



COUNCIL BLUFFS VETERINARY CLINIC
1229 South 3rd Street
Council Bluffs, Iowa 51503
(712) 323-2147
www.cbvetclinic.com

Heartworm Disease in Dogs

Dirofilaria immitis (“heartworm”) is a parasite that resides in the blood system, with the adults living in the arteries feeding the lungs. The adults produce microfilariae (the 1st stage larvae). When a mosquito feeds on an infected dog, the microfilariae are ingested by the mosquito where they mature into infective 3rd stage larvae over the course of about 2-3 weeks. When the mosquito feeds again, the infective larvae are passed into the other animal where they mature. It takes about 100 days for the parasite to enter the blood system. It takes approximately 6 months for the parasite to mature into an adult and reproduce. All dogs are at risk and preventative therapy is strongly recommended.

Most infected dogs exhibit no clinical signs of infection. Clinical signs may include: cough, exercise intolerance, weight loss, poor appetite, rapid heart rate (tachycardia), fainting spells (often mistaken for a seizure), potbellied appearance due to fluid in the belly, and coughing of blood.

Diagnosis can be made with a heartworm antigen test performed on a sample of the dog’s blood. It takes about 6-7 months following infection before circulating antigen can be detected with this test. If the test comes up positive then a second test will be performed to rule out false positive results. If two positive results are obtained, then treatment is recommended.

American Heartworm Society’s Heartworm Disease Management Protocol:

1. **Day 1:** Physical examination, chest x-rays, & blood work to determine the severity of the disease and treatment protocol.
2. **Day 1:** The heartworm positive dog's blood will be checked for the presence of microfilariae (baby heartworms).
 - a. If microfilariae positive, then the dog will be given glucocorticosteroid and antihistamine injections prior to being given a heartworm preventative by mouth. The dog will be kept in the clinic and observed for at least 8 hours to monitor for shock-type reaction from the dying microfilariae.
 - b. If microfilariae negative, then the dog will be given a heartworm preventative by mouth.
3. **Days 1, 30, 60 ...:** Heartworm prevention will be given by mouth every 30 days to prevent further infection of the dog.
4. **Days 1-28:** Doxycycline (antibiotic) will be given daily for 28 days. The heartworm prevention and doxycycline combination will shorten the life span of the adult heartworms, lessen the damage caused by the worm death, and will inhibit the transmission from infected dog to mosquito to non-infected animal.
5. **Days 1+:** Cage rest is necessary starting at the time of diagnosis and ending 8 weeks after final Immiticide (Merial; Melarsomine) injection. This means **no running, no jumping, no playing, and no using stairs. No exercise.** You should take your dog outside on a leash when your dog needs to go to the bathroom. You should confine your dog to a carrier or kennel at

night or during any time they are not closely supervised to minimize activity level. Exercise combined with the dying worms circulating in the blood system can result in serious complications including fever, difficulty breathing, coughing of blood, collapse, and even *death*.

6. **Days 60, 90, & 91:** Melarsomine is administered intramuscularly (IM) in two doses 24 hours apart in most cases. If the disease is severe then one dose is given IM and then in 1 month two additional doses are given 24 hours apart. This will kill the adult heartworms.
 - a. Possible side effects include: tremors, lethargy (decreased activity level), stumbling, restlessness, panting, local reaction (swelling, redness, and soreness), decreased appetite, fever, vomiting, and diarrhea.
 - b. Your pet will be hospitalized for daily monitoring for 3 days.
7. **Days 60-88 & 91-119:** Prednisone or Prednisolone (glucocorticosteroid) will be given for 28 days to reduce inflammation.
8. **Day 120:** We will test the dog's blood for presence of microfilariae. If positive, then the dog will be given a medication to kill the microfilariae and will be retested in 4 weeks.
9. **Day 271:** We will run a heartworm antigen test on the dog's blood to check for presence of adult heartworms that survived the treatment.
10. Treat the symptoms of heartworm disease such as cough, ascites, and respiratory distress.
11. Heartworm test every year to monitor heartworm infection status.

Heartworm prevention options:

1. Heartworm prevention should be given to all dogs every 30 days without stopping.
2. There are several medications that have been produced that are labeled to prevent heartworm disease. These are the products that we have available at our clinic.
 - a. **Interceptor Plus** (Elanco; contains Milbemycin oxime/Praziquantel) can be given to dogs that are at least 6 weeks old and is a very effective heartworm preventative when given by mouth every 30 days. In addition, this medication also controls hookworm, roundworm, whipworm, and tapeworm infections (intestinal parasites).
 - b. **Heartgard Plus** (Merial; contains Ivermectin/Pyrantel pamoate) can be given to dogs that are at least 6 weeks old and is a very effective heartworm preventative when given by mouth every 30 days. In addition, this medication also controls hookworm and roundworm infections (intestinal parasites).
 - c. **Simparica Trio** (Zoetis; contains Sarolaner/Moxidectin/Pyrantel) can be given to dogs that are at least 8 weeks of age and is a very effective heartworm preventative when given by mouth every 30 days. In addition, this medication also controls hookworm and roundworm infections (intestinal parasites) and is effective against fleas and ticks.

Monitoring:

1. A heartworm antigen test is recommended before prevention is started, for dogs that are at least 1 year of age. This test is then repeated every 12 months for dogs that are on preventative.