Otic Demodicosis
in a Geriatric Cat with Lymphoma

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History. For the past 6 months, a 12-year-old cat with lymphoma has been treated for chronic recurring otitis externa. The initial problem began slowly and was described as mild to moderate pruritus with increased ceruminous debris in both ears. The cat was initially examined by its primary care veterinarian, and the medical records revealed that the cat had been examined and treated for 4 episodes of recurrent *Malassezia* otitis that responded temporarily to various topical otic preparations containing miconazole and clotrimazole. Cytologic evaluation of ear swab samples consistently showed rare to large numbers of *Malassezia* organisms. Two ear cultures were negative for bacterial growth; only *Malassezia* grew. The ear canals had been cleaned and lavaged under general anesthesia, and the tympanic membrane was reported as being normal. Myringotomy was not performed.

The final treatment before referral was a 30-day course of oral itraconazole 5 mg/kg PO Q 24 H. The cat again responded to treatment, only to have the ear pruritus and ceruminous exudate recur approximately 1 month after discontinuation of therapy. This indoor cat was the only pet in the household. The owners performed year-round flea control with monthly applications of selamectin. Before this event, the cat had no history of ear or skin disease. However, for the past 3 years the cat had been treated for gastrointestinal lymphoma and was in clinical remission for over 2 years. The cat was currently receiving 5 mg orally of prednisolone Q 24 H. The owners reported that the cat was active and eating well, and there had been no noticeable weight loss, diarrhea, or vomiting.

Examination. Except for the ears, the physical examination was unremarkable. The inner pinnae of both ears were mildly hyperpigmented (**Figure 1**). There was a moderate amount of thin, brown, liquid ceruminous exudate in both ear canals, obscuring the tympanic membrane, which was found to be normal after ear cleaning. The owners declined culture and sensitivity testing because it had been done recently and again only *Malassezia* organisms were isolated. Fungal culture and skin scrapings of the preauricular area were negative. Ear swab cytology was performed; slides were heat-fixed and stained with Diff Quik. A mineral oil ear swab was also prepared and examined for ear mites. Diagnostic test findings are shown in **Figures 2 and 3**.

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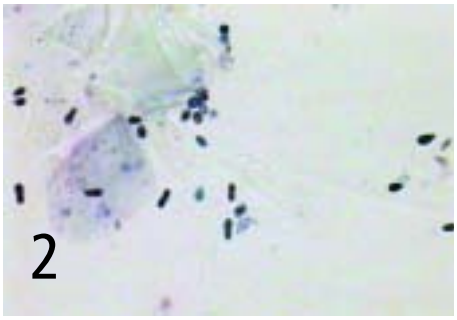


Cytologic appearance of mineral oil ear swab (original magnification, ×100)

Cytologic appearance of an ear swab with Diff Quik stain (original magnification, ×100)

ASK YOURSELF ...

What is your initial treatment plan?

A. Hospitalize the cat and reevaluate for relapse of lymphoma.
B. Under general anesthesia, perform computed tomography of the tympanic bullae, and bilateral culture and flushing of the bullae.
C. Treat the ears with otic milbemycin per label instructions and reevaluate the cat.
D. Obtain a serum chemistry panel, complete blood count, and urinalysis; if there are no contraindications, treat the cat with itraconazole and oral milbemycin and then reevaluate.

Correct Answer: D

Obtain a serum chemistry panel, complete blood count, and urinalysis; if there are no contraindications, treat the cat with itraconazole and oral milbemycin and then reevaluate.

Based on physical examination and history, there was no evidence that the cat's lymphoma had relapsed. Had its health been deteriorating, the focus would obviously have shifted toward determining whether the cat had had a relapse.

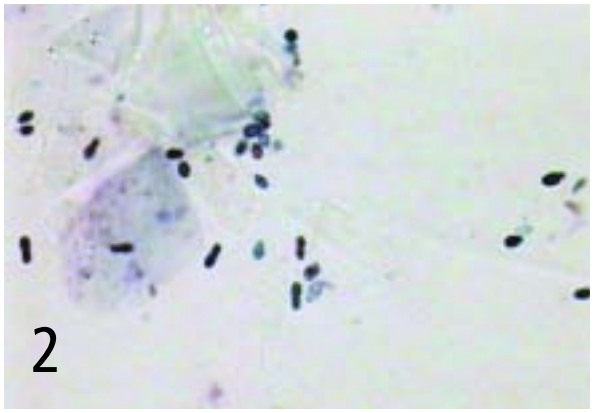
Recurrent Otitis

One of the most common causes of recurrent otitis in cats is *Malassezia* otitis media. *Malassezia* species are considered to be a perpetuating cause of otitis, and there is always an underlying cause. It was certainly possible that the cause of the recurrent yeast otitis was due to a middle ear infection with *Malassezia* and another unidentified pathogen. A second pathogen or exudate in the tympanic bullae that needed to be removed via lavage could easily explain why a 30-day course of itraconazole had not resolved the middle ear infection.

In this cat, the underlying cause of the recurring *Malassezia* otitis was *Demodex cati*. If the mites had not been identified, imaging of the bullae along with culture and lavage would have been the initial treatment course. Computed tomography is expensive, and it could be argued that since the otitis media was bilateral, ear tumors were unlikely and that computed tomography at best would confirm the clinical diagnosis. Another reason imaging was not selected as a first course was that examination of the ears under general anesthesia found no abnormalities. Evidence of a tumor in the canal or an opacity of the tympanic membrane, suggesting a mass or fluid in the tympanic bulla, can often be seen. However, bilateral ear tumors have been reported in dogs with chronic otitis externa, and ear polyps are common causes of recurrent otitis in cats.

Ear Mites

D. cati was unexpected and would have been missed had a mineral oil examination of ear exudate not been done. These mites are often found in the ears of kittens suspected of being infested with ear mites. Proliferation can also occur in cats with systemic illnesses, such as diabetes mellitus, feline hyperadrenocorticism, feline hyperthyroidism, FIV/FeLV, feline heartworm, and neoplasia. In this cat, it is unknown whether the *D. cati* overgrowth was caused by the long-term, low-dose prednisolone therapy, immunosuppression from the lymphoma, or some other unknown factor. The cat's FIV/FeLV status was negative. In the author's experience, otic demodicosis in cats often resolves once the underlying medical condition is treated and/or stabilized.



Note the large number of *Malassezia* organisms.

Note the two *Demodex cati* mites.

Diagnosis & Treatment

In this cat, a serum chemistry panel, complete blood count, and urinalysis were performed to ensure that there were no hidden medical problems, such as diabetes mellitus and chronic kidney disease, and to measure liver enzymes before administration of yet another course of itraconazole. Miticidals considered included lime sulfur, amitraz, oral ivermectin, oral milbemycin, and repeated applications of either ivermectin or milbemycin ear mite preparations. Lime sulfur was not selected for two reasons: First, we were unsure if appying it just to the body would be effective. Second, we were concerned about the safety of using this product in the ears. Amitraz is not well-tolerated by cats and was not selected for this reason. Daily oral ivermectin was a reasonable choice. Topical ivermectin or milbemycin may have been very effective, but it was unknown how often the products would need to

TAKE-HOME MESSAGE

More is missed for not looking than not knowing! *Demodex* mites can be associated with otitis in cats. Examination of ear debris in mineral oil is simple and inexpensive and should be part of all otitis work-ups.

***Note:* Milbemycin, ivermectin, and amitraz are not labeled for use in cats.**

be administered. Also, given that the cat had lymphoma and was receiving oral prednisolone, it was deemed most appropriate to treat the cat with the most aggressive, tolerable, safest, and easiest therapy possible. Oral milbemycin 2 mg/kg Q 24 H was selected because of the ease of administration. Milbemycin is in the same family as ivermectin, which has well-known neurologic adverse affects. Anecdotally, milbemycin seems to have a wider range of safety, but it is important to note that at higher doses adverse effects similar to those of ivermectin can occur.

Follow-up. After 30 days of concurrent itraconazole and milbemycin, the cat was reexamined. The owners reported that the pruritus had subsided within 10 days of therapy. The ears were cleaned at the initial visit and the owners were given instructions to clean them twice weekly during therapy, if needed. The ear debris rapidly resolved, and no further cleanings were needed. Topical therapy for the *Malassezia* was not dispensed; the cat was already receiving oral prednisolone and this provided humane relief of the pruritus. Topical antifungal therapy was declined by the owner due to lack of prior response to therapy. Upon reexamination, the ears were no longer pruritic, the ceruminous debris was gone, and neither yeast nor mites were found. This cat has been followed for more than 1 year, and the otitis has not recurred.

ACKNOWLEDGMENT

Time to give credit where credit is due! The *Demodex* mites in this cat were found by fourth-year veterinary dermatology students on the first day of their rotation. Having the "beginner's mind," the students just assumed the cat could have ear mites and collected both routine ear swabs for staining and mineral oil preparations. None of us was expecting to find *Demodex* mites. With the history of routine use of selamectin for flea control, most veterinarians would just assume the cat did not have ear mites and not do a mineral oil swab.

See Aids & Resources, back page, for references, contacts, and appendices.

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