SAY ANYTHING

HOW DO YOU OPTIMIZE THE CORNEA BEFORE IMPLANTING PREMIUM IOLS? WHAT IS YOUR GO-TO REGIMEN?

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- Financial disclosure: None

"It is important to look at each cornea and its individual characteristics. The cornea and tear film are the first refracting surfaces of the eye, and they impact the quality of the light entering the pupil. My first priority is to measure corneal topography and wavefront aberrometry at the initial cataract consultation. There are many devices that provide topography and concomitant measurement of higher-order aberrations in one capture that are excellent. If the patient is interested in a presbyopia-correcting or even a toric IOL but the cornea demonstrates corneal staining and irregular topography, I am hyper-aggressive in optimizing the ocular surface. I like to start patients on hourly preservative-free tears for a week or 2 as a baseline. In my experience, these patients, if compliant, will quickly separate into two groups: those who return with a cornea that is almost completely normalized (objectively and topographically) and those who return with ongoing corneal pathology. For the former group, the typical treatment course is the placement of punctal plugs and decreased use of artificial tears (minimum four times daily), and then they return for biometry. For the other group—fortunately, a smaller percentage of patients—the typical treatment course is topical cyclosporine, punctal occlusion, and, potentially, topical steroids along with multiple repeat visits to establish their candidacy for the premium IOL they desire. As their corneal health improves (or doesn't), the lens choice becomes clearer. Typically, the more visits that are required to normalize the cornea and topography, the less willing I am to implant a diffractive IOL."

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- Financial disclosure: None acknowledged

"I usually assess the cornea before deciding on a plan. Every eye is different, so each requires tailored treatment; for example, irregular astigmatism from epithelial basement membrane dystrophy will be managed differently than irregular astigmatism due to dry eye disease (DED) or meibomian gland dysfunction (MGD). The workhorse of my evaluation is the OPD-Scan III (Nidek) to assess corneal aberration profiles and Placido disc mires. I then try to identify the possible causes of any irregularity. Additionally, I loosely follow the ASCRS algorithm for preoperative ocular surface disease (OSD) management to decide when to offer treatment.[1] For premium IOL patients, the doctors in my practice typically treat preoperative DED aggressively with a three-pronged approach:

1. Increase tear volume using temporary collagen punctal plugs and artificial tears if the patient is not already using them.
2. Treat inflammation with a short-term course of topical steroids (loteprednol in some form) with or without long-term treatment of inflammation (lifitegrast ophthalmic solution 5% [Xiidra, Novartis], cyclosporine ophthalmic emulsion 0.05% [Restasis, Allergan], or cyclosporine ophthalmic emulsion 0.09% [Cequa, Sun Pharma]).
3. Treat the lids for inflammation (blepharitis management) and obstruction (use of warm compresses with or without in-office thermal pulsation).

It's important that patients understand the *why* behind management because it will occasionally delay cataract surgery. I've found that proper education enhances patient adherence to DED treatment."

1. Starr CE, Gupta PK, Farid M, et al; ASCRS Cornea Clinical Committee. An algorithm for the preoperative diagnosis and treatment of ocular surface disorders. *J Cataract Refract Surg.* 2019;45(5):669-684.

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"Optimizing the ocular surface before cataract surgery is crucial. Keratopathy can lead to inaccurate IOL calculations, which can greatly affect the precision of refractive outcomes. OSD can also lead to postoperative patient discomfort with both standard monofocal and premium IOLs. I believe that patient education is key, so I often rely on visual aids in the clinic, especially irregular corneal topography images, to demonstrate how keratopathy affects the accuracy of IOL calculations. I explain to patients that there is no one-size-fits-all treatment regimen for DED. I tailor treatment to the specific cause(s) of keratopathy to optimize the cornea.

Performing a focused slit-lamp examination is key. Aggressive lubrication with preservative-free artificial tears and lubricating ointments is a useful first step. Topical steroids are also a helpful adjuvant for many patients with evidence of inflammatory DED. I look for signs of exposure that can be addressed with lubricating ointments or moisture chamber goggles. If there is MGD, I initiate a lid hygiene regimen involving warm compresses (I find timed, electric heating masks to improve compliance)

and hypochlorous acid cleaning solutions. For patients with meibomian gland obstruction who hope to achieve a result quickly, I offer in-office thermal meibomian gland expression with TearCare (Sight Sciences). For patients with a mixed mechanism of OSD or significant aqueous-deficient DED, I often incorporate pharmaceutical interventions such as cyclosporine ophthalmic emulsion 0.09% or lifitegrast ophthalmic solution 5%. I find cyclosporine ophthalmic emulsion 0.09% to be well tolerated and effective at resolving keratopathy within 4 weeks of its initiation for many patients. Punctal plugs are often a helpful adjuvant for patients with aqueous-deficient DED. I want my patients to leave the office knowing that we have a plan to achieve their refractive goals safely and accurately. I follow up with patients in 4 to 6 weeks to monitor their progress. I repeat lens calculations when there is sufficient improvement in their OSD and ensure that we have a postoperative plan in place for controlling their DED."

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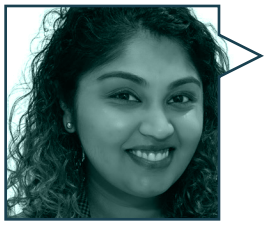
- Financial disclosure: Consultant (Bruder Health); Consultant and speaker (Alcon, Allergan, ImprimisRx, Johnson & Johnson Vision, Kala Pharmaceuticals, Novartis, Physician Recommended Nutraceuticals, Sun Pharma); Investor (Physician Recommended Nutraceuticals); Research funding (ImprimisRx, Johnson & Johnson Vision, Novartis)

"Step number one is to educate the patient that they have two conditions: a cataract, which is curable, and OSD, which requires lifelong treatment. Step number two is diagnostic testing. I perform tear film osmolarity measurement, matrix metalloproteinase-9 testing, and meibography on every patient. Each of these provides objective data to help me, as the physician, more accurately diagnose OSD type while helping the patient better understand their ocular surface problems. Without this, compliance with recommended therapies can be abysmal. Importantly, I don't schedule presurgical measurements until after the ocular surface has been treated.

To expedite ocular surface optimization, I typically prescribe a steroid such as KPI-121 0.25% (Eysuvis, Kala Pharmaceuticals) four times per day for 14 days, and I may perform microblepharoexfoliation with BlephEx (Alcon) or proceed with thermal gland expression with LipiFlow Thermal Pulsation System (Johnson & Johnson Vision), TearCare, or iLux (Alcon). I also instruct all patients to begin using a preservative-free artificial tear, oral omega supplements (Physician Recommended Nutraceuticals or ScienceBased Health), a heated moisture mask (Bruder Healthcare), and an immunomodulator such as cyclosporine ophthalmic emulsion 0.05%, lifitegrast ophthalmic solution 5%, cyclosporine ophthalmic emulsion 0.09%, or cyclosporine 0.1% ophthalmic emulsion PF (Klarity-C, ImprimisRx).

After 2 to 3 weeks, the patient returns for presurgical measurements. During this interval, we email educational materials about premium IOLs to the patient. I have yet to have a patient object to this short delay once they understand the importance of stabilizing the ocular surface to achieve better surgical and visual results. A customized maintenance plan is outlined at the final postoperative visit to ensure continued good vision and comfort. The plan may include additional in-office treatments such as intense pulsed light therapy or at-home remedies such as automated lid scrubs or tear film stabilization with a nasal spray."



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"Optimizing the ocular surface before cataract surgery, especially in the setting of premium IOL implantation, is crucial to achieving a premium visual outcome for your patients.

In the setting of ocular surface inflammation and/or dryness, I start by prescribing a short course of topical steroids. My preferred topical steroid is KPI-121 0.25% dosed four times daily for 2 weeks. I simultaneously instruct patients to start administering preservative-free artificial tears four to six times daily along with a lubricating gel or ointment at bedtime. I implement punctal occlusion if there are signs of moderate to severe aqueous-deficient DED. If I observe significant keratopathy or conjunctival staining, I will also start treatment with a topical immunomodulator such as cyclosporine ophthalmic emulsion 0.05%, lifitegrast ophthalmic solution 5%, or cyclosporine ophthalmic emulsion 0.09%. Additionally, I encourage patients to begin oral treatment with omega-3 supplements to stabilize the tear film. Lastly, in patients with MGD, I emphasize the importance of consistent eyelid hygiene with warm compresses or heated masks as well as lid scrubs such as Ocusoft or Avenova (NovaBay Pharmaceuticals). If there is marked meibomian gland architectural disruption, gland inspissation, or lid debris, I employ thermal pulsation treatments with the LipiFlow Thermal Pulsation System or TearCare to improve the quality and flow of meibum.

If I find visually significant ocular surface dystrophies or lesions such as anterior basement membrane dystrophy, Salzmann nodular dystrophy, or pterygia, I recommend surgical removal of the irregular epithelium, corneal nodules, or pterygia before cataract surgery.

I follow up with patients 4 to 6 weeks after the initiation of therapy and/or surface lesion removal to examine their ocular surface and repeat diagnostic imaging. I counsel patients that their dry eye therapy must be continued even in the postoperative period to ensure that their ocular surface remains stable and allows optimal functioning of their premium IOL." ■