



Terry Kim, MD

The importance of treating the ocular surface

By Terry Kim, MD

cantly impacts satisfaction in cataract and refractive patients postop, and 93% agreed or strongly agreed that DED significantly impacts keratometry and IOL calculations.

Literature resources

The Tear Film Ocular Surface Society published DEWS I and II² and the Cornea External Disease and Refractive Society published their paper on DED.³ Most recently the ASCRS Cornea Clinical Committee published its paper on the impact of evaluating ocular surface disease (OSD), specifically in the preop cataract or refractive surgery patient, including “a new consensus-based practical diagnostic OSD algorithm designed to aid surgeons in efficiently diagnosing and treating visually significant OSD before any form of refractive surgery is performed.”^{2,4}

The ASCRS algorithm

The ASCRS Cornea Clinical Committee focused on the preop cataract and refractive surgery

patient, rather than the general DED population, because addressing OSD/DED relieves symptomatology and leads to a better outcome.

The algorithm has a customized SPEED 2 questionnaire. It includes the previously documented SPEED 1 questions but specifically targets the preop patient. The questionnaire discusses symptomatology and assesses character traits to help determine expectations and choose an IOL.

The algorithm starts at the screening process, using information gained through the questionnaire and results of osmolarity and MMP-9 tests, two DED point-of-care tests. It helps define a stepwise process to decide whether to delay surgery or to proceed. This algorithm should be a very relevant and clinically applicable tool that practices can implement. ■

References

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Prior to any cataract or refractive surgery, it's best to evaluate the patient's ocular surface first.

The most prevalent ocular surface condition is dry eye disease (DED), including aqueous deficient dry eye, evaporative dry eye, and meibomian gland dysfunction (MGD). In the 2018 ASCRS Clinical Survey, respondents reported that 39% of their DED patients have a mix of MGD and aqueous deficiency. Salzmann's nodular degeneration, anterior basement membrane dystrophy, and pterygium should also be considered.¹

These conditions may result in visual symptoms and affect corneal measurements, keratometry, and biometry. If a condition is not addressed preop the distorted measurements can lead to a suboptimal outcome.

In the ASCRS survey, 91% agreed or strongly agreed that mild to moderate DED signifi-

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Educational Objectives

- Describe the ASCRS Cornea Clinical Committee's ocular surface disease algorithm for preoperative patients and its integration into surgical practices
- Implement more consistent practice protocols for assessing lid and meibomian gland function and structure in order to proactively identify MGD signs and symptoms; review evidence for efficacy of therapies for MGD
- Describe new and emerging technological advances for the treatment of presbyopia and the astigmatic presbyopic patient
- Integrate proper patient education and conversation techniques for the astigmatic and presbyopic patient

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Managing ocular surface disease in a preoperative cataract or refractive surgery patient



Elizabeth Yeu, MD

Performing the clinical exam

By Elizabeth Yeu, MD

The ASCRS Preoperative OSD Algorithm breaks down the clinical exam for a preoperative cataract and refractive surgery patient into four steps: look, lift, pull, and push (LLPP).

Look

The look starts before getting under the microscope, by listening to the patient and watching them.

Macroscopically, I look for rhinophyma, a ruddy complexion, or telangiectasis across the cheeks. I look for an erythematous lid margin suggestive of rosacea or a primary posterior blepharitis. I watch how many blinks are occurring, and if they are full blinks. Much of MGD is primarily due to not enough complete blinks, resulting in less than desired egress of meibum, which leads to congestion, pressure within the glands, and then the atrophy.

We sometimes rush to look at their OSDI score or SPEED score and get a very brief history. I intentionally stop and really take a good listen and look.

Under the microscope, I look first at the architecture of the lid margin to see if it's well opposed to the globe and if there is evidence of exposure. I then look for evidence of *Demodex* or anterior blepharitis, and as I go from the front to the back

of the lid margin, I look for telangiectasis and for any capped meibomian glands. Furthermore, I'm evaluating for any pitting or primary notching of the lid margins. Correlating that area to meibography usually shows a good amount of atrophy or a completely missing gland.

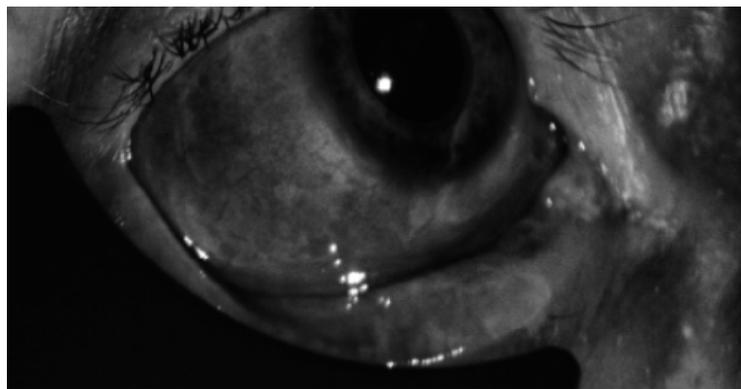
Finally, I look at where the tear film is, how thick it is, and what's in it. If it's soapy, there are bacterial lipases in action and some form of an anterior blepharitis. I also want to see if the tear film is going straight across from the temporal aspect to the nasal aspect. If it's being cut off anatomically, that's generally due to conjunctival redundancy. And I want to see if the puncta are tight or loose, if they're everted, and/or making contact with the globe.

Lift

Lifting means the upper lid, assessing for lid floppiness or tightness, and everting the lids. If there is concern that there may be an allergic component, I am concerned about the palpebral conjunctival surface of the actual lids.

Pull and push

As I pull the lower lid to lower it, I'm also everting it, so I can see the inner palpebral conjunctival surface of the lower lid. I use a cotton swab to push on the lower lids, pushing on the medial aspect, the central, and then the temporal, examining how easy it



Right lower lid of 59-year-old female: Exam reveals moderate telangiectasis of lower lid margin, without notching, and meibography demonstrates very advanced meibomian gland loss throughout the lower lid.

is to get the meibum to express and evaluating the quality of the meibum.

Treatment regimens

For active lid margin disease, reducing inflammation is key to management. I always recommend oral omega-3s as a baseline. Oral MMP-9 inhibitors like doxycycline can be helpful, particularly in those with rosacea or significant telangiectasis of their lids as a core issue. An anti-inflammatory (cyclosporin-A or lifitegrast) can be useful as an adjunctive therapy down the line.

A major part of MGD management is cleansing and getting the meibum back to health, evacuating the meibum and keeping the margin orifice open. Emollient-based tears, warm compresses, thermal therapies, intense pulsed light and neuro-stimulation all make sense. Microblepharoexfoliation can be

helpful, particularly combined with a thermal therapy.

I add blinking exercises to the lid hygiene regimen, a close and squeeze of the back surface of the lid which will help express the glands, once a night, 5 times for 5 seconds each. ■

Benefits of proper surgical preparation

Dry eye disease and MGD, with or without architectural damage, can worsen following cataract surgery. By managing ocular surface disease prior to surgery, we are protecting our patients for functional success.

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Kenneth A. Beckman, MD

Discussing preoperative management

By Kenneth A. Beckman, MD

A patient is not ready for surgery until their ocular surface is optimized, and I want them to understand why this is important for their outcome.

Patient education

There are three major reasons to clean up the surface of the eye prior to surgery. I explain to patients that these are important to successfully choosing an IOL.

1. Reduced infection risk
2. An improperly prepared surface can lead to inaccurate K-readings and topography.

3. An unhealthy surface can lead to significant postoperative aberrations even with proper IOL choice.

Be willing to wait

When I start a patient on steroids, antibiotics, or whatever is needed, I explain that this will take weeks to months, but that they don't want to have surgery more than once. Most patients are comfortable with delaying surgery when they consider the alternative. I also tell them this will require maintenance or visual aberrations may return.

If you identify ocular surface disease before surgery, the patient will understand that the problem exists prior to surgery. If it isn't

detected until after surgery, the patient is likely to believe the surgery caused it.

Setting expectations to achieve 20/happy

There's more to vision than just visual acuity on the chart. Some patients who are 20/20 aren't satisfied, and some who are 20/40 are. The biggest thing is expectations, which are set by an explanation.

You need to identify and explain to the patient everything they have and the limitations on improving their vision. I explain not just their disease but also about the lens, the process, and eye health in general. They need to know about and understand

all pre-existing conditions and understand what we are and are not treating.

I also explain that, especially with multifocal lenses, even an IOL with the correct power can cause aberrations such as rings and halos. I tell them if they won't want to live with that, don't get the lens. Once they understand that, when they notice aberrations, they're not worried by it and they tolerate it. ■

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Clara C. Chan, MD

Treating inflammation related to dry eye

By Clara C. Chan, MD

Patients arriving to our dry eye clinic receive osmolarity and MMP-9 testing. Following the ASCRS algorithm, a clinical exam is then performed. For the "Look" in the LLPP mnemonic, I look for signs of inflammation that I want to address prior to surgery.

I look to see if the patient has rosacea, a red eye, or signs of allergic conjunctivitis, and ask their history of eye rubbing,

On slit lamp exam, I look for epithelial basement membrane dystrophy, Salzmann's nodules, conjunctival chalasis, pterygium, or anything else that could contribute to irritation or DED symptoms. The last thing I look for is corneal fluorescein staining.

Benefits of treating

Cataract or refractive surgery can worsen dry eye conditions, so you want to treat any inflammation before surgery. Inflammation is part of the underlying process behind DED. I explain to patients they are at risk for

developing symptoms, or that they already have signs, and that treating the condition now will help achieve better outcomes. It's important that the patient understand the process.

Treatment regimens

My decision for how to treat inflammation depends on its severity. If very severe, I give steroids to quickly reduce the inflammation. When only cyclosporine was available, I would typically pre-treat with a mild steroid, like Lotemax or fluorometholone, while the patient was taking the

cyclosporine, because it takes longer to take effect.

Lifitegrast has a fairly rapid onset of action, as soon as 2 weeks. I will often prescribe it without a steroid and see how the patient does. Sometimes they'll report burning, in which case I'll start a steroid for a couple weeks before reinstating lifitegrast. ■

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CME questions (circle the correct answer)

- In preparing the algorithm discussed here, the ASCRS Cornea Clinical Committee focused on:
 - The adult population of the United States
 - The general dry eye population
 - The preoperative cataract and refractive patient
 - The postoperative cataract and refractive patient
- Which of the following is recommended as a baseline treatment for reducing inflammation in active lid margin disease?
 - Doxycycline
 - Oral omega-3s
 - Lifitegrast
 - All of the above
- Which of the following can be useful prior to the LLPP clinical exam in patients presenting for initial evaluation?
 - ASCRS Speed II Questionnaire
 - Osmolarity testing
 - MMP-9 testing
 - All of the above
- The first L in the LLPP Exam stands for:
 - Look
 - Listen
 - Lid
 - Lift
- A key to achieving 20/Happy patients is:
 - Address only the conditions the patient is aware of having
 - Tell the patient they'll see perfectly after their procedure
 - Appropriately manage patient expectations
 - Explain that postoperative aberrations won't bother them

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