

Catawba Animal Clinic
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HEARTWORM DISEASE IN DOGS

What is Heartworm Disease? Heartworm disease is a potentially serious disease of dogs caused by infection with a parasitic worm that lives in the heart and adjacent large blood vessels of the lung. A dog can be infected with one to several hundred adult heartworms, which may grow to a length of 6-14 inches. Infection has spread rapidly throughout the United States in the past two decades, and heartworm disease is considered to be one of the major canine health problems in our country. Although this is primarily a disease of dogs, cats may develop heartworm disease, and the parasite may also infect other animals, such as ferrets, coyotes, foxes and wolves.

LIFE HISTORY: Heartworms are transmitted from one dog to another by several species of mosquitoes. Female heartworms release embryos called microfilariae into the blood stream. A mosquito becomes infected with these microfilariae when it takes a blood meal from an infected dog. During the next 10 to 14 days, the microfilariae grow by molting twice in the mosquito to reach the infective larval stage. When the mosquito feeds again, the larvae enter the dog's body through the bite wound. It takes approximately six months for these larvae to migrate and reach the arteries of the lung, become sexually mature, and begin to release microfilariae into the bloodstream. Since transmission is totally dependent upon mosquitos, the disease is more common and more severe where dogs are exposed to large numbers of infected mosquitos.

PATHOLOGY: Heartworm infection results in extensive damage to the arteries of the lung. The heart, liver and kidneys eventually may be affected. Much of the damage occurs before there are any outward signs of the disease, and the disease is usually more difficult to treat by the time signs are seen. In advanced cases, the prospect of complete recovery is reduced even treatment may kill all the adult worms.

SIGNS OF INFECTION: Some dogs, particularly young dogs with a recently acquired light infection, may not show any of the clinical signs of the disease. A dog which has had heartworm disease for some time may develop a diminished appetite, lose weight, develop a chronic cough, may tire easily when exercising, or even collapse from heart failure during after exercise. Heart failure may be recognized by the development of a "swollen belly" caused by accumulation of fluid in the abdomen. On rare occasions a rapidly fatal condition called "vena caval syndrome" may be encountered in a dog with a massive infection. A large number of heartworms are found at the opening of the valve between the chambers of the right side of

the heart and in the large vein which returns blood to the heart from the body. A dog with this condition will suddenly become listless, weak, and lose its appetite. The urine is dark brown, and the dog is jaundiced and anemic. The function of the liver and kidneys is so severely compromised that, without prompt surgical removal of worms, most of these dogs will die within 24 to 72 hours.

HOW TO DETECT HEARTWORM INFECTION: Your veterinarian may detect the infection by examining a sample of your dog's blood for the presence of circulating microfilariae or by use of an immunologic test for substances (antigens) released by the heartworm. Some dogs harbor the adult worms, but microfilariae do not appear in the blood. These infections are referred to as occult heartworm disease. Radiographs of the chest are also helpful in recognizing occult heartworm infection.

TREATMENT: All but the most advanced cases of heartworm disease usually can be treated successfully. There are three steps to heartworm treatment. Step one is the assessment of the dog's condition. This includes obtaining a thorough history, a physical examination, laboratory tests and possible chest radiographs. Next is the elimination of the adult worms which are the primary cause of the disease. A series of injections is normally given, and the dog hospitalized and carefully monitored for possible adverse reactions. After discharge, the dog's exercise should be strictly limited for a month to minimize the potential for the dead worms to cause severe damage to the lungs. The final step in the treatment process is a follow up test to ensure that all of the heartworms have been eliminated. This is usually carried out a few months after completion of the injection series.

MONTHLY PREVENTIVE MEDICATION: The most popular method of preventing heartworm infection involves the monthly administration of products especially formulated for use in dogs. These are available in tablet and chewable forms and in several sizes to be given according to the dog's weight. Heartworm preventative should be given on a year round basis in our area of the country. Dogs older than six months of age should be tested for heartworms prior to initiating preventive therapy.

TESTING: Catawba Animal Clinic recommends an annual screening test for heartworms, per the American Heartworm Society guidelines.

SUMMARY: Heartworm disease is a complex subject. While this information has attempted to outline the basic facts, the course of heartworm disease may vary among individuals. Your veterinarian can evaluate the special requirements of your dog.