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Giardia

Giardia, beaver fever

Affected Animals:
Dogs and many other animals.

Overview:
Found worldwide, *Giardia* is caused by a protozoan parasite affecting the intestines of both humans and most types of domesticated animals. While dogs have a high rate of *Giardia* infection, few will develop symptoms. *Giardia* usually causes clinical signs only in dogs that have weakened immune systems, in dogs that have been exposed to an abnormally large number of the parasites, and in young puppies.

Giardia is transmitted by cysts containing *Giardia* trophozoites, which are singled-celled organisms shaped like teardrops. Infected dogs pass these parasites into the environment via their feces. Dogs that ingest infected fecal material may contract the disease, the primary symptom of which is diarrhea.

Most dogs treated for *Giardia* will recover quickly. With proper preventive measures, few dogs will have a recurrence. A recently introduced vaccine is available that may aid in the prevention of *Giardia* infection.

Clinical Signs:
The primary sign is diarrhea that is usually pale, malodorous, and steatorrheic, or containing fat. Most puppies and adult dogs infected with *Giardia* suffer no loss of appetite but may lose weight with continued diarrhea.

Symptoms:
Typically, an owner will bring a dog or puppy to the veterinarian because it is having diarrhea. The diarrhea may be pale in color, have an unpleasant smell, and contain fat. Most dogs will continue to eat, but they may lose weight with continued diarrhea.

Description:
Giardia is a protozoan organism that can cause infection in dogs, cats, and humans. The organisms may be found either as trophozoites that swim freely in the intestines or as trophozoites housed in cysts that protect them from the environment and thereby facilitate their transmission. Animals usually contract *Giardia* by coming into contact with the cyst form in the external environment; the feces of infected animals periodically contain these cysts. Animals that ingest the infected feces will take these cysts into their small

intestines, where the trophozoites will excyst, or come out of their protective housing, and infect the animal by multiplying within the intestines. Afterwards, many trophozoites will encyst, or revert to cyst form, before returning to the external environment within the feces. The cysts may survive in the environment and infect other animals for a period of weeks; conversely, trophozoites that have passed into the feces without encysting will die quickly and cannot transmit the disease.

Giardia is commonly found either in dogs that have poorly functioning immune systems or in dogs that have been grouped together in close quarters and hence have been exposed to an unusually large number of the parasites. Consequently, young puppies, older dogs that are sick and debilitated, and dogs that are kept in kennels are susceptible to *Giardia*.

Diagnosis:
Giardia is frequently diagnosed by means of a zinc sulfate fecal flotation examination, in which *Giardia* cysts and trophozoites may be identified under a microscope. If trophozoites are seen moving around on a slide smeared with a mixture of fecal material and saline solution, the canine will test positive for *Giardia*. However, because *Giardia* cysts and trophozoites are not always passed into the feces, a negative result for this examination does not rule out the possibility of *Giardia*. Consequently, for the diagnosis to be definitive, it is necessary for the veterinarian to periodically examine fresh fecal samples from the animal over the course of a few days.

There are other tests for the detection of *Giardia* although these are generally less expeditious and more expensive than a fecal flotation examination. An enzyme-linked immuno-absorbent assay, or ELISA test, may be used to detect *Giardia* antigens in a fecal sample but is available only in certain veterinary hospitals and specialized laboratories. A direct immunofluorescent test may be used to detect the presence of *Giardia* cysts in feces but also requires that a veterinarian send samples to an off-premises laboratory and await the results.

Prognosis:
Giardia is a very treatable condition. Most dogs recover quickly and do not have additional problems. However, if proper preventive steps are not taken, it is common for dogs with a previous history of *Giardia* to become re-infected.

Transmission or Cause:
Dogs contract *Giardia* by swallowing *Giardia* cysts found in the feces of an infected animal. Free-swimming trophozoites cannot infect an animal with *Giardia*.

Treatment:
Treatment of *Giardia* often involves the use of medications such as fenbendazole or metronidazole. Fenbendazole in particular has been shown to be very effective in the treatment of *Giardia* infections. Neither of these medications is suitable for pregnant dogs; there are a number of suitable alternative treatments available, however, for dogs that are pregnant.

Prevention:

Giardia may be prevented by the strict sanitation of animal living environments using cleaning agents approved for the elimination of the parasite. In kennels and other places that house animals in larger numbers, routine disinfection of the entire facility is critical. Dogs should be bathed in order to eliminate any *Giardia* cysts they may be carrying in their coats. The periodic use of de-worming medications such as fenbendazole may also be effective in preventing the recurrence of *Giardia* infection.

A new vaccine was introduced recently that is reported to aid in the prevention of *Giardia lamblia* infection. The vaccine may be given to healthy dogs as young as eight weeks old. A booster shot is usually given two to three weeks after the initial vaccination and then yearly thereafter.

The vaccine prevents or lessens the signs of infection and the amount of cyst shedding. However, some cyst shedding may occur in vaccinated dogs, so the preventive measures discussed above should be observed.