

## Uncover patient lifestyle habits that lead to OSD

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The iPhone screeches at 5:30 am.

She reaches over to squint at her inbox before dragging herself to the kitchen to brew some coffee. Breakfast is a handful of Claritin, Ortho Tri-Cyclen, Synthroid, and a few multivitamins, chased by over-sugared espresso and a cigarette.

She takes a quick shower, then moves into her daily beauty routine of a hair-sprayed knot or ponytail, accessorized only by heavy black eye makeup, an age-defying beauty trick learned years ago during her study abroad in Paris.

Waterproof eye liner, waterproof mascara, and a dusting of a nude sparkly eye shadow will get her through the high-impact 14-hour work day, flawless and chic, without creases or smudges.

She makes a note in her iPhone calendar to schedule the next Botox injection so her clients cannot see those emerging crow's feet. She makes an additional note to schedule a new contact lens prescription because blurry vision seems to be regularly impacting the afternoons and evenings.

This is not an article in a fashion magazine; rather, it's a real-life scenario to be considered for your practice. Following a patient through her day will help you to help her.

### **This patient is in your chair every day**

Let's address a few situations in the above scenario as we enter the eye exam with this 30-something female for her annual eye health and contact lens evaluation.

**TAKE-HOME MESSAGE** Patients' lifestyle habits can put them at risk for ocular surface disease. Knowing more about their habits along with what cosmetic and personal care products your patients use—and how they use them—can help you better treat OSD. Sparkly eye makeup, for example, can lead to conjunctival irritation. Delve deeper into your patients' lifestyles to provide them with better and more comfortable vision.



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Her chief complaint reads: “Needs a new supply of contact lenses and is beginning to notice visual fluctuations and midday contact lens awareness.” Initially, both she and the eyecare provider (ECP) believe the problem to be with the refraction or the contact lens fitting.

But let’s wind the clock backward and see what ocular surface disease-exacerbating insults

occurred in the immediate past. What external stressors are contributing to your patient’s intermittent blurred vision?

We’ll provide answers along with clinical pearls to help you better treat these patients who visit your practice every day.

### Going backward in time

Last night, this patient went out with her girlfriends and enjoyed a glass or two of wine.

She has been dehydrated since the wine began affecting her lacrimal gland output.<sup>1</sup> She got home a bit late and did not get her required amount of sleep.<sup>2</sup> Because she was a bit tipsy, the lids that are normally not quite completely sealed were perhaps slightly more open on this particular evening, causing her to wake up with eye irritation due to the evaporation effects of the incomplete closure.<sup>3</sup>

Related: [First-class dry eye treatment](#)

### Pearls

- Ask patients about sleep habits, water intake, caffeine consumption, smoking habits, and alcohol consumption as part of their personal health information (PHI). These habits can help to uncover exacerbating risks for dry eye disease (DED) at the beginning of a patient evaluation.
- Ask patients with contact lens discomfort and/or symptoms of DED how their eyes feel upon awakening. Morning symptoms trigger closer evaluation for blepharitis—which is common for women who neglect to properly remove eye makeup before sleep—inadequate nocturnal lid seal,<sup>3</sup> and corneal dystrophies. Fluorescein can uncover staining patterns and even subtle islands of elevated epithelium seen in basement membrane disease. Be sure to also evaluate the superior cornea and superior conjunctiva hiding under the upper eyelid margin for clues to systemic diseases such as hypothyroidism. Evert the upper lid to examine for signs of lid wiper epitheliopathy detectable using lissamine green vital dye.

Before going to bed, the patient removed her waterproof eyeliner, mascara, and glittery eye shadow with a liquid makeup remover containing significantly higher amounts of BAK and ocular surface-drying chemicals than you would ever dream of giving as an ophthalmic drop or

# Ask patients about their habits to help uncover risks for dry eye disease

medication.<sup>4</sup> This makeup remover very effectively removes her makeup, but it also removes the oil reservoir of the lid margin.

Next, her facial cleanser was applied quickly over her entire face, including over the eyelids and lashes. This helped her get to bed faster, but it also overstripped the delicate oils of the eyelids and lid margin.

Related: [How to know when it's not dry eye](#)

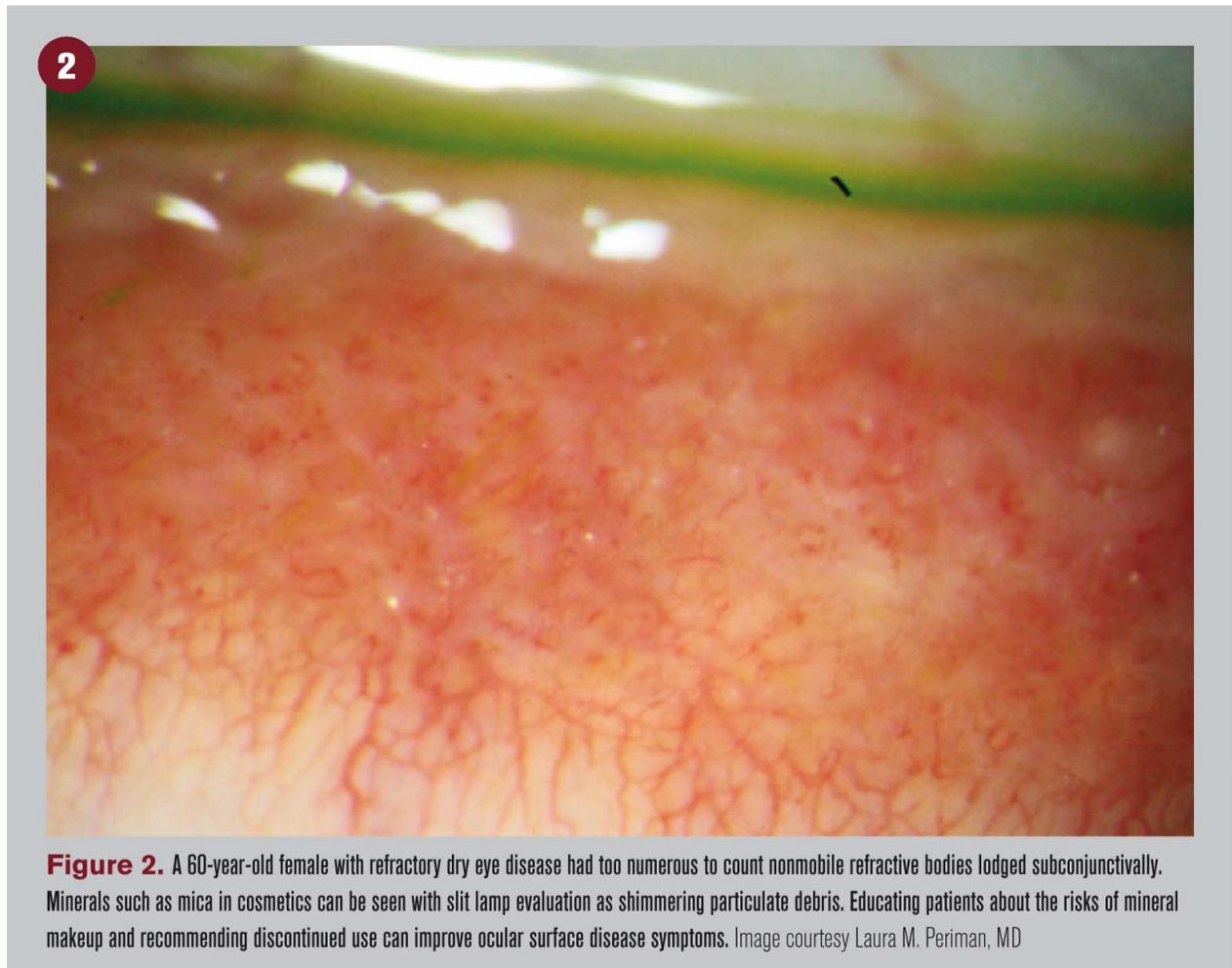
### Pearls

- *Waterproof eye makeup (eyeliner and mascara) contains ingredients to make them adhere to the lid and lash. Harsh chemicals in eye makeup removers are necessary to dissolve such residues and pigments. This also creates a challenge because removers often leave behind a residue of pigment (Figure 1). Suggest patients avoid products containing parabens, phenoxyethanol, and vitamin A/retinyl derivatives.*



**Figure 1.** This young female patient told Dr. O'Dell she had removed her eye makeup two days prior to her eye exam. Close evaluation at the lid margin demonstrates a layer of pigmented waxes and debris left behind in her removal process. Image courtesy Leslie E. O'Dell, OD, FAAO

- *Sparkly eye shadow can exacerbate chronically dry eyes, and glitter is another common cause of corneal and conjunctival irritation. Minerals such as mica that add sparkle can embed in the conjunctival tissues, causing irritation (Figure 2).*



- *Makeup application habits should be discussed with patients. Applying eyeliner to the waterline, a trend known as “tightlining,” may block the terminal ductule of the meibomian gland.*
- *BAK is known to be toxic to epithelial cells, causing surface epithelial cell damage and punctate epithelial keratitis, which interferes with surface wettability.<sup>5</sup> Cell culture experiments indicate toxicity to the meibomian glands as well.<sup>4</sup> Makeup removers have high concentrations of this preservative, putting the ocular surface at risk of desiccating stress, night after night.*

Even though your patient refreshes her Botox injections to the crow’s feet area every six to eight months, she’s still paranoid of wrinkles. Her nightly routine includes the application of an anti-aging moisturizer near the eyelashes and orbital area. She believes that this anti-aging formula with Retinyl derivatives will help to delay the signs of aging.

What she doesn't know is that these very same ingredients are damaging to the meibomian glands,<sup>6</sup> and the parabens preserving the pot of expensive moisturizer also have a negative impact on the meibomian glands.<sup>7</sup>

Related: [How ODs can do better with dry eye](#)

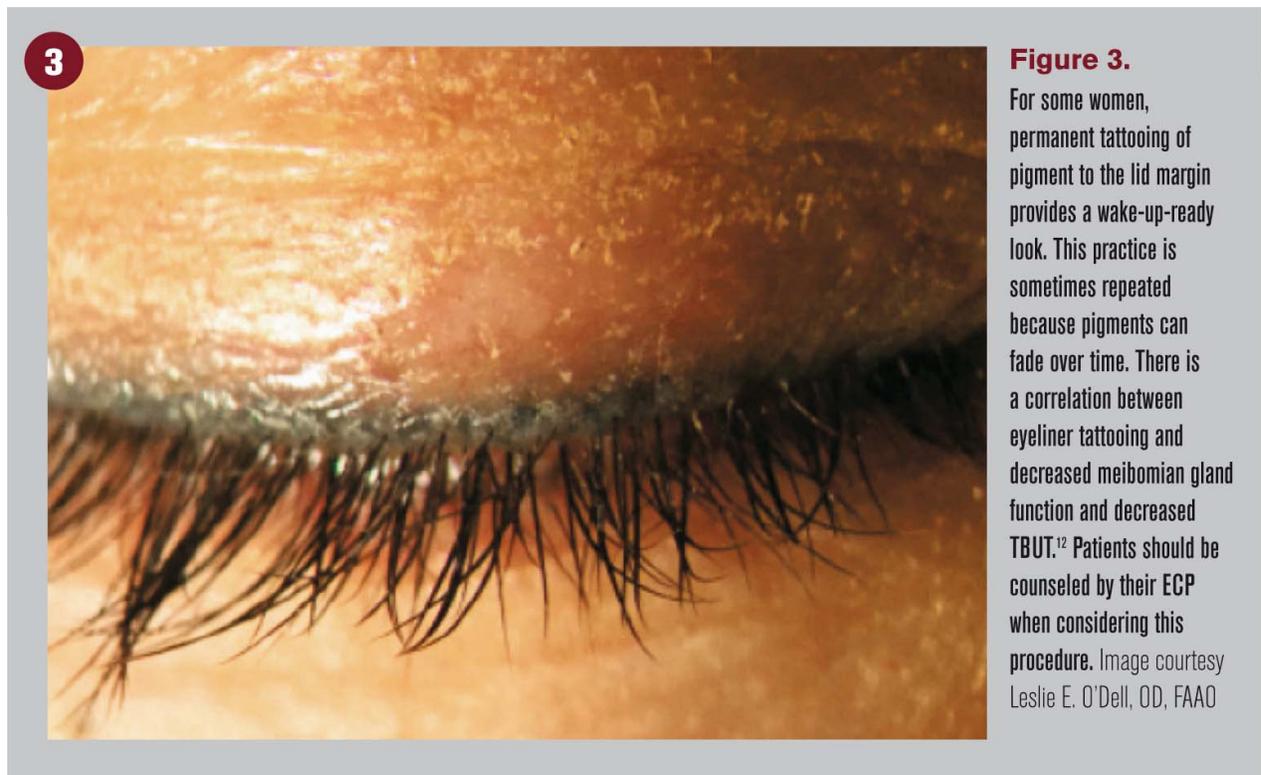
## Pearls

- *Botox is a trend on the rise, even in young patient groups. The neurotoxin decreases peri-ocular wrinkles by weakening the orbicularis oculi muscle.<sup>8</sup> Check baseline meibomian gland function and structure, using meibomian gland expression and transillumination or meibography for these patients and monitor for change over time. These patients are at risk for incomplete blinking and evaporative DED.*
- *Treatments such as warm compresses, cyclosporine,<sup>9</sup> and LipiFlow<sup>10</sup> may indeed benefit, but if these OSD-exacerbating beauty regimens continue, such treatments may need to be repeated frequently. It is important for the patient to understand that this is not a failure of the technology but rather a call to change the daily habits that are contributing to the problem.*
- *Retinyl derivatives are a known cause of meibomian gland damage and evaporative DED.<sup>8</sup> They are commonly found in anti-aging facial lotions and under-eye serums.*

Your patient wakes up in the morning and notices that her eyes are red and feel irritated. She steps into the shower, and the shampoo she uses comes in contact with her eyelids. The chemicals further irritate her eyes. Once out of the shower, she applies a daily moisturizer, with the paraben-preserving and retin-A anti-aging aspects of these creams negatively affecting her meibomian glands.

She begins her workday before the sun rises, with eyes glued to the iPhone upon opening, then straight to the laptop and air-conditioned meetings. Coffee and Red Bull are her beverages of choice because plain water does not help keep her eyes open. Frequent business travel not only adds to her SkyMiles account but to her stock in Visine (which is tachyphylactic and loaded with BAK) because she needs to hide the red eyes from clients.

She conveniently leaves her false eyelashes on for a week (altering the wind-deflecting capacity of the eyelashes)<sup>11</sup> as client dinners do not permit much remaining time in the evening for her beauty maintenance. She's thinking about getting eyelid tattoos instead, but this is associated with worse MGD.<sup>12</sup> (Figure 3)



In addition, the daily lid margin oil reservoir overstripping caused by her product usage triggers the meibomian glands to up regulate meibum production in an attempt to keep up with the desiccating stress and meibum replacement demand. The lipid/protein composition is altered, and a poor quality meibum results.<sup>13</sup>

During the day, the patient experiences reflex tearing but blames this on “allergies,” so she takes an oral antihistamine. Remember, she already has her morning cocktail of including oral antihistamines.

Related: [Creating a dry eye protocol](#)

### Pearls

- *Common medications known to contribute to DED include antihistamines, and anti-anxiety, anti-depressant, and anti-hypertension medications.<sup>14,15</sup> The complete list of over-the-counter (OTC) medications is important to clarify in the patient history. There is a common misperception that OTCs, vitamins, supplements, and “natural products” are universally “safe.”*
- *In any given week, four out of every five U.S. adults will use prescription medicines, dietary supplements, or OTC drugs, and approximately one-third of adults will take five or more different medications during the same time period.<sup>16</sup>*
- *Contact lens use combined with cosmetic use should be addressed, and it is recommended that contact lenses be inserted before makeup application to prevent trapping cosmetics under the lens and to prevent products from coating the contact lens.<sup>17</sup>*

- *The all-in-one solutions used by contact lens wearers have important anti-bacterial detergent properties, but they are also likely to contribute to epithelial distress, goblet cell distress, and tear film instability.<sup>7,13</sup> Simply changing DED patients to daily wear contact lenses or to a hydrogen peroxide-based cleansing system can improve symptoms of DED.<sup>18</sup>*
- *Visual fluctuations are a common symptom of DED. Keep this in mind when your refraction and vision exam don't match, i.e., the 20/20 patient with complaints of blurred vision.<sup>19</sup>*
- *Talk to your patient about digital device use, the number of devices and screens they view during their day, and the number of hours spent on devices. Digital device use is increasing, as are symptoms of eye discomfort, fatigue, and blurred vision.<sup>20</sup> Infrequent and partial blinks are common when using digital devices, adding to evaporative stress to the ocular surface and tear film instability.<sup>21</sup>*

Related: [Diagnosing and treating dry eye with technology](#)

### **Cosmetics and your patients**

This hypothetical patient highlights the multifactorial nature of DED. In holistic evaluation, many lifestyle and environmental stressors are uncovered as active contributors to her ocular irritation, blurred vision, and contact lens intolerance. The multifactorial nature is revealed: device use, rest, environment, lifestyle, hydration, medications, hygiene, cosmetics, hormone manipulation,<sup>22</sup> to name a few.

Of dry eye sufferers, approximately 70 percent are women.<sup>23</sup> Millions more have dry eye symptoms of varying severity, which are episodic due to adverse contributing factors such as low humidity or contact lens use, cosmetics, and systemic medications.<sup>5</sup>

Cosmetics aren't being blamed enough for OSD. Additionally, our best interventions are handcuffed in the face of continued multifactorial insults that remain uncorrected. Overlooking the beauty counter can be detrimental, often at your patient's expense. As cosmetics are a known exacerbator of dry eye and meibomian gland dysfunction, and an impressively growing market, with over \$60 billion in revenues in the U.S. alone,<sup>24</sup> it is paramount for ECPs to know the habits of our patients. We must educate ourselves, and our patients about proper ocular health, and cosmetic uses.

As a profession, we have spent many years diagnosing and treating eye disease, yet the fact that our patients' lifestyles and aesthetic routines can seriously compromise their ocular health remains underappreciated.

Think of a noninsulin-dependent diabetes mellitus patient. Prescribing an oral anti-glycemic agent is not enough if the patient's dietary habits remain poor.

Working to improve our patients' ocular surfaces won't get us very far if our patients continue to use products that compromise the ocular surface.

Managing tear film health is part of our daily routine... Managing our patients' vision is our responsibility. Furthermore, a dysfunctional tear film may pose a health risk and/or negatively

impact contact lens wear or surgical outcomes such as LASIK or cataract surgery. Know and learn your patients' daily routines when determining their management and treatments. It is a rewarding way to enhance your patient's quality of care.

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