As eye doctors, we concern ourselves with the health of our patients’ eyes. We often spend a great deal of time talking with patients about the products they put in their eyes, like contact lenses, but, for some reason, there is not as much consideration about the products put on the skin around the eyes, even if they might negatively impact ocular health.

Cosmetic products are often used on a daily basis and sometimes they are applied multiple times a day. These products may contain chemicals, preservatives, or other toxins, making them potentially dangerous to the periocular skin or the eye. Products like mascara, eyeliner, and eyelash glue are intended for use on or near the eyelid—but the eyelid is some of the thinnest skin on the human body, and because it does not contain a subcutaneous fat layer, it is also more porous than other skin surfaces. Even

SHOULD WE BE DISCUSSING MAKEUP USE WITH PATIENTS?

Eye doctors can serve as a resource for patients who use cosmetic products to help them avoid impacting ocular health.

BY WHITNEY HAUSER, OD
if the products are not specifically used in these sensitive skin areas, there is still the potential for cosmetic products to seep into the eye after application elsewhere. Given all of this, it would seem there is a real need for education about the cosmetic products patients use and how they are applied. Some of the discomfort in broaching this subject may be understandable if we do not want to offend patients—and this may be even more true of male doctors speaking with female patients on a topic that is quasi beauty related. That said, there may be a greater interest in preserving the health of the eye that can help one get past this barrier.

**IMPLICATIONS FOR OCULAR HEALTH**

The most obvious health consequence of indiscriminate cosmetic use in the periocular region is meibomian gland dysfunction (MGD). It is a known fact that keratinization at the lid margin can influence MGD by clogging the glands, thereby shutting down meibum secretion. Add eyeliner or another cosmetic process to that naturally occurring process and the risk of causing obstruction elevates.

Certain trends in cosmetic use may further compound the risk. To bring more attention to the eyes, some individuals use a technique called tightlining and lining the water line. The former refers to use of a product (such as an eye pencil, gel product, or liquid eyeliner) on the lowermost exterior portion of the eyelid. Each technique, however, requires application of product over the area of the meibomian glands. Even if the composition of the product is not directly toxic to the tear film, it can still perpetuate or initiate an important cause of MGD and dry eye.¹

But direct application is not the only potential problem that may occur. Cosmetic powders, eyeliners, and other skin applications can sometimes migrate from other skin areas to the tear film. In short, where patients apply makeup is not always where it ends up.

Sometimes patients have the best intentions for their ocular health with respect to cosmetic use but still may be participating in unsafe practices. It may be simply a lack of proper education. I have spoken with many patients who use baby shampoo on the skin around their eyes because it is advertised not to sting the eyes. Yet, there is a definite distinction to be made between “does not sting your eyes” and “is safe to apply to the skin around the eyes.”

Unlike the medical products we use with patients, there are actually very few regulations surrounding over-the-counter cosmetic products. Some of them carry labeling that states they are “ophthalmology tested” or “tested by doctors.” That is meant to supply confidence to consumers, but it is in actuality a false sense of security, because there is no indication of what tests were run, who ran them, or even who paid for the testing. There is an unfortunate perception that just because something is sold over the counter that they carry little or no risk to our health; this is as true for tear replacement products as it is for cosmetics. Our field does a very good job educating the public about tear replacement drops; it stands to reason we should place similar emphasis on educating about cosmetics that likewise require careful product selection and proper use.

**TALKING WITH PATIENTS**

The use of cosmetics in the periocular region is not inherently bad, but it can be dangerous if those products are used improperly or without proper education. Thus, there is an opportunity for eye doctors to be a resource of good information about how to avoid impacting eye health when using beauty or cosmetic products. One should not feel obligated to discuss cosmetic use with patients; however, at a minimum, eye doctors should acknowledge that it is a potential source of eye irritation and/or a relevant trigger of dry eye.¹

That said, it is not always obvious who needs education on cosmetic use, and starting the conversation can be tricky. For the patient sitting in the chair wearing lots of makeup and complaining of ocular surface disease, the conversation is obvious. Many patients, however, remove makeup before seeing their eye doctor and some wear it only on special occasions. While we do not want to offend patients, it is appropriate to talk about cosmetics as a probable cause of ocular surface symptoms. Asking about cosmetic use can be part of the regular patient interview or dry eye evaluation. Discussing occasional use or specialty products may be especially important in this regard, as they often contain glitter or other cosmetic elements that, in my experience, may denature the tear film through a number of mechanisms.

We should remember, too, that male patients might be using cleansers or moisturizers around the eye, the ingredients of which

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¹The information within this video was current at the time of filming.
may impact eye health. Our bias is to believe that this is a problem only of our female patients, when that is only part of the issue at hand.

Helping our patients learn about how to make safer cosmetic purchases is another matter altogether. The options for cosmetics available in stores is perhaps intentionally overwhelming. As noted earlier, their labeling does not always indicate if they are safe for use or need to be used with caution. The only way for patients to really know what they are putting on their skin is if they are first made aware that it is a potential issue to be addressed, and then if they use that knowledge to carefully read and understand the ingredient list on their favorite cosmetic products. One step that may help in this conversation is to have patients bring their cosmetic products with them to the office so that you can sit and talk about what impact, if any, the ingredients may have on ocular health.

CONCLUSION

Eye doctors are looked on as experts on the health of the eye. We regularly and routinely discuss good practices in contact lens wear and hygiene with our patients, and it is not uncommon to broach topics such as allergen avoidance and how to maintain a healthy tear film. It may be time for us to broaden our thinking to consider not only those products that are placed in the eye, but around it as well. One important but perhaps underappreciated cause of eye problems is the indiscriminate use of cosmetic and makeup products on the skin in the periocular region. Starting a conversation with patients does not have to be difficult or time consuming, and it may in fact be in the best interest of patients to ask about their cosmetic routines as we are looking for possible causes of the eye diseases we treat.


Amy Gallant Sullivan, executive director of the Tear Film & Ocular Surface Society, joins Whitney Hauser, OD, and Leslie O’Dell, OD, to provide tips on how to discuss cosmetics and ocular health with patients.*

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*The information within this video was current at the time of filming.
The skin in the periocular region has unique properties and characteristics that differentiate it from other skin areas. For example, the skin on the eyelid lacks a subcutaneous fat layer, which makes it more permeable to pathogens and environmental insults. Another consequence of the lack of a fat layer is that the skin over the eye is in direct contact with the orbicularis muscle, which controls the blink reflex. The direct communication between the eyelid skin and the orbicularis muscle is one of the reasons why signs of aging typically first appear in this area.

The eyelids also have important functions for eye health. In addition to their role in protecting the globe, the eyelids contain glands that are important for tear production. Thus, maintaining the health of the skin in the periocular region is important for reducing the signs of aging, but maintaining the health of the eyelids in general is important for preserving an adequate tear response and a healthy ocular surface.

Ocular Health and Cosmetic Routines

Some patients may not appreciate the importance of healthy skin around the eye. However, there are routines that patients can follow that have a dual goal: to help protect the periocular skin so it can maintain its functional properties, and to lessen the chance of that skin losing its youthful appearance. There are also some habits that patients unwittingly participate in that may be detrimental to one or both of these objectives.

Cosmetic use is an important part of some of our patients’ lives, but some of the available products may contain chemical additives or ingredients that may readily penetrate the skin on the eyelid to impact the ocular surface. Even if they are applied to the skin around this area, there is potential for migration. And even if these substances are not directly harmful to ocular health, they may still be drying to the skin in the area or the ocular surface, which has a separate set of consequences.

Using a hydrating product on the periocular skin can help lessen dryness in the area. Although it is not scientifically proven, there is strong anecdotal evidence that adding a hydrator to one’s daily routine may also diminish the appearance of dark circles under the eye. A word of caution is prudent, however, as the product used for this purpose should be specifically formulated for use on the eyelid skin, and it should be void of harsh chemicals and astringents.

Sunscreen use on the eyelids is also advisable, although patients should be encouraged to use products that are specific for the periocular region. Most patients are familiar with the

WATCH IT NOW

Leslie O’Dell, OD, and Whitney Hauser, OD, educate patients about sun damage.*

*The information within this video was current at the time of filming.
value of using sunscreen on other parts of the body, but they may be unaware of how important it can be for the periocular region as well. Proper sun protection lowers the potential to develop skin lesions (some of which may be cancerous); as well, exposure to sun’s ultraviolet light spectrum may contribute to premature signs of aging.

Caution with products not formulated for use around the eyes extends to anti-wrinkle creams. Many of these products contain retinol, which increases collagen production and contributes to faster skin regeneration. Yet, because of the permeability of the eyelid skin, even products with a moderate concentration of retinol may lead to skin irritation. Skin sloughing is not an uncommon sign after starting use of retinol-containing products, which may or may not be clinically consequential, but it can be disconcerting for some individuals. This thinning of the skin also leads to an increased risk of skin cancers, therefore, use of a sunscreen is paramount.

The use of exfoliators and scrubs are another area where achieving a desired cosmetic outcome may produce unwanted effects. There are specifically formulated products for use on the eyelids; however, improper use or use of the incorrect product may lead to skin sloughing, thereby heightening the risk of irritation and sun damage.

EDUCATION GUIDED BY THE PATIENT COMPLAINT

In my aesthetics practice, I tailor my recommendations to the patient complaint. I also tend to start with the least invasive approach and gradually get more aggressive based on need and patient comfort. For instance, most patients are candidates for topical creams and serums, but I am more selective about who I offer injectables to. I reserve the use of devices (ie, lasers) and surgery for more complicated situations and for when the patient is willing to accept a more difficult healing process in exchange for a more dramatic outcome.

I think a similar sort of approach is reasonable when educating patients about what cosmetic products they should and should not use. It is helpful to begin by understanding exactly what the individual wants to accomplish from a cosmetic or aesthetic perspective. Use of collagen stimulating products can help diminish wrinkles, whereas the appearance of dark circles necessitates a multitargeted approach. Eyelid puffiness requires careful evaluation; if the perceived “puffiness” is due to fat prolapse, topical applications are unlikely to have an impact, but in other instances, a topical with anti-inflammatory properties may be of benefit.

It should be noted that starting the conversation with patients about cosmetic products, and framing the discussion within the context of ocular health, can also be an entry point into other products or services the practice may offer. While over-the-counter and even prescription products are a reasonable first approach, it is certainly appropriate to introduce the idea of aesthetic procedures to patients interested in achieving healthier skin and a more youthful appearance.

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*The information within this video was current at the time of filming.*
LIGHT-BASED THERAPY AS A THERAPEUTIC ADJUNCT IN CDED

A growing body of literature supports a role for IPL therapy as part of a multitiered approach to treating dry eye.

BY LAURA M. PERIMAN, MD

As more is learned about the complex nature of chronic dry eye disease (CDED) and its multiple mechanisms, it is becoming apparent that there is no linear or single silver bullet treatment. Rather, the emerging rationale is that a multipronged approach that includes treating comorbid diseases more completely addresses the multitude of factors that perpetuate CDED activity.

This new paradigm has been greatly facilitated by the emergence of consensus panel publications such as the International Task Force Guidelines¹ and Tear Film & Ocular Surface Society’s Dry Eye Workshop II (TFOS/DEWS II) report.² Basic established therapies such as omega supplementation and topical immunomodulators remain foundational. However, the increasing demand from patients for drug-free options may be driving a shift toward minimal medications and procedure- and device-based treatments. While adding CDED treatment technologies may require a capital investment, there may be a payoff if those devices are versatile and can be used for multiple purposes. Of the options fitting this description, intense pulse light (IPL) therapy is a particularly intriguing option. Above and beyond the potential to use IPL for various aesthetic purposes,³ there are growing data demonstrating its effectiveness in treating CDED—and while most of the studies to date have focused on IPL in patients with concomitant ocular rosacea, there is suggestive evidence that it may be a suitable for a much wider range of patients.

IPL FOR TREATMENT OF MGD-RELATED DED

One of the recommendations from the International Task Force Delphi Panel on CDED was that treatment of comorbid ocular conditions is an important aspect of CDED disease therapy.¹ The most obvious nonautoimmune conditions one may think of in the context of CDED are likely ocular allergy and meibomian gland dysfunction (MGD). A lesser appreciated, although nonetheless equally influential, condition is ocular rosacea, which is a significant contributor to MGD.

Establishing just how many CDED patients also have ocular rosacea is complicated, in part because eye care patients do not typically discuss their skin with their eye doctor, nor do skin care patients typically consult with their dermatologist about their eyes. Nevertheless, there are disease features of rosacea that are important for CDED. Cutaneous rosacea is associated with dilation of the superficial vasculature, which exacerbates inflammation and triggers edema and eventual telangiectasia.⁴ When this occurs in the periorcular region, there is potential for interaction with the meibomian glands, and in fact, about 80% of rosacea patients have comorbid MGD.⁵ Concerning for eye care practitioners is that ocular rosacea is a common feature of cutaneous rosacea, and ocular rosacea often precedes skin manifestations.⁶-⁸

*The information within this video was current at the time of filming.
A number of potential mechanisms for how rosacea may contribute to MGD have been proposed, including increased epithelial turnover leading to blockage of the glands; associated edema and presence of dead epithelium at the surface layer serving as a nidus for Demodex proliferation; and abnormal vasculature that may contribute to edema and elute proinflammatory cytokines.9-11 Yet, these rosacea features are particularly amenable to the mechanisms of action of IPL, which is known for its cellular and molecular-based anti-inflammatory mechanisms, thrombolysis of abnormal blood vessels, and sanitization of the treated skin to eradicate microbial flora and Demodex mites.12

There are six key, interrelated pathophysiologic mechanisms of MGD as recently described in the OCEAN paper.13 IPL lessens the inflammatory burden that contributes to the obstruction of the meibomian glands, decreasing the microbial and Demodex load, and decreasing inflammatory mediators, including matrix metalloproteinase 9 (MMP-9). As the inflammatory burden decreases, secondary improvements in meibum quality and, thereby, improvements in stasis, are observed over time. In addition, the photomodulation effects on mitrochondrial cytochromes are thought to improve cellular metabolism and cellular function (particularly advantageous for meibomian gland stem cells). The collagen remodeling effects are thought to improve the appearance of fine lines.14 The impact of IPL on temperature modulation (meibum melting point) is not yet established. We also use thermal pulsation (LipiFlow; TearScience) for addressing obstruction, stasis, and abnormal melting temperature of meibum in a single setting.

PUBLISHED DATA

Rationale aside, the question becomes: “does IPL effectively treat MGD commonly associated with CDED?” A growing body of literature supports its safety and effectiveness. Rolando Toyos, MD, who has been studying the connection between ocular rosacea and CDED for over a decade, reported results from a 3-year retrospective study demonstrating improvement in physician-judged tear break-up time (TBUT) and high patient satisfaction.15 More recently, Dell et al published outcomes from a prospective study of IPL for CDED due to MGD demonstrating a decrease in signs and symptoms of CDED (including fluorescein staining and SPEED scores) as well as an increase in TBUT and meibomian gland expressability.16

When treated with IPL, patients with ocular rosacea and concomitant dry eye disease due to MGD receive a dual benefit: effective improvements in ocular and/or facial rosacea as well as their CDED signs and symptoms. Interestingly, the presence of rosacea may not be a requisite factor in the decision to use IPL for CDED. In fact, 70% of patients in the Dell study had no or mild signs of ocular rosacea at baseline, and 30% and 48% had no or mild ocular rosacea, respectively.16 Yet, the positive results in the rosacea CDED and nonrosacea CDED patients were not statistically different. Further study is needed to explore the positive effects of IPL in CDED in a variety of its forms and subtypes.

Further study of the IPL modality may demonstrate its applicability beyond the subset of CDED patients with MGD and comorbid ocular rosacea. For example, IPL could be presented as an option for patients who cannot, will not, or prefer not to use topical medications. It can also be a useful adjunct in the early stages of treatment that may help limit the progression of rosacea. In the late stages of the CDED spectrum, for those with severe CDED, IPL may be presented as an adjunctive option for those with incomplete control with other modalities or for patients who have “failed” therapy (which can be defined by a number of parameters).

One potentially intriguing category of patients includes those scheduled for ocular surgery. The anti-inflammatory and bactercidal efficacy of IPL may potentially be beneficial for someone undergoing a cataract or refractive procedure. Additionally, the Dell et al finding that IPL helped normalize the osmolarity of the ocular surface (for those with abnormal osmolarity at study entry) has implications in keratometry,17 and, therefore, the IOL power calculation in surgical planning. Moreover, IPL is procedure-based and less dependent upon patient compliance.

IPL: AN ELEMENT OF A BROAD-BASED APPROACH TO DED

Since IPL application does not result in thermal transfer, there is still an important role for thermal pulsation and warm compresses to alleviate the altered melting temperature aspect of MGD. Adding IPL for the patient is a broad-based approach that addresses not only comorbid conditions such as rosacea but also several aspects of the six interrelated mechanisms that initiate or exacerbate the MGD aspect of CDED.

There are two additional elements of IPL that are noteworthy: 1) the aesthetic benefit (patients notice improved color, texture, tone, and fine lines); and 2) the opportunity to reduce rosacea’s impacts on quality of life.

There are no silver bullet treatments in CDED, and IPL should not be considered a magic bullet, either. Management of CDED still requires timely diagnosis and initiation of treatment, including identification of relevant comorbid conditions, such as ocular rosacea. Yet, in the new paradigm of offering patients multiple lines of therapy and prevention strategies, IPL adds a potentially powerful, broad-based, adjunctive approach to our regular treatment modalities. In the future, as more science regarding IPL in CDED emerges, it is likely there will be additional indications for adding light-based therapy to treatment.


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EVALUATING THE ROLE OF AESTHETIC OFFERINGS IN THE EYE CARE CLINIC

Aesthetic services complement traditional offerings in the eye care clinic.

BY EHSAN SADRI, MD

A lot of the conversations about whether eye care clinics should offer aesthetic services tend to revolve around adding new patients to the practice versus offering new services to existing patients. Ultimately, the decision about adding such services gets framed in the context of vertical and horizontal growth strategies, but I think this approach to the question may be missing a critical point.

To my thinking, aesthetics was never something I added to my existing services, nor was I ever really interested in convincing patients to get additional services. Instead, when I was exposed to oculoplastic and aesthetic surgical techniques as part of my training, I discovered that I actually liked doing those procedures, in addition to performing cataract surgery and offering refractive vision correction. And so, despite that I trained formally in glaucoma, I never saw a reason to give up the extra skills I learned along the way. In my view, I got the extra training to get more work, not just to do more work.

A NEW DEFINITION OF COMPREHENSIVE OPHTHALMOLOGY

According to data published by the CMS, blepharoplasty is annually one of—if not the most—popular aesthetic surgery in the United States. What that fact tells me is that patients are more than willing to invest in cosmetic procedures performed around the eyes, which makes sense, because the first signs of aging typically appear in this area. What it also reveals is that patients will seek out a provider who offers blepharoplasty procedures; if the ophthalmologist in a refractive or cataract clinic is not offering those services, the motivated patient will find someone who does.

Our colleagues in plastic surgery and oculoplastics do an excellent job, but why should the comprehensive ophthalmologist literally give those patients away when we have expertise in the anatomy of the eyelid? Blepharoplasty is a quick and straightforward procedure, and training opportunities abound for those interested in learning the techniques. Yet, eyelid surgery is just one example of the kinds of services ophthalmologists can offer; injections, laser treatments, and even skin treatments, such as chemical peels, are equally viable and sustainable.

Indeed, aesthetic services are complementary to what we already do in vision correction, and not just because of the overlap in relevant surgical techniques. Many patients, after cataract surgery or after getting out of glasses, start to notice droopy upper eyelids and bags under their eyes. They may have been there before, but they may have been obscured by spectacle wear—as well, once patients are corrected for near vision, they

WATCH IT NOW

Leslie O’Dell, OD, and Whitney Hauser, OD, discuss ways to improve bags and sags under patients’ eyes.*
are more prone to recognize perceived problem areas on their face. Thus, the ability to offer treatments to those patients continues their quest for a more youthful appearance and a better overall self image.

**IT ALL BEGINS WITH EDUCATION**

I have never been a proponent of the concept of converting patients to new or existing services. To my taste, the idea of convincing patients to accept additional offerings within the practice can be perceived as a form of selling. I think there is wisdom in the thought that customers always want to buy, but they never want to be sold to—and I easily think of the same thing with patients.

In my practice, the way we introduce our services is through education. I would estimate that up to half of the patients who receive aesthetic services learn about them incidentally. They may come in to the practice seeking vision correction or a cataract evaluation, but then I or a member of the staff notices an opportunity to apply an aesthetic service. We let that patient know our abilities and what the outcomes may be, but we never push or sell the particular service. Because, we see our role as helping the patient in his or her journey; when the patient is ready, he or she will come back to ask more questions about the service we introduced.

The same approach applies for patients who are hesitant about talking about aesthetic services with their ophthalmologist. We certainly are not going to try to dissuade someone from seeking a referral for a plastic surgeon, but we will absolutely emphasize our expertise in treating the eyes and the surrounding region, including the skin.

**MISSED OPPORTUNITIES**

Offering aesthetic services can be a tremendous benefit for just about any eye care clinic. The most obvious reason for this is that it can provide a revenue stream that is independent of third party payers. It may not take a whole lot to add new services, even if they are considered outside of the traditional eye care framework. There is a lot of capital investment in the average eye care clinic, including staff training and patients’ education, which can be leveraged or transferred over to aesthetic services.

To top it off, our services are urgently needed in the realm of aesthetics. The profile of the patient seeking aesthetic and cosmetic enhancements extends well beyond the 50-year-old woman confronting the first signs of aging. In fact, I would guess that about 40% of the blepharoplasties in my practice are performed in men. The lesson there is that if we fall victim to stereotyping, we risk missing valuable opportunities.

Truthfully, the kind of patient that ophthalmologists specialize in is one of the fastest growing sectors for cosmetic and aesthetic services. In addition to the baby boomers, we tend to see many geriatric patients, who are living longer, more active lives than in the past, and many of them are looking for a way to turn back the hands of time. Thus, there is value in educating all kinds of patients about aesthetic services offered in the practice.

There is, of course, tangible reward in aesthetic services as well. My patients receive instant gratification from, say, a blepharoplasty, and many of my patients are very happy with their decision to get injections. Satisfied patients are their own reward, but giving patients something they truly want, and that makes them feel better about themselves or their appearance, also feeds my passion for offering these kinds of services. When you are passionate about the services you offer, it is easy to share them with patients. In a sense, offering aesthetic services creates a positive feedback loop in which the patient, the doctor, and the practice all tend to gain something.


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