Ulcerative pododermatitis in a cat associated with *Anatrichosoma* sp.


**Abstract.** A 9-year-old castrated male Chartreux cat was presented for an ulcerative pododermatitis of all 4 paws. A clinical exam was inconclusive and supportive therapy did not improve the condition. Histologic examination revealed an ulcerative and eosinophilic dermatitis associated with epidermal and dermal nematodes and ova consistent with the aphasmid *Anatrichosoma* sp. Treatment with ivermectin completely resolved the skin lesions. *Anatrichosomiasis* should be included in the differential diagnosis of ulcerative pododermatitis in cats, at least in the southwestern United States.

Pododermatitis in cats is associated with a variety of systemic and cutaneous diseases, including immune-mediated, infectious, neoplastic, and miscellaneous conditions. The most commonly diagnosed are probably pemphigus foliaceus, plasma cell pododermatitis, and eosinophilic collagenolytic granuloma of the feline eosinophilic complex. Chemical irritation, thermal burns, contact allergic reactions, and a variety of bacterial and fungal infections may also cause feline pedal diseases. Pododermatitis is characterized clinically by swelling, crusting, and frequent ulceration. The location of the lesions makes them very susceptible to repeated trauma, masking the original cause. This report presents an unusual case of ulcerative pododermatitis in a domestic cat associated with the presence of the nematode *Anatrichosoma* sp.

A 5.6-kg, 9-year-old castrated male Chartreux cat was initially presented to the referring veterinarian for behavioral changes characterized by anorexia, abnormal vocalization, hiding, and frequent staring into space. Physical examination and routine hematology and blood chemistry values were within normal limits. The cat was treated with the antidepressive fluoxetine hydrochloride for a few days with no apparent improvement. Four days after withdrawal of the antidepressive medication, the cat developed ulcerative lesions on all 4 paws. The lesions were characterized by swelling and induration with rare vesicles and over time progressed to erosion and ulceration of multiple pads on all 4 feet (Fig. 1A). The cat was in good body condition and afebrile but was depressed. The differential diagnoses initially considered were autoimmune disease, plasma cell pododermatitis, drug eruption, contact hypersensitivity, and chemical or physical trauma. Cytologic examination was inconclusive, and multiple biopsy specimens were taken from all 4 feet,

Figure 1. A, Footpads; cat. Markedly swollen footpads with exudative pododermatitis at presentation. B, Footpads; cat. After 4 weeks of antihelminthic therapy, the footpads are almost completely healed. Resolving lesions are still present (arrowhead).
fixed in 10% formalin and submitted for routine histopathologic examination. Microscopic examination revealed hyperplastic epidermis and multifocal, ulcerative, superficial, and deep perivascular to interstitial dermatitis associated with cross-sections of nematodes within the epidermis and superficial dermis (Fig. 2). The nematodes were 250–300 μm in diameter and were characterized by a pseudocoelom, striated cuticle, prominent multicellular hypodermal bacillary bands, coelomarian musculature, stichosome, uterus, and excretory organs typical for the aphasmid group of nematodes (Fig. 3). Frequently, adults were surrounded by several ova embedded in a granular, pale, basophilic material (Fig. 3). The ova were bioperculated, oval, and 75 × 40 μm, with a moderately thick (3 μm), bright yellow shell containing larvae (Fig. 4). Ova were frequently present within intracorneal tracts and in the exfoliating stratum corneum (Fig. 4). In the dermis, the parasites were surrounded by moderate numbers of eosinophils, fewer neutrophils and macrophages, and rare plasma cells, mast cells, and lymphocytes. In the epidermis, there were areas of spongiosis with leukocytic exocytosis and formation of subcorneal degenerate pustules alternating with areas of ulceration. Other changes included dermal edema, fibrosis, and multifocal areas of superficial reepithelialization. The morphologic features of the eggs and adult nematodes placed them within the aphasmid group and, more specifically, within the *Anatrichosoma* genus.

Subsequent to the histologic diagnosis, cytologic examination of unstained exudate from the ulcerated areas of the pads revealed numerous oval ova with poorly differentiated opercula. The cat was treated weekly for 4 weeks with subcutaneous injections of ivermectin® (0.3 mg/kg), resulting in gradual and complete resolution of the lesions (Fig. 1B) and of the abnormal behavior.

*Anatrichosoma* spp. belong to the aphasmid group of Nematoda, which also includes *Trichurus* spp. and *Capillaria*...
spp. *Anatrichosoma* adults typically inhabit the superficial layers of mucosal epithelia and blood vessels of the lamina propria. Several species have been recognized in nasal passages, stomach, eye, skin, and buccal cavity. Females are more commonly identified superficially in the epithelium, while males are usually found in the submucosa. Adults range in size from 6 to 27 mm long and typically have larvated bioperculated eggs. The clinical signs of anatrichosomiasis depend on the species involved, parasitic load, and location of the infection and can vary from mild, almost inapparent, mucosal elevations to debilitating lesions or areas of ulceration over the burrowing parasite. Different species are known to parasitize monkeys of the genus *Macaca*, rats, crocodiles, and tree shrews, among others. In North America, the opossum (*Didelphis virginiana*) is the natural host for *Anatrichosoma buccalis*, which colonizes the oral mucosa. Occasionally, accidental hosts will become infected, and larva migrans has been described in humans and great apes. Sporadic cases of anatrichosomiasis have also been reported in domestic animals. *Anatrichosoma* sp. eggs were identified in a dog with suppurative otitis externa after otic lavage, and another dog presented with a nodule over the dorsolumbar area caused by *Anatrichosoma* sp. A recent report describes a case of multifocal cutaneous nodules in a ferret diagnosed as anatrichosomiasis (B. Weeks, personal communication). The only case in the literature in a cat was reported in South Africa in 1980. In that case, extensive necrosis and sloughing of the footpads was described. The initial diagnosis was thermal burn injury. Supportive therapy did not improve the lesions and the animal was euthanized. This cat had access to an area inhabited by *Anatrichosoma* sp. In monkeys with nasal infections, *Anatrichosoma* sp. infection seems the most logical interpretation for this case. Although *Anatrichosoma* has been frequently associated with ulcerative mucosal and epidermal lesions, another and less likely interpretation for the ulcerative lesions in this cat is an idiosyncratic response to the administration of the antiparasite with secondary nematode infection. Varied adverse cutaneous reactions to the drug fluoxetine hydrochloride have been described in people, but no reference to such responses in cats have been found in the literature. Adverse reactions in people usually resolved after interruption of treatment, while in this case, the lesions progressed in severity after discontinuation of fluoxetine use and completely resolved after antihelminthic therapy. Although not definitely proven, given the clinical and histologic findings, ulcerative pododermatitis produced by primary *Anatrichosoma* sp. infection seems the most logical interpretation for this case.

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**Sources and manufacturers**

a. Prozac®, Eli Lilly, Indianapolis, IN.

b. Ivomec®, Merial, Woodbridge, NJ.

**References**


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