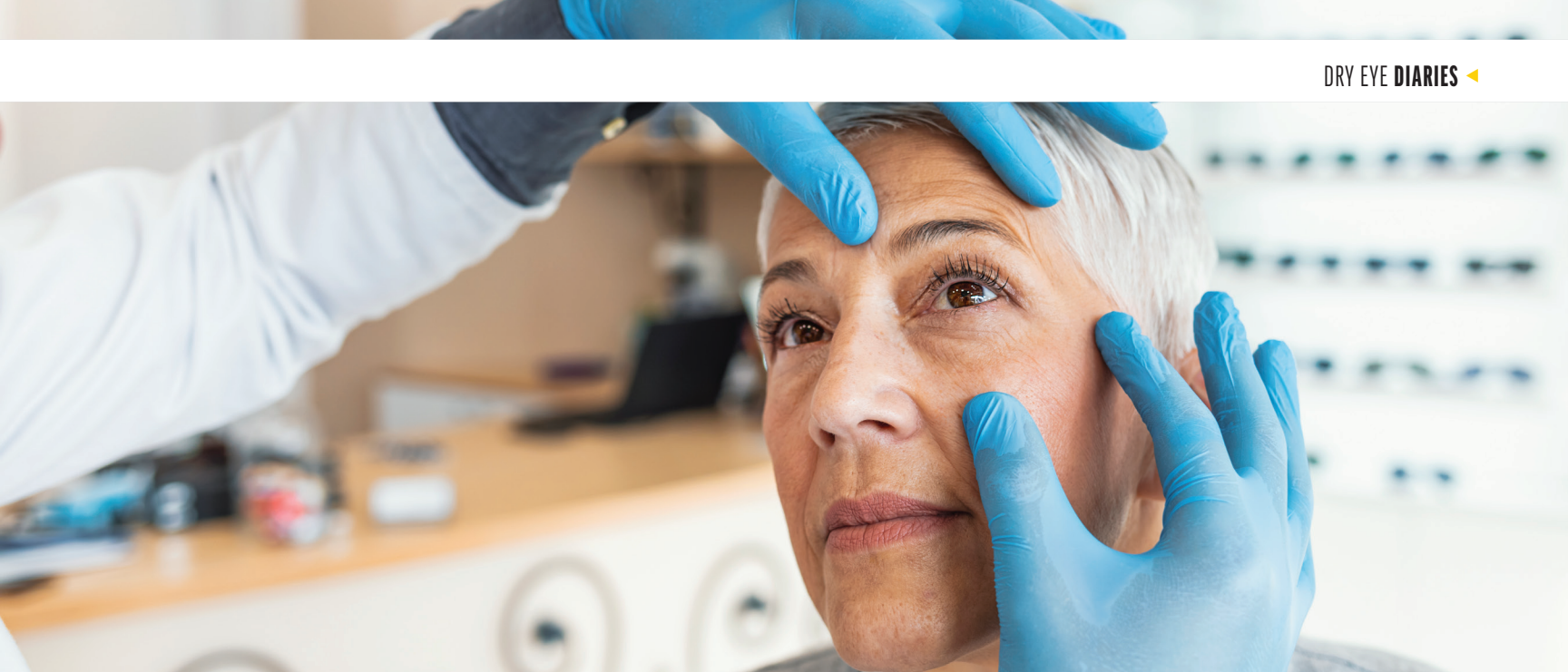




IN-OFFICE TREATMENT OPTIONS FOR MGD



Familiarize yourself with what's available in order to manage your patients appropriately.

BY DIANA CHU, OD

Meibomian gland dysfunction (MGD) is the most common cause of evaporative dry eye and is associated with aqueous-deficient dry eye.¹⁻³ The terminal duct obstructive aspect of MGD is most often caused by hyperkeratinization of the meibomian gland epithelium, keratinized cell debris, and increased meibum viscosity.¹ Additionally, factors such as age, sex, hormonal disturbances, systemic medication, and secondary skin conditions play a role in the anatomic and functional alterations of the meibomian glands and lid margins.^{2,4,5} Chronic glandular blockage eventually results in gland atrophy, dropout, decreased

secretion, and increased inflammation, which has a cascading effect on tear film stability, osmolarity, and overall homeostasis of the ocular surface.

Treatment and management of MGD is successful when patients are adherent to at-home therapies. These are often enhanced with the latest in-office procedures, which I provide an overview of in this article.

AVAILABLE TREATMENTS FOR MGD

In-office procedures for MGD range from physical gland expression to more technologically advanced approaches.

Good Old Gland Expression

A mainstay of MGD management for

nearly 100 years, manual, anesthetized gland expression involves applying pressure to the eyelids to express oil from the glands. Successful meibomian gland expression helps increase the quality of oil production of the glands and decrease dry eye symptoms. Combining thermal, moist heat with a form of gland expression and lid debridement, depending on the level of blepharitis, is well known as an effective treatment regimen in alleviating signs and symptoms of MGD.

Several devices are available for thermal heating and expression of the glands; however, there are distinctions that make each device unique.

The TearScience LipiFlow Thermal Pulsation System (Johnson & Johnson Vision Care) uses vector thermal pulse technology to gently heat the eyelids while simultaneously applying a gentle massage. It consists of a phased pressure profile with sensor-regulated heat equalization and peristaltic motion to liquefy and evacuate gland contents. The contoured design vaults the cornea and protects the eye. Heat and pressure are continuously regulated with redundant sensors, providing patient comfort and, arguably, a low anxiety, enjoyable experience. Treatment lasts about 12 minutes. LipiFlow is compatible with TearScience LipiView

Ocular Surface Interferometer (Johnson & Johnson Vision Care) software, which provides dynamic meibomian imaging of a patient's lipid layer thickness, blink mechanics, and an enhanced physiologic assessment of the meibomian glands.

The Systane iLux2 MGD Thermal Pulsation device (Alcon) is a portable, handheld thermal instrument that leverages light-based heat to provide concurrent heating and controlled compression of the lids. The device's imaging technology allows patients to view the status of their meibomian glands and treatment process through infrared imaging and video of the procedure. Paired with Smart Tip Patient Interface technology, the clinician can perform measured treatment under direct gland visualization on an LCD display, providing active treatment data and effective results. The procedure takes about 8 to 12 minutes.

The TearCare System (Sight Sciences) is a software-controlled, wearable eyelid technology that provides adjustable electro thermal energy to the meibomian glands. The blink-activated SmartLid technology allows patients to keep their eyes open during the process, enabling normal blink and encouraging the natural interactive force of the blink to facilitate the natural meibum expression. By design, it initiates the process of a healthy tear film interaction during the procedure. Manual gland expression post procedure is smooth and effortless. Once initiated, the TearCare technology operates for 15 minutes, followed by manual expression.

Mibo ThermoFlo (MiBo Medical Group) delivers consistent, emissive heat through a contoured, silver eye plate used with ultrasound transmission gel placed on the eyelid. The user applies the silver pad to the eyelid and can adjust treatment time, temperature, and settings. Mibo ThermoFlo therapy incorporates thermoelectric radiation principles to treat chronic

MGD. It produces a therapeutic temperature of 108° to liquefy the obstructing meibum. The session takes about 8 minutes per eye.

OptiLight (Lumenis), a form of intense pulsed light (IPL) therapy, uses patented Optimal Pulse Technology to offer a controlled, light-based treatment for MGD. The light-emitting system distributes filtered polychromatic broad-bandwidth wavelengths from 400 nm to 1200 nm with varying pulse durations for selective thermal damage.^{6,7} OptiLight is indicated for improving the signs of dry eye disease due to MGD in patients 22 years of age and older with moderate to severe signs and symptoms of DED and with Fitzpatrick skin types I through IV. Each session takes roughly 15 minutes, making it easy to integrate this therapy into your workflow.

Although the exact mechanism of action is not fully understood, it has been suggested that IPL therapy diminishes telangiectasia, eradicates *Demodex* mites, softens and liquefies meibum, modulates the secretion of pro and antiinflammatory molecules, and suppresses matrix metalloproteinases.⁷⁻¹¹ The IPL device is applied to the periorbital skin (the ocular surface itself protected by specialized shields) for 10 to 15 minutes. Several studies have reported the safe application of this procedure without any adverse effects, provided proper eye protection is used.^{7,12-13}

Treatment is typically administered in four sessions scheduled approximately 3 to 4 weeks apart. Results are usually seen by the second or third treatment. Retreatments are then performed in 6 months to a year, if necessary.

Further Benefits to Treatment

MGD treatment and management has particular importance to not only eyelid health and patient quality of life, but also to cataract and refractive surgery outcomes. Unrecognized and untreated MGD can compromise the

final visual result of refractive surgery, which is contingent on the status of the tear film. Tear film distortions can change corneal reflectivity and lead to imprecise preoperative K readings and mistaken IOL power calculations. Additionally, lid inflammation increases sources of contaminants during surgery and risk of greater postoperative inflammation.

TREATING MGD IS NO SMALL UNDERTAKING

MGD is an important, often underestimated, condition. Given its prevalence and implications on patient quality of life and its impact on refractive outcomes, routine management and patient education are key factors in treatment. Embracing and using innovative technologic solutions in-office elevates long-term physician-driven patient care and outcomes. ■

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DIANA CHU, OD

- Washington Eye Institute, Greenbelt, Rockville, Maryland
- dianachuod@gmail.com
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