

Winn Feline Foundation  
25<sup>th</sup> Annual Feline Symposium  
June 19, 2003  
St. Louis, MO

*Update on Two Feline Parasites: Ehrlichia and Hemobartonella*  
Michael R. Lappin, DVM, PhD, DACVIM  
Colorado State University, Fort Collins, CO

Summary by:  
Susan Little, DVM, DABVP (Feline)  
Vice President, Winn Feline Foundation

Part Two: *Ehrlichia*

*Ehrlichia* are intracellular bacteria in the family Rickettsiaceae known to infect different species of animals, such as dogs, humans, and horses. They rely on vectors such as ticks for transmission from animal to animal. Very few natural cases of *Ehrlichia* infection of cats have been reported worldwide. It is possible to experimentally infect cats with some *Ehrlichia* species, such as *E. risticii* and *E. equi*, which usually infect horses. To date, attempts to infect cats experimentally with *E. canis*, the species usually found in dogs, have failed.

The classification of *Ehrlichia* species is also undergoing changes, with *E. equi* and *E. phagocytophila* now considered to be the same organism, renamed *Anaplasma phagocytophilum*. Using polymerase chain reaction (PCR) technology, evidence of an *E. canis*-like organism and *A. phagocytophilum* infection has been found in cats in North America. Ticks have been associated with about 30% of the cases. It is thought that *A. phagocytophilum* is transmitted to cats by the *Ixodes* tick. This tick also transmits *Borrelia burgdorferi*, the cause of Lyme disease in dogs and people. Thus any location where Lyme disease is found probably has *A. phagocytophilum* as well. More work will be needed to determine the other species infecting cats.

The most common sign of illness in cats with *Ehrlichia* or *Anaplasma* spp. infections is fever. Other signs include anorexia, weight loss, lethargy, depression, vomiting or diarrhea, pale mucous membranes, and joint pain. The most common laboratory abnormality found in blood tests is a nonregenerative anemia or thrombocytopenia (low platelet count). Some cats also have other blood changes, such as low white blood cell numbers. An increase in blood protein levels is seen, caused by increased globulins produced by the immune system.

*Ehrlichia* spp. and *Anaplasma* spp. form inclusion bodies called morulae that can be found inside white blood cells. These morulae may be found in some cats during the acute phase of infection when a stained blood smear is examined under the microscope. Diagnosis of ehrlichiosis can also be made using antibody titers, although some infected cats will be negative. Clinically healthy cats may have positive antibody tests, however,

so the diagnosis cannot be based on antibody titer alone. PCR testing is now becoming more widely available and may prove to be a useful aid in the diagnosis of *Ehrlichia* spp. and *Anaplasma* spp. infections in cats, and in identifying the species involved.

Treatment of ehrlichiosis and anaplasmosis in cats is with doxycycline at 5 mg/kg every 12 hours for up to 8 weeks. Another drug showing promise is imidocarb (Imizol<sup>®</sup>, Schering-Plough) at 5 mg/kg intramuscularly every 2 weeks for a total of 2 doses. There are no known public health risks associated with ehrlichiosis in cats. However, it is still possible that cats may be a reservoir of infection in humans. Keeping cats indoors and controlling tick infestations are important parts of prevention.

*The Winn Feline Foundation has supported Dr. Lappin's work since 1998.*

**For further reading:**

Breitschwert EB, Abrams-Ogg AC, Lappin MR, et al. Molecular evidence supporting *Ehrlichia canis*-like infection in cats. *J Vet Intern Med* 2002;16:642-649.

Lappin MR, Breitschwerdt EB, Jensen WA, et al. Molecular and serological evidence of *Anaplasma phagocytophilum* infection of cats in North America. *J Am Vet Med Assoc* In press, 2004.

Stubbs CJ, Holland CJ, Reif JS, et al. Feline ehrlichiosis; literature review and serologic survey. *Comp Cont Ed Pract Vet* 2000;22:307-317.