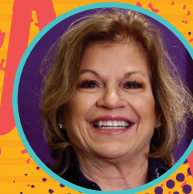




Preoperative Ocular Surface Optimization

Preferred therapies, diagnostic workups, and when to delay measurements

BY CHRISTOPHER E. STARR, MD, FACS; P. DEE STEPHENSON, MD, FACS; AND MARGUERITE B. McDONALD, MD, FACS



CRST: What is your fastball for preoperative ocular surface optimization?

Christopher E. Starr, MD, FACS: There is no single magic bullet for visually significant ocular surface disease (OSD), but if I had to pick one rapid option, perfluorohexyloctane ophthalmic solution (Miebo, Bausch + Lomb) is the closest. Punctal plugs are also high on the list. If *Demodex* is present, lotilaner ophthalmic solution 0.25% (Xdemyv, Tarsus) is a critical, straightforward choice—where there are mites, there are also gram-positive bacteria—so addressing this before surgery is important.

P. Dee Stephenson, MD, FACS: Optimizing the ocular surface is essential to ensure accurate, reproducible preoperative testing and the best surgical outcomes. Even subtle OSD can distort topography, keratometry, and biometry, leading to errors in surgical planning—especially for patients receiving presbyopia-correcting or other advanced technology IOLs. To

prevent this, I use a structured regimen to tune up the cornea and restore meibomian gland function before surgery.

My core protocol begins with Retaine CMC (OcuSoft), a lipid-based lubricant that hydrates the cornea and reduces evaporation. I often add Miebo drops to support gland health, improve lipid layer quality, and help prevent evaporative changes. A daily hypochlorous acid spray follows to reduce the bacterial load and lid inflammation, improve surface health, and lower the perioperative contamination risk.

At this stage, I frequently add cyclosporine to control ocular surface inflammation and promote long-term tear film stability. This synergizes with lipid-based therapy to enhance surface regularity and visual quality. For patients with blepharitis or *Demodex*, I recommend Oust lid scrubs (OcuSoft) and, when appropriate, Xdemyv to target mites and reduce inflammation.

If testing remains unreliable, I escalate care with in-office treatments such as Tixel (Novoxel) or intense regulated pulsed light. These interventions can improve gland function and enhance tear film stability, and they often provide the breakthrough needed to achieve high-quality, repeatable scans. In select cases, longer therapy is necessary to fully rehabilitate the cornea and lids before precise measurements can be obtained.

For long-term maintenance of dry eye disease, I use HydroEye (ScienceBased Health) vitamins, which support ongoing ocular surface health.

By combining at-home and in-office strategies, I can consistently optimize the ocular surface, improve patients' comfort and vision, and, most importantly, ensure the most accurate biometry for surgical outcomes that meet or exceed their expectations.

CRST: How extensively do you evaluate each patient for OSD and with which tests?

Marguerite B. McDonald, MD, FACS: Each patient completes a psychometric evaluation for dry eye disease—the Standardized Patient Evaluation of Eye Dryness questionnaire is my preference—plus topography (looking for dropout) and tear osmolarity before I see them. I review these results, then perform fluorescein testing to look for superficial punctate keratitis, assess tear breakup time, and check for linear inferior corneal staining suggestive of lagophthalmos. I examine the lashes for signs of *Demodex* blepharitis (cylindrical

dandruff at the lash base) and assess the lid margins and meibomian glands with gentle pressure on the middle of the lower lid.

Dr. Starr: As an author on the original article presenting the algorithm for the preoperative diagnosis and treatment of ocular surface disorders¹ (and a forthcoming updated version), I continue to follow the ASCRS preoperative OSD algorithm. It incorporates a validated questionnaire for detecting OSD in the preoperative patient, a simple screening

battery that includes tear osmolarity and matrix metalloproteinase-9 testing, and the streamlined look, lift, pull, push examination. Surgeons should also watch for common OSD masqueraders such as neurotrophic keratitis (stain without pain) and neuropathic corneal pain (pain without stain). A noncontact esthesiometer (Brill) can be integrated into the technician workup without disturbing the cornea.

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.

CRST: What are your pearls for timing OSD treatment so that it does not derail surgical plans?

Dr. McDonald: The ocular surface of most patients with OSD can be tuned up sufficiently for accurate preoperative biometry within 2 to 3 weeks, though I wait 6 weeks for *Demodex* blepharitis to be treated and 4 to 6 weeks for moderate to severe anterior and posterior blepharitis. I do not allow new patients to book a preoperative examination with surgery 2 days later for these reasons; I must see them first.

Dr. Starr: Treatment should begin as far in advance of surgery as possible. If additional time is needed to reverse OSD, it is reasonable to postpone elective surgery and/or final refractive measurements until the ocular surface has been optimized. Most patients accept short delays if there is a good chance of improving postoperative outcomes. ■

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