Dry eye is sometimes pretty obvious to diagnose. But more often, patients can have significant symptoms related to early evaporation of the tear film and chronic inflammation with minimal epithelial compromise, too subtle to see at the slit lamp.

It can be even more challenging to piece together an accurate diagnosis if your patient is just not able to articulate symptoms clearly or doesn’t understand exactly what’s bothering her or him.

This is often the case with our pediatric patients. For these reasons, pediatric dry eye disease often goes undiagnosed and undertreated—even more frequently than in our adult patients.

**BE AN EXCELLENT DETECTIVE**

To be a good dry eye specialist you really have to have excellent detective skills and try to take in as much valuable information as possible from both the parent and the patient. Pediatric dry eye is less common in general practice than adult dry eye, but kids may come in for a seemingly routine comprehensive exam with symptoms such as itching, burning, puffy lids, light sensitivity, irritation, tired eyes, or variable vision. Parents or family members might not detect the severity of these symptoms or connect them with the negative impact they can have on the development of the patient.

I find it helpful to examine the general appearance of the parents and family members, in addition to the patient. If they have obvious skin disease such as rosacea and eczema, that leads me to carefully look for signs of these conditions while examining the patient’s eyelids because that patient likely has similar skin conditions and eyelid inflammation.

If there is a family history of systemic lupus, it’s important to ask the patient if they have joint pain or joint soreness and help them understand the question by explaining it in simple terms. It might seem unusual to ask kids these questions, but keep in mind that pediatric patients with systemic lupus erythematosus or juvenile rheumatoid arthritis can have these symptoms.

**FIND THE MAIN CAUSE**

One of the most important things to do in every dry eye case is to try to identify a main contributor to disease,
if there one: That is, try to look for a clinical finding that’s in large part causing most of the ocular surface compromise. This is not evident in all cases, but sometimes there’s one clinical finding that’s responsible for most of the trouble. In our older patients, this may be prominent conjunctivochalasis, floppy eyelid syndrome, superior limbal keratitis, or eyelid malposition. In our younger patients, it may be allergic conjunctivitis, seborrheic blepharitis, Demodex blepharitis, or ocular rosacea. The main driver of the patient’s symptoms can be a subtle clinical finding. But in most cases, ocular surface compromise is a result of multiple culprits, each contributing on a smaller level to interrupt processes involved in optimal ocular surface maintenance. In addition to the clinical findings listed above, meibomian gland dysfunction (MGD); systemic allergies; exposure keratopathy or incomplete blink; decreased blink rate; systemic medications; and comorbid skin conditions such as rosacea, eczema, or dry skin are a few of these potential contributors.

Evaporative Dry Eye

Without a doubt, the most common finding in most instances of ocular surface disease and dry eye is MGD. This is the same whether the patient is a postmenopausal female or a 9-year-old girl. We don’t really expect to see significant MGD in our pediatric patients, but it is germane to scrutinize meibomian gland health and function with as much attention in kids as in our older patients.

Evaporative dry eye is the most common form of ocular surface disease and dry eye disease in kids as well. This continues to be a bit of a blind spot for many of us. Aqueous deficiency is much less common in pediatric dry eye.

Knowing that, in most patients, young or old, MGD is a major factor in dry eye, I have gotten in the habit of carefully evaluating the eyelids of my pediatric patients in order to remind myself of how a young meibomian gland should look. In my experience, surprisingly, about one of every 10 younger patients (aged 7 to 15 years) will have early truncation, ductal dilation, tortuosity, and early gland atrophy.

Digital Eye Strain

How is it that a 9-year-old patient has close to 30% truncation and scant meibomian gland secretion? This situation often involves a systemic comorbidity, but one of the obvious factors in less severe pediatric dry eye is that many kids have more than quadrupled the amount of time they spend on a screen in the past several years. What we used to call computer vision syndrome is now more appropriately called digital eye strain, and it is undoubtedly disrupting normal ocular surface and tear film processes in our young population.

Digital device use is increasingly important not only for adults, but also for children. Tablets and computers have been increasingly used during the global pandemic to help deliver education remotely. The most common adverse effects of prolonged digital device use are incomplete blink and decreased blink rate, which lead to disuse atrophy of the meibomian glands.

If your pediatric patient is a contact lens wearer and mostly in an online school program, it is critically important to discuss visual hygiene habits with the hope that the patient will have good habits.

**AT A GLANCE**

- For pediatric patients with dry eye, collect as much valuable information as possible from both the parent and the patient.
- Look for a clinical finding that may be causing the majority of the ocular surface compromise.
- If your pediatric patient is a contact lens wearer and in a school program that utilizes screens, discuss visual hygiene habits so the patient can develop good habits.

“When a pediatric patient presents with ocular surface disease that is refractory to lubrication and topical anti-inflammatory treatment, it’s important to think about possible systemic disease associations.”
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will get in the habit of performing these elements instinctively.

Systemic Disease

When a pediatric patient presents with ocular surface disease that is refractory to lubrication and topical anti-inflammatory treatment, it’s important to think about possible systemic disease associations. The most common are allergy and dermatologic diseases such as eczema, dry skin, and rosacea.

Seborrheic and Demodex blepharitis can be extremely symptomatic and cause MGD when undertreated or left untreated. I find the use of tea tree oil and mechanical debridement of the eyelid to be important home treatments for these patients, in addition to in-office eyelid debridement. Even though we may expect patients with significant eyelid debris to perform daily home therapy, most of my patients need supplemental in-office eyelid debridement treatments, especially kids. Eyelid debridement can be a tough one for them to tolerate, but most kids do well after getting past the initial treatment in the office. After that initial treatment, having the parents take on home eyelid hygiene is key, in order to reduce the adverse effects of chronic inflammation on the lids and meibomian glands of our younger patients.

A condition that presents much less commonly in my clinic—most often in patients who have recently immigrated to the United States—is vitamin A deficiency. I’ve seen only two such cases in my career, but it underscores the importance of working closely with the family, nutritionist, and pediatrician to resolve the issue. It is crucial to get this diagnosis right, and it is sometimes tough to piece it together because a vitamin deficiency is not usually top-of-mind. These patients have severe dryness and need aggressive therapy as dietary changes are implemented.

Another important and less common systemic condition to keep in mind when a pediatric patient has significant inflammatory ocular surface disease is Stevens-Johnson syndrome, an uncommon condition with often devastating outcomes. For these patients, vigilance and prompt consultation with the pediatrician is critical. The drugs that most commonly elicit the aggressive immunologic reaction in Stevens-Johnson syndrome are sulfa-derived drugs and ibuprofen.

Recognizing and addressing dry eye disease in pediatric patients can be a challenging but extremely rewarding aspect of optometric eye care. Enjoy your successes with these patients, and don’t forget to consider the less common comorbid disease associations.

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