do not have a visually significant (from the surgeon’s point of view) cataract and an acute RD typically do quite well with only an encircling scleral buckle, subretinal fluid drainage, and intravitreal air or gas injection. However, if a vitrectomy needs to be performed due to vitreous hemorrhage, I would place a scleral buckle if the lens were to be spared, or would perform a pars plana lensectomy, leaving the anterior capsule and performing a good vitreous base and posterior-capsule excision under endoscopic visualization.

If I did not have an endoscope available, I would remove the entire capsule and plan for a secondary anterior-chamber intraocular lens (ACIOL) placement. In the event we were able to do combined phacoemulsification, PCIOL placement, and pars plana vitrectomy, I would not typically add a scleral buckle, given the fact that an excellent vitreous base dissection can be performed using the wide-field viewing system or endoscopy.

‘In Europe, phacoemulsification with IOL implantation is done routinely with the vitrectomy. This is a more cost-effective way to manage the eye.’
—Paul E. Tornambe, MD

Paul Tornambe: If there is a significant PSC cataract, we usually ask the referring doctor to join us in the OR to perform cataract with IOL implantation—and if a circumferential buckle is planned (with the usual 8 mm overlap), we ask the referring doctor to adjust the IOL power a few diopters to compensate for the 1.5 to 2 diopters of induced myopia.

Usually it is not possible to coordinate the schedules on such short notice. We, of course,
want to avoid macular detachment. In such cases, I would remove the lens at the time of surgery. I personally would perform a pars plana lensectomy and try to leave the anterior capsule intact so a secondary IOL can be placed at a later date. The advantage of this methodology is that the IOL power can be better determined. In Europe, phacoemulsification with IOL implantation is done routinely with the vitrectomy. This is a more cost-effective way to manage the eye.

**Sunir Garg:** This is a challenging scenario. In these cases, I tend to want to get the retina attached. If my view is tough, I consider doing a vitrectomy along with a scleral buckle. I will counsel the patient that he or she will likely need to have cataract surgery performed in the very near future. With wide-field viewing, I can see around most cataracts.

In what situations do you routinely recommend combined cataract extraction and IOL placement when performing a vitrectomy?

**Jorge Arroyo:** I typically recommend combined cataract extraction, PCIOL placement, and pars plana vitrectomy in all cases with a visually significant cataract, or in patients over the age of 60 who have at least 1+ nuclear sclerosis and would have a 100% risk of cataract progression after vitrectomy.

**Paul Tornambe:** I make an effort to combine cataract surgery with IOL insertion and vitrectomy surgery for all elective cases (such as macular pucker and macular holes) in patients over 50 years old. This combined procedure is easy to do if the referring doctor is not a cataract surgeon. It also is the most cost-effective way to manage these eyes, but may not be politically correct if the referring doctor wishes to perform the cataract surgery.

In the future, if we all are measured by the resources we consume as well as by our outcomes, combined surgery will be the standard. However, in the real world today, if the referring doctor cannot or does not wish to come to the OR, we ask he or she first remove the cataract, insert an IOL, and then schedule the vitrectomy a week or 2 later.

**Sunir Garg:** I do these periodically, but it’s not my preference. If the case doesn’t go as well as one had hoped, corneal edema is an issue. A large capsulorhexis can allow the lens to be bumped out of position by a gas bubble. I have also noted a little bit more inflammation postoperatively in these eyes, and that can occasionally cause posterior synechiae to form. Finally, it can be difficult to coordinate our schedules.

**Jorge Arroyo:** If the patient is under 1 year of age (especially if diabetic) and we are able to accomplish all of the goals of the surgery, I would not recommend lens extraction and IOL placement. Alternatively, it sometimes is preferable to leave the patient aphakic, such as in cases where we expect a significant amount of postoperative inflammation due to extensive endolaser, membrane peeling, or ciliary body membrane peeling.

‘In the future, if we all are measured by the resources we consume as well as by our outcomes, combined surgery will be the standard.’

—Paul E. Tornambe, MD

**Paul Tornambe:** I avoid removing the lens in young patients, such as diabetics or RD patients younger than 50 years old.

**Sunir Garg:** I try to avoid concurrent cataract surgery in essentially all cases in which I anticipate putting in a long-acting gas or silicone oil tamponade. Patients with active inflammatory disease also should not have an IOL placed.

---

**Financial Disclosures**

Dr. Spirm – None.


Dr. Arroyo – None.

Dr. Garg – ALLERGAN, INC: Speaker, Honoraria; GENENTECH: Investigator, Grants; MD INTELISYS: Stockholder, No Compensation Received; REGENERON PHARMACEUTICALS, INC: Investigator, Grants.