HEARTWORM DISEASE

What causes heartworm disease?
Heartworm disease (dirofilariasis) is a serious and potentially fatal disease in dogs in many parts of the world. It is caused by a worm called Dirofilaria immitis. Heartworms are found in the heart and large blood vessels of infected dogs. The worms are 2.3 to 5.5 cm long and 5 mm wide. One dog may have as little as 1 or as many as 300 adult worms.

How do dogs get heartworm?
The disease is not spread directly from dog to dog but by mosquito bites like malaria. Adult heartworms live in the heart and lung arteries of infected dogs. The female produces millions of young (microfilaria). These microfilaria live in the blood. The microfilaria cannot grow to adulthood in the dog; they require a mosquito for some stages of the heartworm life cycle. The mosquito bites the infected dog and ingests the microfilariae with the blood. The microfilariae develop further in the mosquito. The mosquito then bites another dog to transfer the disease. The infective larvae enter the blood of the new dog and migrate to the heart and adjacent vessels. There they grow to maturity in 2 to 3 months and start reproducing and producing microfilaria, thereby completing the life cycle. It can then take months to years before dogs show outward signs of infection. Long hair does not prevent a dog from getting heartworms.

What do heartworms do to the dog?
Adult worms:
Adult worms cause problems by clogging the heart and major blood vessels leading from the heart. They interfere with the valves in the heart. By clogging the main blood vessels, the blood supply to other organs of the body is reduced leading to malfunction of these organs. The signs of heartworm disease depend on the number of adult worms present, the location of the worms, the length of time the worms have been present, and the degree of damage to the heart, lungs, liver, and kidneys from the adult worms. The most obvious signs are that of heart disease: a soft, dry, chronic cough, shortness of breath, weakness, nervousness, listlessness, and loss of stamina. All of these signs are most noticeable following exercise, when some dogs may even faint. In advanced cases, heart failure may be apparent and the abdomen and legs will swell from fluid accumulation. There may also be evidence of weight loss, poor condition, and anaemia. Severely infected dogs may die suddenly during exercise or excitement.

Microfilariae (Young worms):
Microfilariae circulate throughout the body but remain primarily in the small blood vessels. Because they are as wide as the small vessels, they may block blood flow in these vessels. Generally however the changes produced by the microfilaria are not particularly significant.

How is heartworm infection diagnosed?
Diagnosis of heartworm disease can be made by a 2 minute blood test that can be run while you wait at the hospital. If Positive, extensive further diagnostic procedures are essential to determine if the dog can tolerate heartworm treatment.

Types of test:
Antigen blood test for adult heartworms:
This is the test we performed at this Hospital on a drop of blood. It detects antigens (proteins) produced by adult worms. It will be positive if adult worms are present and even if the dog does not have any microfilaria in the blood; this occurs between 10-50% of the time.

Blood test for microfilariae (older test):
A blood sample is examined under the microscope for the presence of microfilariae. This test is cheap and is still done by some Vets. But problems exist with this test because adult heartworms may be present but may not have developed enough to produce microfilaria. Also the microfilariae are seen in blood in greatest numbers in the summer months and in the evening so may not be picked up at other times. Plus approximately 10-50% of dogs do not test positive even though they have heartworms because of an immunity to this stage of the heartworm.
Also, there is another microfilarial parasite which is fairly common in dogs and on the blood smear, these can be hard to tell from heartworm microfilariae. We do not do test due to these inaccuracies.

Why is a second test sometimes required 6 months later?
The tests are only able to pick up presence of adult worms, so if a test is negative it means there are no adult worms, but it doesn’t detect if earlier stages are present and developing. Therefore a second test in 6 months time is essential to ensure heartworms have not fully developed after the first test. If adult worms are not detected on the 1st test then a heartworm prevention can be started.

How are dogs treated for heartworms?
There is some risk involved in treating dogs with heartworms, although fatalities are rare. The drug that is used contains arsenic. The amount of drug is carefully tailored to kill heartworms without undue risk to the dog. However, dogs with poor liver or kidney function have an increased risk with treatment. In spite of this we are able to treat more than 95% of dogs with heartworms successfully. With dogs that have severe heartworm disease, where the heartworms has been present long enough to cause substantial damage to the heart and other organs, it may be safer to just treat the organ damage rather than risk treatment to kill the worms. Dogs in this condition are not likely to live more than a few weeks or months. Therefore it is important to find out how severe the disease is before treatment. This involves Blood tests and chest Xrays to reveal the condition of the heart, lungs, and vessels. The severity and stage of the disease then determines how best to treat the disease.

What is involved in Treatment?

Treatment to kill adult worms:
The dog is hospitalized to be monitored carefully. A drug to kill adult heartworms is injected over two days. It kills the adult heartworms over a period of about 30 days. Considerable post treatment care is needed over the next month as the adult worms die and are cleared by the body. This is a dangerous period, and it is absolutely essential that the dog be kept quiet and observed for any complications or side effects. If heart disease is present then other adjunct treatment may be started prior to treatment to improve heart function. Dogs with severe heart disease may need lifetime treatment for the failing heart, even after the heartworms have been killed.

Treatment to kill microfilaria:
Approximately one month following treatment to kill the adults, the dog then is given a drug to kill microfilariae. Your dog needs to stay in the hospital for the day. Later a test is performed to determine if microfilariae have been killed.

Response to treatment:
Dog owners are usually pleasantly surprised at the change in their dog following treatment for heartworms, especially if the dog had been showing signs of heartworm disease. The dog has a renewed vigor and vitality, improved appetite, and weight gain.

What is the Cost of Treatment?
As you can imagine with Blood tests, X-rays, Drugs and Hospitalization this can be an expensive disease to treat not to mention the risks involved in doing so. Costs depend on the severity of the disease and the treatment regime required.

Can it be Prevented?
The great news is that the disease is very easily prevented with a simple monthly treatment or alternatively now there is a yearly injection available. Depending on age and any previous heartworm treatment, it may be necessary for your dog to have a Heartworm test BEFORE any prevention is started.

Why can’t I just start on a prevention?
Because if your dog has heartworms it can be dangerous to start some preventions, in severe cases it could be fatal.
If you have been on a preventative and missed some doses please contact us before starting again. If you have missed only a few doses you may be able to start again and then do a blood test later to check on the period that was missed. If you have missed a lot then a test will be needed BEFORE starting again.

PLEASE NOTE – “Allwormers” from the supermarket DO NOT kill or prevent HEARTWORM only intestinal worms.

This is a fairly complicated and insidious disease so if you have any queries about it or its prevention please don’t hesitate to call us.