

PREOPERATIVE OCULAR SURFACE OPTIMIZATION

Global perspectives on preferred therapies, diagnostic workups, and when to delay measurements.



BY PURVI THOMSON, BSC(HONS), MCOPTOM, DIPTP(IP);
ALLON BARSAM, MA(CANTAB), MBBS, FRCOPHTH, FWCRS;
ANDRÉS BENATTI, MD; AND AYLIN KILIÇ, MD



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

Purvi Thomson, BSc(Hons), MCOptom, DipTp(IP), and Allon Barsam, MA(Cantab), MBBS, FRCOphth, FWCRS: Sometimes, optimizing the ocular surface is as simple as reducing contact lens wear and starting treatment with preservative-free sodium hyaluronate drops, usually administered four to six times daily.

When we suspect that ocular inflammation is contributing to surface issues, as it often does, we prescribe a preservative-free, mild topical steroid such as Softacort (0.335% hydrocortisone sodium phosphate, Théa Pharma) or fluorometholone twice daily. The central mechanism of dry eye disease (DED) is a vicious circle in which inflammation plays a key role, and treating that inflammation while repairing the ocular surface is essential for improving tear film stability. Mild steroids are highly effective in managing DED and are safer than other types of corticosteroids. We are careful to use preservative-free formulations across the board in patients who have more significant DED.

Beyond drops, lifestyle advice is crucial. We routinely recommend

warm compresses with lid massage. This simple measure can improve meibomian gland function. Dietary supplementation comes up in nearly every conversation as well. We advise patients to start omega-3 capsules because there is good evidence that they help with tear film quality and reduce inflammation. These combined approaches, addressing both the tear film and the underlying inflammatory drivers, typically require about 6 weeks to begin improving the ocular surface, but the difference in measurement accuracy and postoperative comfort can be remarkable.

Andrés Benatti, MD: My main strategy is to integrate ocular surface management into the surgical process from the very first consultation because my colleagues and I have found that, in patients with an altered surface, the results will not meet expectations. That is why, in our DrySpa centers, we have developed specific protocols for surgical patients who need to optimize their ocular surface to achieve the best outcomes.

Aylin Kiliç, MD: My fastball is a 2-week, high-yield bundle that stabilizes the tear film before biometry: (1) identify and calm inflammation, (2) liquefy meibum, (3) seal in tears, and (4) eliminate variability. Practically, I start therapy with preservative-free lubrication (lipid-enhanced during the day and gel at night), a short antiinflammatory pulse (loteprednol or fluorometholone administered four times daily for 7–10 days and then tapered), and cyclosporine for those with chronic disease. For meibomian gland dysfunction (MGD), I combine warm compresses and lid hygiene with in-office thermal therapy when available; if *Demodex* mites are present, I add targeted lid treatment. I place temporary collagen punctal plugs up front in patients with aqueous-deficient DED to stabilize the tear reservoir without locking in inflammation. A contact lens holiday is nonnegotiable. I recheck patients within 10 to 14 days; if the keratometry readings and topography are still noisy, I extend therapy or add intense pulsed light (IPL) therapy or thermal pulsation.

CRST Global: How extensively do you evaluate each patient for ocular surface disease, and which tests do you use?

Ms. Thomson and Dr. Barsam: For most cataract patients, we keep the evaluation practical and focused. General tests include tear breakup time (TBUT) with fluorescein, an eyelid examination, and an external eye examination. If the TBUT is less than 5 seconds or we notice significant surface or lid issues, we dig deeper before proceeding.

For patients who will benefit from advanced technology IOLs, especially full range of vision IOLs, we are much more thorough up front. Tear film instability increases optical scatter and degrades quality of vision. Diffractive IOLs split light, so the quality of light entering the eye before it hits the IOL must be optimal. A poor tear film scatters light before it even reaches the multifocal optic, further degrading the image. In this situation, we look carefully for anterior and posterior blepharitis, gland dropout, and a low tear prism, and we evaluate corneal and conjunctival staining.

The key is being mindful of why the patient is there. They have come for cataract surgery, not a dry eye consultation. However, we must optimize outcomes, so if significant ocular surface disease (OSD) is present, we address it appropriately, either

with simple measures or by referring the patient to our dedicated dry eye service before proceeding with surgery.

We run an in-house dry eye clinic. Patients with complex OSD are referred there for a thorough analysis. They receive a comprehensive assessment, including detailed questionnaires, meibography, noninvasive TBUT (NiBUT), and lengthy discussions of dry eye management. It is a more appropriate setting for that level of investigation.

Dr. Benatti: We work with a stepwise system. As a routine, every patient who comes for a refractive procedure (cataract or laser surgery) undergoes the corresponding preoperative studies, a complete anamnesis (habits, symptoms, and medical history), and a questionnaire (we are currently using the Ocular Surface Disease Index 6 [OSDI-6] questionnaire). We routinely perform NiBUT, meibography, and staining tests (fluorescein and lissamine green). Based on the findings, we may proceed with further studies using digital platforms such as IDRA (SBM Sistemi) or tearcheck (E-Swin/ESW Vision) and laboratory tests (osmolarity and matrix

metalloproteinase-9) to define a personalized therapy or move directly to surgery if the patient shows no ocular surface alterations.

Dr. Kiliç: Every refractive cataract candidate undergoes a structured screening: symptom score (OSDI or Dry Eye Questionnaire-5), risk profile (systemic medications, autoimmune disease, screen time), and slit-lamp survey (lid margin, meibum quality, conjunctivochalasis, staining pattern). I favor an objective triangle: (1) tear film stability (NiBUT, tear film interferometry, and fluorescein TBUT); (2) surface integrity (fluorescein and lissamine staining, tear meniscus height); and (3) ocular surface inflammation/quality (meibography for gland architecture).

Because we live and die by keratometry, I always pair Placido topography with tomography and—where I have it—epithelial thickness mapping, which helps distinguish true anterior curvature change from epithelial compensation. The goal is not to run every test on everyone; rather, it is to match test burden to the clinical question and trust IOL calculations only when the surface is quiet and measurements are repeatable.

CRST Global: What are your pearls for timing/triage so that surface treatment does not derail plans?

Ms. Thomson and Dr. Barsam: The reality is that patients are coming to us for cataract surgery, not a dry eye diagnosis. They want their surgery, and our job is to optimize the ocular surface while keeping them on track for that goal. We are clear from the start about what we need to do, but we frame it as part of getting them the best surgical outcome, not as a delay.

If we see significant surface issues, we typically start treatment immediately while we are organizing their preoperative workup. Simple measures such as preservative-free lubricants and warm compresses can begin straightaway. For those needing antiinflammatory treatment, we prescribe Softacort or fluorometholone and have them continue therapy while we schedule

their surgery date, usually in 4 to 6 weeks to allow the surface to settle. The key is concurrent management—treating the surface while the surgical process progresses.

For patients with significant MGD or ocular rosacea who might benefit from IPL, we explain that a few sessions are required to optimize the ocular surface, but we reassure them that this is not stopping their

surgery; instead, it is ensuring the best result. We can often fit three to four IPL sessions into the natural timeline of surgical planning without significant delay.

We categorize patients into three groups: (1) those proceeding directly to surgery with only lubricant support; (2) those needing topical antiinflammatory treatment that runs concurrently with surgical preparation; and (3) those requiring more intensive therapy who need a bit more time before measurements. The goal is always the same: get them to surgery with an optimized surface so they achieve excellent visual outcomes and comfortable eyes postoperatively. It is about managing expectations while maintaining momentum toward their surgical goal.

Dr. Benatti: The key to ensuring that treatment does not interfere with

surgical plans is to plan in parallel. An intensive 2- to 4-week protocol can stabilize the surface without changing the surgical date. For this reason, we have designed protocols adapted to each surgical procedure and to the type and severity of DED.

It is essential that the patient understand that optimizing the ocular surface is the first step of the surgery, not a delay. Patient education is therefore crucial. Most patients have no idea where a meibomian gland is or what a NiBUT test measures. The time we spend explaining and showing diagnostic platform results works entirely in our favor because it helps patients understand and, more importantly, adhere to the preoperative treatment.

Dr. Kiliç: Promise speed but insist on standards. I tell patients we need 2 good days (two concordant

datasets) rather than 2 good weeks. Quick wins include a short steroid pulse, frequent instillation of preservative-free tears, plugs for aqueous-deficient DED, and aggressive lid care from day 1. Start thermal therapy or IPL early if MGD is the driver; it shortens the runway.

A practical scheduling pearl: book the decision-day biometry 10 to 14 days after starting therapy, with a contingency slot 1 week later if scans are still noisy. This preserves the surgical calendar. If keratometry readings or total corneal refractive power is drifting more than 0.25 D or central superficial punctate keratitis persists, I pause IOL selection, extend treatment, and reframe the conversation: “This is how we avoid remakes and enhancements.” Finally, document pre- and postoptimization maps side by side; it educates patients and protects outcomes.

CRST Global: How do different health care systems or regional preferences influence your OSD evaluation protocols?

Ms. Thomson and Dr. Barsam: This is where health care structure really shapes your approach. At OCL Vision, as a private provider, we have access to comprehensive evaluation diagnostics. We can offer meibography, advanced topography with automated NiBUT, and tear osmolarity testing. We do not often need all of these, but it is helpful to have them available when we do need that extra detail, particularly for patients considering premium IOLs, for whom precise surface optimization is critical.

In contrast, National Health Service settings typically have more limited diagnostic capabilities. You might have a slit-lamp examination, fluorescein TBUT, and Schirmer testing but lack access to meibography or automated tear film assessment. In that environment, clinical judgment is

crucial. You rely heavily on a thorough history, symptom assessment, and what you can see at the slit lamp. It is about being smart with limited resources and knowing when to refer patients who need a more advanced evaluation.

The treatment side follows a similar pattern. In private practice, we have ready access to in-office treatments such as IPL and professional lid exfoliation systems. We can offer these as part of preoperative optimization. In National Health Service settings, you are more reliant on patient-administered therapies such as warm compresses, lid hygiene, and topical treatments. That is not necessarily inferior; it just requires more patient education and compliance.

Regional preferences also play a role. Some areas have embraced point-of-care testing more readily,

whereas others maintain a more traditional clinical examination approach. The key is adapting your evaluation protocol to what is available while ensuring you are still identifying and addressing OSD that could compromise surgical outcomes.

Dr. Benatti: In Argentina, where I practice, as in many Latin American countries, health insurance plays a predominant role in our daily practice. In our institution, all dry eye-related services (diagnosis and treatment) are not covered by insurance, which allows us to work freely and not limit the therapies a patient may need. Moreover, because we are talking about premium surgeries, most diagnostic studies are included within the surgical package required before any procedure.

CRST: Which digital tools or treatments have been game changers in your region?

Ms. Thomson and Dr. Barsam: IPL therapy has transformed how we manage ocular rosacea and MGD. For patients with eyelid margin telangiectasia and facial rosacea, which we know is linked with ocular rosacea, IPL has been shown to reduce inflammatory levels, increase TBUT, and improve expressible meibomian glands. We typically perform four sessions with gland expression, and we have seen patients go from a TBUT of under 5 seconds to around 8 seconds or more.

The newer automated topographers with built-in NiBUT measurement have been incredibly helpful. Being able to assess tear film stability without touching the eye gives us more reliable baseline data. We are also seeing portable osmolarity devices.

For lid margin disease, treatment with okra-based gel and tea tree oil has been brilliant. It is less abrasive than traditional scrubs, which is ideal for inflamed, sore lid margins. Various eyelid exfoliation techniques and devices, such as BlephEx (BlephEx) and NuLids (NuLids), can now be delivered in the clinic or at home, which gives us more flexibility.

The real game changer has been the recognition that, without a stable tear film and optimized ocular surface, we risk incorrect preoperative measurements, inaccurate IOL power calculations, and poor postoperative

quality of vision. Cataract surgery has evolved into refractive surgery. Treating the ocular surface is no longer optional; it is fundamental to achieving excellent outcomes.

Dr. Benatti: Without a doubt, one of the true game changers in my daily practice has been the availability of Rexion-Eye (Resono Ophthalmic) for the treatment of all types and severities of DED. This noninvasive technology allows me to prepare surgical candidates in advance so they reach the OR in optimal condition, which helps to maximize refractive outcomes. In more complex cases, treatment can even be combined with IPL (another great technology) to enhance results and achieve the best possible ocular surface optimization.

Dr. Kiliç: On the diagnosis side, combining topography with tomography and epithelial mapping has been the biggest upgrade—epithelial profiles explain a surprising amount of mysterious astigmatism. Automated NiBUT, interferometry, and meibography add objective, visual coaching tools that improve patient buy-in. (“This is your oil layer. This is why your vision fluctuates.”) Simple digital wins matter, too: previsit electronic questionnaires (OSDI and Dry Eye Questionnaire-5) and templated

electronic health record pathways that force a defined surface status before IOL planning.

On the therapy side, ready access to thermal pulsation and IPL has shortened optimization timelines. Temporary collagen plugs are an underrated accelerator for patients with aqueous-deficient DED because the devices stabilize the tear reservoir without committing to long-term occlusion. Regionally, lifitegrast ophthalmic solution 5% (Xiidra, Bausch + Lomb) is not widely available, so cyclosporine remains my long-term antiinflammatory of choice; short steroid pulses bridge the gap when time is tight. Hypochlorous lid hygiene has been a low-friction, high-compliance addition. None of these tools replaces clinical judgment, but together, they can convert tear film chaos into reproducible biometry—exactly what premium refractive cataract work demands. ■

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— PURVI THOMSON, BSC(HONS), MCOPTOM, DIPTP(IP), AND ALLON BARSAM, MA(CANTAB), MBBS, FRCOPHTH, FWCRS

ALLON BARSAM, MA(CANTAB), MBBS, FRCOPHTH, FWCRS

- Director and Founding Partner, OCL Vision, London
- Member, CRST Global Editorial Advisory Board
- allon@oclvision.com; www.oclvision.com
- Financial disclosure: None acknowledged

ANDRÉS BENATTI, MD

- Cornea and refractive surgeon, Cofounder, and Chief Operating Officer, Oftalmo University, Clínica de Ojos Córdoba, Córdoba, Argentina
- andresbenatti@gmail.com
- Financial disclosure: None acknowledged

AYLIN KILIÇ, MD

- Swiss Vision Group, Istanbul, Turkey
- Member, CRST Global Editorial Advisory Board
- aylinkilicdr@gmail.com
- Financial disclosure: None acknowledged

PURVI THOMSON, BSC(HONS), MCOPTOM, DIPTP(IP)

- Head of Optometry, OCL Vision, London
- purvi@oclvision.com
- Financial disclosure: None acknowledged