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DID YOU KNOW?

Feline heartworm is endemic wherever this parasite infects dogs. That means that our feline patients are at risk in the southern Oregon and northern California area. Recommendations from the American Heartworm Society suggest all cats, eight weeks and older, should be administered monthly heartworm chemoprophylaxis.[1].

Pathophysiology and clinical presentation

Cats are considered a partially adapted host for the D*irfilaria immitis.* Although more resistant to infection than dogs, the cat's immune response is more exaggerated. Cats typically harbor only one to three worms and are rarely microfilariaemic. Occult infections are due to low worm burden, single-sex infections, and the cat's immune-mediated clearance of microfilariae. As in dogs, adult heartworms live in the pulmonary artery and cause local inflammation. Due to the cat's small heart and lung size, even one worm takes up a large space and can cause severe disease.

Two stages of heartworm infection usually produce clinical symptoms in cats. The first stage occurs approximately 3-4 months after initial infection when the two inch long, L5 worms arrive in the pulmonary arteries. Many of these immature worms are killed by the host immune response but they cause severe inflammation and arteritis. The acute inflammatory response produces asthma or bronchitis-like symptoms. These symptoms often resolve, especially in response to glucocorticoids and the suppression by the cat's immune system, further suggesting asthma. Some cats may die acutely in this stage. During the second stage, persistently infected cats may tolerate the parasite until the death of the worm (up to two or three years). At that time severe pulmonary inflammation occurs which may lead to acute thromboembolism, respiratory distress syndrome (ARDS) and sudden death.

Clinical symptoms on presentation range from mild lethargy to severe respiratory, gastrointestinal or neurologic signs. Vomiting or hematemesis are common and often the only complaint. Heart murmur may be present if worms interfere with the tricuspid valve function. During migration, the worms may cause intermittent coughing, persistent tachypnea and symptoms similar to asthma or bronchitis. Other physical findings include ataxia, seizures, sycope, hydrothorax, chylothorax or sudden death.

Screening:

Diagnosis is more challenging in cats than in dogs. Testing is often performed based upon level of suspicion. Unfortunately, no one test can guarantee diagnosis in all cases. With index of suspicion, both antigen and antibody testing are recommended to increase likelihood of diagnosis.

TEST	RESULTS INDICATE	LIMITATION
Microfilariae	Circulating microfilariae	Cats do not have microfilariae
Antigen Test	Antigen from adult female	Low burden-may have male-only infection or immature females
Antibody Test	Antibodies to larvae as early as 8 weeks post-exposure	Antibodies confirm exposure but not disease
Radiographs	Vascular enlargement, pulmonary disease	Subjective
Echocardiogram	Visualization of worm in pulmonary arteries	Depends upon experience of utrasonographer

TREATMENT:

Subclinical cases may be monitored by repeat antibody, antigen testing and radiographs every 6 to 12 months. For clinical cats, a reducing dose of oral prednisone is effective for support as needed. Symptomatic treatment such as oxygen support, bronchodilators and IV corticosteroids should be administered as needed in more emergent cases. Adulticide treatment for active infection in infected cats is not recommended however cats should be placed on monthly preventative.

PROPHYLAXIS:

Prophylaxix with ivermectin, milbemycin or selamectin is recommend. There is a low risk of complications due to dying microfilariae since cats generally have no or very low microfilarial burdens, however they should watched in clinic or at home after the first dose.

[1] Nelson CT et al. 2005 Guidelines for the diagnosis, prevention and management of heartworm (dirofilaria immitis) infection in cats. American Heartworm Society.
[2] Atkins Charles E. Recent advances and controversies in feline heartworm disease. American College of Veterinary Internal Medicine Conference Proceedings 2005, Raleigh, NC.