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The Rise of *Ehrlichia* spp

A 6-year-old, male Labrador retriever was examined in June 2011 for decreased activity and reluctance to climb stairs. The dog had a fever and stiff gait; history revealed that 2 ticks had been attached to the dog 2 months previously. Assay was positive for *Anaplasma*-specific antibodies. Doxycycline was dispensed for 21 days and carprofen as needed for pain; amoxicillin and Fortiflora (purina.com) were added 5 days later. The dog returned to normal in July.

In August, the dog presented for decreased appetite, lethargy, and recurrent vomiting. Fever and thrombocytopenia were noted; *Anaplasma*-species antibodies were detected on in-house test. Doxycycline was dispensed and PCR testing for *Anaplasma* and *Ehrlichia* spp initiated. Sequencing revealed 100% DNA similarity to *E muris*. Doxycycline was discontinued when the

dog experienced vomiting and diarrhea; clostridial enteritis was diagnosed. Amoxicillin, metronidazole, and metoclopramide were dispensed. The dog improved but returned later for decreased activity and hematuria. A 10-day course of cephalexin was recommended for presumptive urinary tract infection; however, hematuria persisted and platelet count decreased. Doxycycline was reinstated, and hematuria resolved; no additional medical problems were noted. Blood taken 1 month later showed seroreactivity to *Anaplasma* spp peptide. Results from IFA testing for other organisms and PCR testing for *Ehrlichia* spp, including *E muris*, were negative. The dog may have been coinfecting with *A phagocytophilum* and *E muris* at initial presentation, although it is possible *E muris* transmission occurred later (before the second fever).

■ Commentary

E muris was first identified in mice in Japan in the mid-1990s. In 2011, archived adult *Ixodes* ticks collected in northern Wisconsin were analyzed by PCR testing; ~1% contained *E muris* DNA. There have been confirmed human cases in Minnesota and Wisconsin; symptoms in human patients are similar to those caused by *E canis*, *E chaffeensis*, and *E ewingii*. This may be the first dog identified with *E muris*. Several other *Ehrlichia* spp are being investigated for causing disease in humans, and we can expect that some will also cause disease in companion animals.—Patricia Thomblison, DVM, MS

■ ■ Source

Ehrlichia muris in a dog from Minnesota. Hegarty BC, Maggi RG, Koskinen P, et al. *JVM* 26:1217-1220, 2012.

Mycoplasma & the Coughing Ferret

Ferrets are predisposed to numerous respiratory diseases, the most virulent being canine distemper virus. In 2007, an outbreak of respiratory disease characterized by a dry, nonproductive cough was observed in ferrets 6–8 weeks of age at a United States distribution center; before arrival, the kits had been vaccinated for distemper at a Canadian breeding facility. The disease was characterized by high morbidity but low mortality; over the next 4 years, ~8000 ferrets were affected. Ferrets responded to supportive care with the exception of a dry cough that only temporarily decreased and sometimes persisted for up to 4 years. Postmortem findings included bronchointerstitial pneumonia with prominent hyperplasia of associated lymphoid tissue. Cytological and bacterial cultures from 12 affected ferrets were positive for fast-growing, glucose-fermenting *Mycoplasma* spp and negative for other bacteria. No bacteria or *Mycoplasma* spp

were isolated from 10 healthy ferrets. While PCR and nucleic acid sequencing failed to identify the *Mycoplasma* spp, it was found to be most similar to *M molare* and *M lagogenitalium*. The authors suggested a causal relationship between the isolation of this *Mycoplasma* species and an emerging disease in ferrets. One potential trigger may be the stress of shipping.

■ Commentary

A new syndrome of ferret respiratory disease is described, involving a *Mycoplasma* spp-associated chronic respiratory disease, and should be considered in any ferret with respiratory signs. Other considerations should include canine distemper virus, influenza virus, bacterial pneumonia, and heartworm disease; diagnostics should aim to rule out these conditions. If bronchoalveolar lavage samples are obtained, a *Mycoplasma* spp culture must be specifically requested, as it will not



grow on normal bacterial media. Treatment of the newly described *Mycoplasma* spp-associated disease has been unrewarding,¹ but a regimen similar to that used in *Mycoplasma* spp infections in rats (ie, combination therapy with enrofloxacin and doxycycline) may be a reasonable first choice.—Sarah Churgin, DVM

■ ■ Source

Mycoplasmosis in ferrets. Kiupel M, Desjardins DR, Lim A, et al. *EMERG INFECT DIS* 18:1763-1770, 2012.

1. Ferret respiratory system: Clinical anatomy, physiology, and disease. Johnson-Delaney CA, Orosz SE. *Vet Clin North Am Exot Anim Pract* 14:357-367, 2011.

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