Feline Demodicosis

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Demodicosis has been referred to as the least common disease associated with mites in cats. It is perhaps more accurate to state that it is the least commonly diagnosed disease associated with mites in cats. Feline demodicosis can occur with parasitism by Demodex cati or a Demodex mite of a currently unnamed species. Both mites (like their relative, the follicular mite D. canis) are in the class Arachnida, order Arachnida, suborder Prostigmata, and family Demodicidae. In members of this group, the head, thorax, and abdomen are fused and the antennae and mandible are missing. The larvae have six legs. The nymphs and adults have eight legs.

The life cycle of Demodex species of cats is similar to that of D. canis. The skin disease may be evident in young adult to geriatric cats and in cats of either gender or any breed. It has been suggested that the Siamese breed has a higher incidence of generalized demodicosis. Currently, there is inadequate information concerning the incidence of feline demodicosis.

Clinical signs of demodicosis vary with the mite species and its anatomic distribution. The Demodex unnamed species lives on the superficial stratum corneum of the skin of the cat. The mite typically induces pruritus, excessive grooming, alopecia, scaling, hyperpigmentation, erythema, and excoriation associated with self-abuse. The species has an affinity for the head, neck, groin, and extremities. Clinical signs may suggest flea allergy dermatitis, atopy, immune-mediated or eosinophilic skin disease, food allergy, contact dermatitis, notoedric mange, or diabetic neurodermatitis.

The list of diagnostic differentials is as long as a fertile veterinary mind can conceive. I have also observed the Demodex unnamed species as an incidental finding and causing no skin lesions. In one cat, the species was discovered in a fecal examination (Figure 1). Although the patient had a normal haircoat and no evidence of excessive grooming, numerous Demodex unnamed mites were identified on skin scrapings from the extremities (Figures 2 and 3).

Demodex cati induces folliculitis, pyoderma, hyperemia, alopecia, scaling, and regional lymphadenopathy. The mite may occur in local form as chin acne, periorbital folliculitis, ceruminous otitis, or facial dermatitis (Figure 4). Generalized demodicosis (i.e., with more than five lesion sites or more than one body region) caused by D. cati is rare. When D. cati infestation is generalized, it occurs over the entire body, flank, trunk, groin, head (Figure 5), and neck (Figure 6). Generalized demodicosis is more likely to be associated with an underlying condition, such as diabetes mellitus, feline leukemia virus infection, feline immunodeficiency virus infection, hyperadrenocorticism, or immune-mediated skin disease.

Because the skin lesions of demodicosis resemble those of so many other
nonparasitic skin conditions, skin scraping at the time of examination is essential. Skin scraping should always lead to the diagnosis. The mites of both species are typically plentiful. In severe cases of localized or generalized demodicosis, a health screen and evaluation for feline immunodeficiency virus or feline leukemia virus are necessary to rule out occult diseases. Hematologically, peripheral eosinophilia is an expected finding associated with *D. cati* and the *Demodex* unnamed species.7

It is not known whether numerous *Demodex* mites in cats result in T-cell suppression or whether concurrent pyoderma results in suppressed lymphocyte blastogenesis, as is evident in canine demodicosis.13,14

More study of this possible pathogenesis is required. Although it is an academic and circuitous route, skin biopsy can be used to diagnose demodicosis in cats. Biopsy may demonstrate eosinophilic infiltration of the stratum corneum with the *Demodex* unnamed species. In patients infected with *D. cati*, the inflammation involves the deeper adnexa and hair follicle units. Both mites can induce hyperplasia, hyperkeratosis, and erythema of the skin.

**Figure 1**—A *Demodex* unnamed species mite found in a fecal flotation. The mite measures 35 by 85 microns. (original magnification, ×80)

**Figure 2**—An asymptomatic cat infested with the mites pictured in Figures 1 and 3.

**Figure 3**—A *Demodex* unnamed species mite. The mite measures 35 by 85 microns. (original magnification, ×80)

**SPECIES IDENTIFICATION**

The initial diagnostic skin scraping allows differentiation of mite species. *Demodex cati* is long, narrow-bodied, and morphologically similar to *D. canis*. The adult female mite is 30 to 35 microns wide and 180 to 210 microns long (Figure 7). The adult female of the *Demodex* unnamed species is 30 to 35 microns wide and 80 to 90 microns long (Figure 3); the short-
ened tail or opisthosoma accounts for the blunt morphology.

**TREATMENT**

Treatment of feline demodicosis should be tailored to the specific needs of the patient. Concurrent pyoderma may require bacterial culture and sensitivity testing or the use of an antibiotic targeted at *Staphylococcus intermedius*, such as amoxicillin–clavulanic acid or oxacillin. Underlying, treatable diseases (e.g., diabetes mellitus and hyperadrenocorticism) must be managed.

Therapy for the localized or generalized form of infestation with *Demodex* unnamed species should include extralabel ivermectin; 300 µg/kg doses are administered subcutaneously two weeks apart. Simultaneously, 2.5% lime–sulfur immersion should be used at the same interval. Lime–sulfur immersion is the only approved chemical therapy available for patients with feline demodicosis. Because the *Demodex* unnamed species infests the stratum corneum, the mite is usually vulnerable to the lime–sulfur regimen alone. The prognosis for cats parasitized by this mite is good.

All cats that I have treated for localized or general-

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Localized infestation with *D. cattii* responds well to parenteral ivermectin and 2.5% lime–sulfur immersion in the same protocol. In addition, I have successfully used topical follicular flushing with 5% benzoyl peroxide gel. The gel apparently accelerates resolution of the parasitism. Topical rotenone ointment may be used for localized mange therapy. Patients with localized *D. cattii* infestation have a good prognosis.

Generalized *D. cattii* infestation may be associated with a more guarded prognosis if the cat is immunocompromised or has another severe disease. Therapy for the generalized form should include extralabel parenteral ivermectin (300 µg/kg). Extralabel amitraz immersion can be used in cats, at half strength (0.0125%) and weekly intervals. This dose and interval protocol minimizes such toxic side effects as sedation, salivation, hyperglycemia, and insulin resistance. Because of its side effects, amitraz should not be used to treat diabetic cats or by diabetic clients without appropriate gloves and barriers during dipping. Amitraz-impregnated collars evidently have not been used to treat cats with demodicosis. Any extralabel drug use requires client approval.

In the absence of severe underlying disease, the results of therapy for patients with feline demodicosis can be encouraging. The mites apparently are not highly contagious; however, transmission did occur between two immunocompromised cats. Although the pathogenesis of feline demodicosis is similar to that of canine demodicosis, the feline condition apparently has a lower incidence and generally has a more simple resolution. In addition, feline demodicosis does not require the prolonged use of insecticidal solutions.

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**About the Author**

Dr. Foley, who is a Diplomate of the American Board of Veterinary Practitioners, is the chief of staff at the Upper Keys Veterinary Clinic in Islamorada, Florida.

**REFERENCES**