

# Contact Lens Update

CLINICAL INSIGHTS BASED IN CURRENT RESEARCH

## Identifying *Demodex* in the eyelash follicle without epilation

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*Demodex* is a mite that was first discovered by Dr. Jacob Henle in 1841.<sup>1</sup> It was considered to be innocuous until fairly recently, when studies have shown it to be associated with a variety of chronic skin conditions, including rosacea, perioral dermatitis, and blepharitis.<sup>2-5</sup> Unfortunately, *Demodex* is often overlooked and may explain why some forms of chronic blepharitis appear resistant to treatment.

There are two species of *Demodex*: *Demodex folliculorum* and *Demodex brevis*. *D. folliculorum* reside within the lash follicles, and *D. brevis* reside deep within the sebaceous and meibomian glands. It is thought that these mites feed on epithelial cells, causing direct damage to the eyelid margins.<sup>6</sup> The presence of the mites' chitin and their waste products trigger an immune response from the body.<sup>7</sup> While present in the majority of individuals in small numbers, particularly the elderly, an over-population of these mites often result in inflammation to the ocular surface and eyelid margins.<sup>7-10</sup> Diagnosis of this infestation can be challenging for the eye care practitioner and new information about how to observe the mites is of great value.

***Mastrota KM. Method to identify Demodex in the eyelash follicle without epilation. Optom Vis Sci 2013; 90: e172-4.***

In this article, Katherine M. Mastrota<sup>11</sup> reviews the limitations of conventional techniques for viewing *Demodex* and explains an alternative clinical technique for accessing them from deep within the hair follicle.

### **Traditional method: epilating the eyelashes**

The Coston method involves epilating eyelashes and then mounting them onto a slide with peanut oil.<sup>12</sup> The mites can then be identified by observing the lashes using light microscopy. The lashes that have the highest chance of containing *Demodex* have a characteristic cylindrical cuffing around the base of the lash. This cuff contains keratins, lipids, and *Demodex* excreta.<sup>13</sup> Unfortunately, epilation of the entire lash may actually strip *Demodex* off the lash during the removal process, leaving a significant number of mites behind in the lash follicle. The tails of *Demodex* can often be seen hanging out of the follicle after a lash has been epilated.<sup>12, 13</sup>

### **New recommendation: rotating the eyelashes**

Mastrota recommends applying gentle tension and manually rotating the lash slowly with a pair of forceps, allowing the lash to “scrape out” *Demodex* residing deep within the follicle. The mites that emerge from the follicle appear translucent and can be visualized under high slit lamp magnification or microscopy. This technique has also been successful in yielding *Demodex* from lashes without the characteristic cuffing around the base. Mastrota warns that badly damaged follicles may not be able to tolerate mechanical manipulation of the eyelash,

which may result in the eyelash being inadvertently epilated. She also notes that if the patient's lashes have been scrubbed with baby shampoo, a simple rotation of the lashes will not stimulate *Demodex* to come out.<sup>14</sup>

### Managing *Demodex* infestation

Once diagnosed, the condition requires treatment to alleviate the chronic blepharitis. A number of methods have been proposed for managing *Demodex* infestation. Some involve use of an eyelid ointment to trap the mites as they emerge from the follicles for mating. Others involve tea tree oil preparations and eyelid cleansers that specifically target *Demodex* blepharitis, in combination with tea tree oil shampoo and face wash. Gao *et al.* describe a strategy that involves a weekly in-office treatment of 50% tea tree oil applied to the eyelash base in two or three 10-minute intervals followed by lid hygiene at home.<sup>14</sup>

### First steps in practice

The first step in treating *Demodex* is recognizing it. *Demodex* may present as chronic blepharitis, itching of the eyelids, corneal and conjunctival inflammation, along with greasy eyelid margins and the presence of cylindrical cuffs around the base of the lashes. The presence of these signs should lead the examiner to perform an eyelash rotation to further assess the presence of mites.

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