
Heartworm disease has typically been thought of as a canine disease, but in recent years the prevalence of the disease in cats has been increasing. Heartworm disease is endemic to the southeast, with mostly dogs being affected. Other species can be infected as well, including cats, ferrets, and wild canids (foxes, coyotes, etc). Cats are fairly resistant to infection when compared to dogs. Infection rate in the cat is also substantial; a recent look at shelter cats found that 16-25% of cats were exposed to heartworms at some point in their lives!

Heartworms are dependent on mosquitoes and the ambient temperature to spread. Mosquitoes that bite an animal with heartworms pick up the immature form of the worm, called microfilaria, along with its blood meal. These pre-worm stages are harbored by the mosquito, and as the ambient temperature rises, the microfilaria go through several stages (called larval stages) until they reach a stage that can be infective if that mosquito bites a susceptible animal. These larval-stage heartworms are passed on to the susceptible animal and then continue their growth in the lungs to the adult stage. Ambient temperature needs to be 57°F for about 30 days for the microfilaria to mature into the infective larval stage. This is a temperature that is reached here in Georgia for a vast part of the year-so mosquitoes can transmit heartworm disease anywhere from March until late October on average! At 80° F, it only takes 14 days for the larvae to become infective. It should also be noted that living exclusively indoors is not protective against infection.

Once a cat is bitten by an infected mosquito, two outcomes can occur: 1) the cat's immune system finds and destroys the invader (but evidence that infection was present persists for some time); or 2) the young adult worm escapes the cat's immune system and grows to full adulthood. When the cat's immune system finds and destroys the worm, antibodies are produced in the process. These antibodies can be detected by blood tests, but only indicate that the heartworm was present at some time in the cat and does not necessarily indicate a current infection. If the cat's immune system fails to find and destroy the worm and it grows to adulthood, this infection can cause many clinical signs, including vomiting, coughing, trouble breathing, weight loss, neurologic signs, and sudden death.

Despite its name, the heartworm spends little time in the heart itself. Heartworms in cats sometimes live in the lungs, but can live and grow anywhere, including the liver, spleen, heart, and even in the brain! Cats tend to harbor only 1-4 worms on average, but despite this small number they can cause a lot of problems. Once the worm reaches adulthood, it is sometimes possible to detect the infection using several methods. The adult female heartworm sheds small bits of protein called antigen into the cat's bloodstream. A blood test can pick up on this antigen if enough is present in the blood (male worms don't shed the antigen, and they escape detection). Other methods of detection include echocardiography (ultrasound of the heart), radiographs, and changes to blood count profiles. None of these testing methods is 100% accurate or

sensitive unfortunately. Cases of heartworm disease may go undiagnosed despite extensive testing due to the low number of worms needed to cause clinical signs in a cat, as well as the worm's ability to hide in organs that are not easily imaged. Sometimes, we might have a high suspicion of the infection based on clinical signs and general findings without having a true "positive" diagnosis.

Heartworms tend to live 2-3 years in the cat, but the most dangerous time for the cat is at the time the worm dies. At death, the worm releases a high level of proteins into the cat's bloodstream, which the cat's immune system reacts to. This reaction involves a marked influx of inflammatory cells, and usually fluid, into the area that the worm has died in. This process is typically rapid and very extensive, which can lead to acute (sudden) respiratory difficulty, hemorrhage and death. There is no known safe cure for cats with heartworm infections. Steroids (prednisone) may help decrease the inflammation and blunt the cat's immune response associated with the worm's presence, but will not kill the worms. Standard therapy for dogs (Immiticide) tends to cause enormous worm reactions that often lead to the death of the cat as well. Surgical removal of the worms can be done, but is technically challenging, and has a high complication rate. Spontaneous remission (the cat living even when the worm dies) can occur as well.

Prevention of heartworm disease in cats is possible! Given the potential fatal outcome of heartworm disease, I recommend that cats living in this area be on preventative. A commercially available product, Heartgard, is available for cats and can be obtained at your veterinarian's office. This is just like your dog's preventative and should be given on a monthly basis. I recommend year-round preventative in cats as well as dogs. Most cats love Heartgard, although if they are picky and won't eat it, you can soak it in tuna juice to make it more palatable. Felt to be almost 100% protective, it will significantly reduce your cat's probability of getting this potentially fatal disease.

In summary, heartworm disease is not just a dog's problem. This parasite can infect our feline friends and cause significant problems ranging from annoying to life threatening. Cure of the disease is nearly impossible, but prevention may just save your cat's life!



Georgia Veterinary Specialists
Albert Schweitzer Center
455 Abernathy Road NE
Atlanta, GA 30328

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Feline Heartworm Disease

Darlene Blischok, DVM, DACVIM
(Cardiology)

Albert Schweitzer Center

455 Abernathy Road NE
Atlanta, GA 30328

Phone: (404) 459-0903
Fax: (404) 459-6462

www.gvsvet.com