Hepatozoonosis in Dogs

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Hepatozoon canis is a one-celled parasite that is transmitted by ticks, usually the Brown Dog Tick, *Rhipicephalus sanguineus*. Because of the long time interval between becoming infected and developing illness, this disease is not just seen during the tick season, but all year-round. It is not a very common disease in the United States, but when it does occur it is usually in Texas and the surrounding states. This parasite infects dogs, coyotes, and fox.

What are the signs of disease caused by *H. canis*?

Most infections with *H. canis* do not cause illness. It can cause serious disease, however, in animals with concurrent disease such as ehrlichiosis and babesiosis, or in animals with suppressed immune systems. Signs of disease include fever, loss of weight, loss of appetite, nasal discharge, and weakness of the rear limbs. A mild anemia and bloody diarrhea may also be seen. As the disease progresses, lameness, severe muscle pain, and an inability to rise are often observed. These signs may occur on and off for years. To better understand how *H. canis* causes these signs, let us look at the life cycle.

> *H. canis* also infects animals in the Far East, Middle East, and Africa. It can infect cheetahs, hyenas, lions, and leopards.

What is the life cycle of this tick-borne parasite?

When an infected tick is eaten by a dog, *H. canis* is freed and migrates through the dog's intestine to the liver, spleen, lymph nodes, heart, and muscles. Inside the cells of these organs, the parasite reproduces by dividing and eventually ruptures the cell. The parasite then moves into different cells to continue the process of maturing and rupturing cells. The damage caused by the rupturing of these cells causes the severe muscle pain. Eventually, the more mature forms enter particular white blood cells.

When a tick bites the dog, the tick takes in the white blood cells. *H. canis* reproduces in the tick, and when eaten, the tick will infect another dog. *H. canis* does not move to the salivary glands of the tick, so it is NOT transmitted by a tick bite – only by eating the tick.

How is infection with *H. canis* diagnosed?

A diagnosis of *H. canis* infection is made by microscopically examining the blood and finding the parasite in particular white blood cells called neutrophils. A great increase in the number of this certain type of white blood cell is a characteristic sign of this disease. Finding the parasite in a muscle biopsy is a very reliable method of diagnosing this disease.

In some severely affected dogs, the point at which the muscles attach to the bones may become inflamed. These bony changes may be seen on radiographs (x-rays).

How can infection with *H. canis* be treated and prevented?

There is no effective treatment or vaccine for this disease. Certain drugs such as imidocarb in combination with other drugs have sometimes been successful in lowering the number of organisms in an animal. Using supportive care, such as aspirin, some cases will respond, but they will not be cured.

As with other diseases transmitted by fleas or ticks, flea control and tick control are the foundations of prevention. Products which repel and kill ticks and fleas such as those containing permethrins (Bio Spot-Spot On for Dogs and K9 Advantix) are good choices for dogs. For dogs, tick collars containing the active ingredient amitraz are also used, sometimes in conjunction permethrin-containing products in those areas with high tick infestations.

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