MD Roundtable Part 3: Managing Cataract in Eyes With Epithelial Defects

Special considerations are needed to manage cataract in the presence of corneal disease. Kavitha R. Sivaraman, MD, at the Cincinnati Eye Institute, hosted a roundtable discussion with Nicole R. Fram, MD, at Advanced Vision Care in Los Angeles, and Joshua C. Teichman, MD, MPH, at Prism Eye Institute and the University of Toronto; together they addressed many corneal conditions that make cataract treatment challenging. In the last of a three-part series, they share tips for performing cataract surgery in patients with ocular herpes, corneal scars, epithelial basement membrane dystrophy (EBMD), and other disorders.

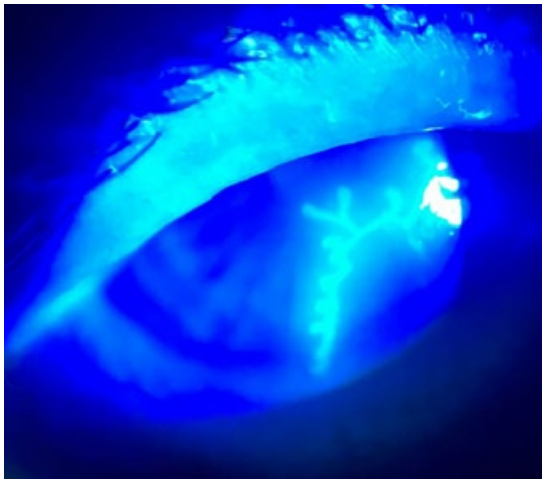
Herpes Simplex

Dr. Sivaraman: *I think we've all seen cases of ocular herpes where you have good disease control preoperatively, but after cataract surgery you get a flare. For a patient with a history of herpes simplex virus (HSV) keratitis, how do you optimize your chances for a successful surgical experience?*

Dr. Teichman: Generally, I avoid surgery until the eye is quiet for three to six months. For HSV, I consider whether the condition is somewhat less concerning (such as infectious epithelial keratitis) or is more prone to flare-ups (such as stromal keratitis, endotheliitis, or uveitis). These latter conditions can involve intraocular hypertension with high-pressure spikes that damage the endothelium, so it's important to evaluate the mosaic for cell count and morphology. I also check for neurotrophic keratopathy, which is associated with toxicity from NSAID use and nonhealing epithelial defects. These steps provide crucial information for patient counseling and help determine whether subsequent corneal transplantation is a possibility.

I prescribe valacyclovir, starting at four to seven days pre-op at the full dosage (500 mg three times a day), and continue it through about one week post-op. Then I decrease the valacyclovir dosage to the prophylactic level (500 mg daily) and maintain it while slowly tapering the perioperative steroid to the pre-op level.

Dr. Sivaraman: Patients often are referred with a remote history of HSV keratitis, but at presentation, you only see scarring. As someone once told me, "It's not a dendrite unless you see it yourself." The converse is also true—in a cornea with characteristic scarring, don't disregard the possibility of prior HSV just because the patient doesn't carry the diagnosis. When in doubt, I think it makes sense to start an antiviral prior to cataract surgery.



DENDRITIC LESION. *Cataract surgery can reactivate a previously quiet case of ocular herpes simplex. A few precautions can help prevent flare-ups.*

Herpes Zoster

Dr. Sivaraman: *We don't yet have data on the utility of prophylactic antivirals for patients with herpes zoster, but hopefully the Zoster Eye Disease Study[1] will provide details soon. Nevertheless, many cornea specialists use antiviral treatment prophylactically in an attempt to prevent recurrence in these patients. How do you manage herpes zoster perioperatively?*

Dr. Fram: My approach to manage active herpes zoster or herpes simplex keratouveitis in the immediate postoperative period is the same: I give valacyclovir 1 g three times daily in the immediate post-op period and then step down to the prophylactic dosage of 1 g daily. There is preclinical evidence of continued viral gene expression and

ROUNDTABLE HOSTED BY **KAVITHA R. SIVARAMAN, MD,** WITH **NICOLE R. FRAM, MD,** AND **JOSHUA C. TEICHMAN, MD, MPH.**

replication in the stroma 14 days after infection,[2] but as practitioners of evidence-based medicine, it's important to keep in mind that there are no data showing that antiviral therapy beyond 14 days is beneficial in patients with ocular herpes zoster.[3]

Prior to cataract surgery, I consider the clinical herpetic disease, the disease progression, and the number of recurrences the patient has had. The management plan is much different for someone who had herpes zoster a year ago without ocular involvement versus someone who needs a drop of prednisolone acetate each day to control the disease.

I often see herpetic disease accompanied by subepithelial scarring and lipid keratopathy with large abnormal vessels. To reduce inflammation in these cases, I give high-dose topical steroids and an antiviral treatment for three weeks to a month before surgery.

Like Dr. Teichman, I avoid treating the cataract until the herpetic disease has been quiescent for three to six months, and I advise patients to avoid NSAID use, even if there's little evidence of neurotrophic keratopathy. NSAIDs can impair healing of the epithelial defect where the main incision is made on the cornea. I also try to avoid limbal-relaxing incisions in these patients; when these incisions are necessary, I use a femtosecond laser, and I place them mid-stromally.

Dr. Sivaraman: For these patients, it's important not to rush into surgery, especially if you haven't been the one monitoring their condition and you can't independently verify the length of quiescence.

Corneal Scars

Dr. Sivaraman: *When corneal scars are present before cataract surgery, IOL selection and intraoperative visualization are common concerns. What is your treatment approach?*

Dr. Sivaraman: When corneal scar and cataract coexist, the visual loss often results from the irregular astigmatism due to the corneal scar rather than from the cataract. So a trial with a rigid gas permeable (RGP) lens can be very helpful for determining the best potential vision.

Dr. Teichman: I agree. The change in corneal shape from a scar usually affects vision more than the corneal opacity does. An RGP or scleral trial normalizes the surface and gives you a better idea of what's going on.

Dr. Fram: There are a few ways to improve visualization through a central, visually significant scar that impairs the red reflex in surgery. Lower the light source, keep your coaxial on, and turn off the tangential. Stain the anterior capsule with trypan blue augmented by topical methylcellulose. In extreme cases, you may need to remove the epithelium and then place topical methylcellulose for better visualization. Another option is to insert a light pipe for illumination and turn the microscope off, especially if you're certain that the patient was a poor candidate for corneal transplantation.

EBMD and Salzmann Nodules

Dr. Sivaraman: *For a cataract surgeon who isn't a cornea specialist, what advice would you offer for managing cataract in a patient with EBMD or Salzmann nodules?*

Dr. Teichman: EBMD affects about 5% of the population and involves a wide spectrum of pathology, from cases that are barely apparent to those involving intractable recurrent erosions. Even though EBMD and Salzmann nodules are different entities, they are managed similarly during cataract surgery. My advice is to look at the central cornea and evaluate the mires on topography. If you see little or no evidence of EBMD or nodules—or if there's only peripheral involvement and the mires look good—you can proceed with your measurements and surgery as usual. The other consideration would be to exercise extra caution with manipulations of the cornea because you want to avoid any abrasions that could result in recurrent corneal erosions.

If I find EBMD or Salzmann nodules centrally, I inform the patient that I can't be certain whether the corneal measurements are being made on a representative area, and I recommend superficial keratectomy (SK) before the cataract surgery, especially if the patient has interest in premium IOL technology or if some toricity is apparent. After SK, I allot about three months of healing time because we know there can be transient irregularities of the epithelium during that post-op period.[4] I then repeat my measurements of the cornea, make sure the readings are stable, and proceed with the cataract surgery.

Dr. Sivaraman: With Salzmann nodules, topography results typically improve after SK, but the readings often never completely normalize. It's important to emphasize in the pre-op consult that we have techniques to improve the condition, but we can't guarantee that the eye would be compatible with, say, a multifocal IOL.

Dr. Teichman: I've also noticed that all nodules aren't created equally. While some peel right off, others are associated with more anterior stromal scarring and flattening.

I tell patients that the nodule occurred for a reason. Contact lens use is a culprit in some patients, but often the cause is low-level meibomian gland dysfunction, chronic irritation, and dryness. It's important to advise patients of this; they must adhere to treatment to prevent the nodule from recurring. I usually start them on treatment (determined by the etiology) the day I meet them, and I emphasize that the treatment must be adopted permanently, not just leading up to SK or the cataract surgery.

Dr. Sivaraman: In this context, true Placido disc–based topography is valuable; I prefer this even to a Pentacam image for pre-op planning of cataract surgery.

Dr. Fram: My approach is similar. I would add that you need to lift the eyelid in your evaluation because you could miss peripheral nodules otherwise. When I peel nodules, I use mitomycin-C 0.02% for 20 seconds and then irrigate thoroughly. After the nodule-ectomy, I wait about eight weeks to perform measurements and then cataract surgery. I also take precautions to keep the ocular surface hydrated during and after the surgery to avoid epithelial breakdown of the newly remodeled epithelium.

Pterygium

Dr. Sivaraman: *How should ophthalmologists approach cataract surgery in eyes with pterygia?*

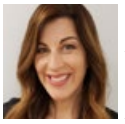
Dr. Fram: Pterygium is a type of corneal irregularity, and its management depends on the patient's age and whether the irregularity has progressed. Similar to the approach for Salzmann nodules, if the pterygium has been present for a long time and isn't encroaching on the cornea to the point that Placido disc–based topography results are abnormal, you can proceed with cataract surgery as usual. If the pterygium involves the central five placido images on corneal topography, I will remove it prior to cataract surgery measurements. Similarly, if the pterygium or pseudopterygium is located temporally, one should consider that it may be a conjunctival intraepithelial neoplasm (CIN) instead of a pterygium. In these cases, I perform excisional biopsy to rule out CIN before proceeding with cataract surgery. You want to be sure that the area is clear before intersecting the area while making a temporal incision.

With pterygium, I wait three months between removing it and performing cataract surgery. During this period, I taper the perioperative steroids slowly while monitoring intraocular pressure. To reduce the likelihood of recurrence, I use conjunctival autograft over the bare sclera and advise the patient to apply Lotemax ointment (Bausch + Lomb) nightly at bedtime for three months. I've found that these steps yield a pristine ocular surface for cataract surgery.

Dr. Sivaraman: I would add that, in some cases, it's justifiable to treat the cataract without first removing the pterygium. Take, for example, an elderly patient with a stable pterygium who is prepared to wear glasses after surgery and in whom you're confident that most of the visual loss is from the cataract. Optimizing vision results may not be worth subjecting the patient to surgery and three months of recovery. You have to keep the endgame in mind. Although we all want to maximize refractive outcomes, you have to think about the expectations of your patient and whether it's necessary to excise a pterygium just because it's there.

Dr. Fram: I agree. If you can get reliable measurements of the ocular surface despite the pterygium, and the patient is willing to wear glasses and understands that the pterygium may need to be removed later, then I think it's reasonable to leave it in place.

1 clinicaltrials.gov, NCT03134196.
2 Al-Dujaili LJ et al. *Future Microbiol.* 2011; 6(8):877-907.
3 Liesegang TJ. *Ophthalmology.* 2008;115(2 Suppl):S3-12.
4 Erie JC. *Trans Am Ophthalmol Soc.* 2003; 101:293-333.



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Dr. Sivaraman is a cornea and cataract surgeon at the Cincinnati Eye Institute in Cincinnati. *Relevant financial disclosures: None.*

Dr. Teichman is a cornea and cataract surgeon at Prism Eye Institute and the University of Toronto, in Toronto, Ontario, Canada. *Relevant financial disclosures: Alcon: C; Bausch + Lomb: S.*

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