

GRUESOME TWOSOME



How naturally occurring parasites function and can become problematic for their human hosts.

BY JACOB LANG, OD, FAAO

There are two distinct species of *Demodex* mites that inhabit the ocular tissues: *Demodex folliculorum* and *Demodex brevis*. *D. folliculorum* are generally larger and call the base of the eyelash follicles their home, while *D. brevis* are smaller and reside in the sebaceous glands.¹ These mites are specific to humans.¹ In fact, *Demodex* are a normal part of the lid environment and are the most common ectoparasite of human skin.^{1,2}

However, infestation by these mites, called *demodicosis*, has been implicated in a variety of dermatologic and anterior segment conditions.^{1,2} Many of the consequences of demodicosis are thought to occur due to immune response and inflammatory reactions.^{1,2} *Demodex* has also been found to act as a mechanical blockage in sebaceous glands and is associated with hordeolum and chalazia formation.¹

A DAY IN THE LIFE

Demodex makes its living by eating sebum with its pin-like mouthparts. Although the mites have no excretory orifice, their digestion occurs internally, driven by lipase enzymes,^{1,2} and waste is regurgitated externally through the “mouth.” The death and breakdown of the chitinous exoskeletons has been shown to induce an inflammatory immune response.¹ *Demodex* hosts several types of bacteria, including *Staphylococcus* and *Bacillus oleronius*, which may perpetuate inflammatory processes or responses on their own accord.¹

HIDING IN PLAIN SIGHT

Undigested waste, lipids, keratin, *Demodex* eggs, and dead *Demodex* mites migrate out of the eyelash follicle and accumulate around the base of the eyelashes to form the pathognomonic sign of *Demodex* blepharitis, described as collarettes or cylindrical dandruff (Figure).^{1,2}

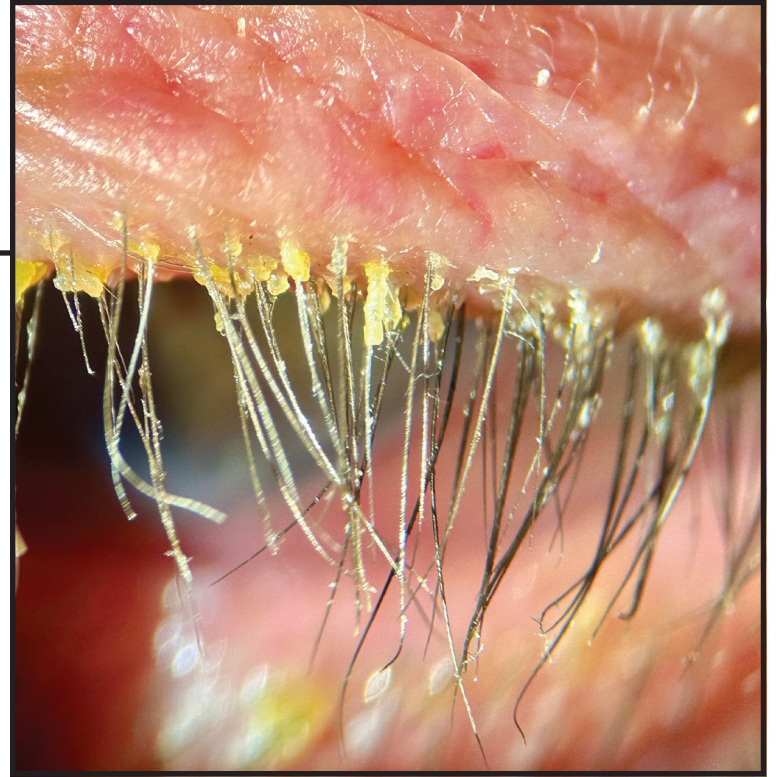


Figure. A finding of collarettes or cylindrical dandruff confirms the diagnosis of *Demodex* blepharitis.

One study found the prevalence of *Demodex* blepharitis to be 57.7% among all patients visiting eye care clinics, using the presence of collarettes as diagnostic criteria.² In a study of eyelashes with and without collarettes, 100% of the lashes with collarettes were found to have *Demodex* mites.² ■

1. Fromstein SR, Harthan JS, Patel J, Opitz DL. Demodex blepharitis: clinical perspectives. *Clin Optom (Auckl)*. 2018;10:57-63.
2. Trattler W, Karpecki P, Rapoport Y, et al. The prevalence of Demodex blepharitis in US eye care clinic patients as determined by collarettes: a pathognomonic sign. *Clin Ophthalmol*. 2022;16:1153-1164.

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