

# Removing the MGD Factor From Surgery

Cataract and refractive patients — and their doctors — benefit from diagnosing and treating meibomian gland dysfunction before surgery.



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As a cornea and refractive surgeon, I see many patients who expect high-quality uncorrected vision with premium IOLs, LASIK and PRK. However, a high percentage of those patients have clinically significant meibomian gland dysfunction (MGD) and resulting dry eye that requires treatment prior to surgery.

MGD can have a significant impact not only on patients' comfort, but also on their quality of vision. Left untreated, it can be a major cause of dissatisfaction after surgery, so it serves both patients and surgeons to address it. What's more, cataract surgery and LASIK increase the risk of dry eye, so if patients are predisposed to dryness because of preexisting MGD, we need to treat it before surgery — even if they're asymptomatic.

## Screening is Key

I find it essential to screen all of my patients for MGD for several reasons. First, there is no single "typical MGD patient." The problem affects a broad range of people. I see a number of 30- to 40-year-old LASIK patients with MGD, as well as older cataract patients who may have had undiagnosed MGD for decades.

Second, some patients with MGD are asymptomatic, but we need to identify the structural abnormalities because the problem may become symptomatic after surgery. Undiagnosed and undertreated patients become dissatisfied because they think that surgery caused their symptoms. When patients do have symptoms — red eyes, burning, irritation, foreign body sensation, fluctuating vision and decreased reading or computer time — screening tests verify and quantify the problem to support treatment decisions.

Finally, even many patients with symptoms don't present to ophthalmologists with MGD or

dry eye as their primary complaint. For example, when a patient who sees me for cataract surgery complains of blurry vision, I could attribute the blurriness entirely to his cataracts. However, the problem may be caused in part by MGD. I can only treat this patient effectively if I identify and treat all of the causes of his vision problems.

## Examination and Tests

I perform a complete exam for all of my patients, including a detailed evaluation of the meibomian gland structure and function. First, I examine the lid margin looking for telangiectasias, notching in the lid, or any posterior dragging of the glands.

Next, the best objective test for MGD is the LipiView ocular surface interferometer (TearScience), a device that uses interferometry to measure the lipid layer in the tear film. The quantitative assessment is reported in nanometers from 0 to 100+. A score under 60 signifies 90% probability of MGD, where it's likely that four or less glands are secreting. A value greater than 60 means the patient still has a 50% chance of having MGD. The device also reports on incomplete or partial blinking, which can play a role in dry eye.

Finally, it's important to express the glands and assess the quality and flow of the secretions, looking for poor oil flow and thick secretions. I use the Meibomian Gland Evaluator device from

## Case Study: Cataract Patient with MGD

**A** 64-year-old woman presented for a cataract evaluation with complaints of blurry vision. She was interested in getting a multifocal IOL for distance and near correction.

- The patient's best-corrected visual acuity was 20/40.
- The anterior segment exam showed trace punctate epithelial erosions in the cornea and fine telangiectasias along the lid margin.
- There was 2-3+ MGD with thick, poor-flowing secretions and a 2-3+ NS cataract.
- LipiView testing showed a low lipid layer thickness (38 nm) (Figure 1).

I diagnosed this patient with MGD and cataract. She elected to have LipiFlow treatment.

- When I reassessed her at 3 weeks, the LipiView score had improved significantly to 98 nm (Figure 2).
- Corneal staining with fluorescein showed that the punctate epithelial erosions had resolved on the surface.
- Her visual acuity had improved in terms of consistency and there was increased repeatability of biometry values.
- The patient underwent uncomplicated cataract surgery with multifocal IOLs. Her visual outcomes were excellent: 20/20 distance and J1+ at near with increased ability to read or do computer work for extended periods.

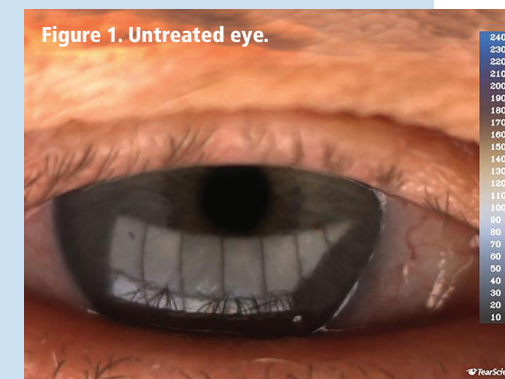


Figure 1. Untreated eye.

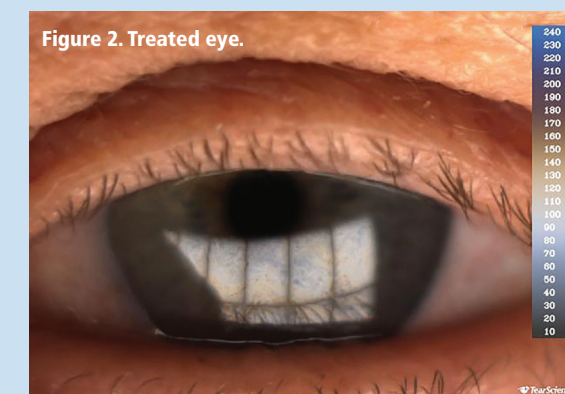


Figure 2. Treated eye.

PHOTOS COURTESY OF DR. PREEYA GUPTA, DUKE EYE CENTER

TearScience, but you can also express the glands by applying gentle pressure on the eyelid margin with a finger.

Once I've diagnosed a patient with MGD based on the physical examination and LipiView test, I complete the full eye examination and surgical evaluation, and then we start preoperative MGD treatment.

## LipiFlow Treatment

I often recommend that before surgery, patients with MGD undergo treatment with LipiFlow, an FDA-cleared, well-tolerated, 12-minute, in-office procedure. The LipiFlow activator delivers precise thermal and mechanical energy to each meibomian gland from the posterior aspect of the lid while protecting the delicate ocular structures. The therapeutic combination of heat and massage allows for softening and release of the meibomian gland secretions.

LipiFlow is my first choice for several reasons, including speed and efficacy. Patients typically experience/achieve significant results in a few weeks, and improvement may continue gradually over a few months. Results last about a year or a little longer, after which patients are re-treated. Patients maintain lid scrubs, compresses and tears as needed until their eyes are comfortable.

When we use LipiFlow, eyes are ready for surgery sooner than they would be than if we treated with warm compresses and artificial tears. For example, my patients have cataract surgery about 1 month after LipiFlow treatment, compared to a wait time of several months when compresses and tears are used to restore meibomian gland function and optimize the ocular surface.

Additionally, my patients prefer a single in-office treatment to a daily regimen and lifelong medication, and of course, it removes the issue of medication compliance.

Patients with severe MGD are likely to always need some form of maintenance, particularly if treatment comes decades into their disease course when glands have become scarred and atrophied. Unfortunately, this stage of MGD is the result of long-term underdiagnosis of the disease. Today, because we understand MGD and have the tools to screen and treat patients for MGD and dry eye earlier, surgeons have become more vigilant when it comes to identifying these problems. ■

**90%**  
probability of MGD with a score of under 60, where it's likely that four or less glands are secreting.