

GIARDIASIS

About the Diagnosis

Giardiasis (*Giardia* infection, "beaver fever") is an infection caused by a microscopic protozoan organism called *Giardia*. *Giardia* organisms infect the intestines of animals and humans, causing varying degrees of digestive problems, especially diarrhea. These organisms are found all over the world. There are many different kinds or species of *Giardia*. *Giardia* can infect mammals, birds, reptiles, and amphibians.

Giardia has two main stages of development: *Giardia* cysts and *Giardia* trophozoites. The stage of *Giardia* that causes illness is the cyst. Cysts are passed in the feces (stool) of infected animals and humans. These cysts can contaminate the environment. When an animal or a human comes in contact with these cysts in such a way as to allow them to enter the digestive system (for example, drinking contaminated water), *Giardia* trophozoites emerge from the cysts and infect the intestines of the animal or person. The trophozoites then reproduce in the intestines and afterward enclose themselves in a protective shell, forming new *Giardia* cysts. These cysts are once again passed in the stool (feces) when the animal or person has a bowel movement, completing the life cycle of the *Giardia* organisms. It takes about 1 to 2 weeks for a person or an animal to begin passing (**shedding**) cysts in the stool after becoming infected. Both trophozoites and cysts can be passed in the stool, but only cysts can infect other animals or people. Trophozoites usually die outside the host (animal or person). The protective shell of the cyst allows the *Giardia* organism to survive in the environment for long periods of time.

Several tests are available to screen for giardiasis in pets, but in some cases the diagnosis can be difficult to make because no single test is 100% reliable. Therefore, your veterinarian may need to perform more than one type of test or repeat a particular test to find evidence of giardiasis. Also, if the test results show no evidence of *Giardia* infection (negative results), it is still possible that the animal could have giardiasis if the *Giardia* is only being passed in the stool intermittently. Some veterinarians will treat an animal with medication for giardiasis in the absence of a conclusive result if the symptoms and circumstances make giardiasis a likely possibility. If the symptoms improve after treatment, it is likely that the animal had giardiasis. The animal's fecal (stool) sample can be checked directly for *Giardia* trophozoites under the microscope (direct smear) and giardial proteins (ELISA test and IFA test). A newly developed test called a PCR test may also be available to assist the diagnosis of giardiasis. Fecal samples from the animal can be microscopically examined for cysts using a technique called zinc flotation. It may be necessary to repeat this test at least 3 times over a period of 10 days for increased effectiveness because of intermittent passing of the organism in stool. Rarely, when results are still negative after performing some or all of the available tests discussed above, *Giardia* organisms may ultimately only be found as the source of the problem during more advanced procedures, such as endoscopy or even intestinal surgery.

Living with the Diagnosis

Giardiasis is common in dogs. This infection occurs less frequently in cats. Dogs and cats become infected when they swallow *Giardia* cysts that have been passed in the feces of infected animals; this route of infection is called fecal-oral. Giardiasis occurs primarily in puppies and kittens, animals with weakened immune systems (**immunodeficient**), and animals that live in crowded housing environments such as animal shelters, breeding facilities, kennels, catteries, and so forth where the *Giardia* organisms accumulate in the animals' surroundings. Healthy pets can also be infected.

When they are present, symptoms of giardiasis are centered on the digestive system. Most infected animals seem healthy and do not show any signs of illness (**asymptomatic** carriers). Some animals, especially puppies and kittens, will develop diarrhea. Vomiting sometimes occurs. The diarrhea can be variable in degree, from very mild to severe. It can occur every time that animal has a bowel movement or only occasionally. Sometimes it may go away on its own, with intermittent flare-ups. The diarrhea usually does not contain any blood. If the condition is not properly treated, the diarrhea can continue for a long period of time (i.e., become **chronic**) and lead to the improper processing and digestion of nutrients (**malabsorption**), decreased appetite, and weight loss. The diarrhea may then start to smell very bad and look pale in color; it is usually soft rather than watery. None of these signs of illness is specific to giardiasis. Many other intestinal conditions can cause these same symptoms, which explains the need for *Giardia* testing when these types of symptoms arise.

Humans can also be infected by *Giardia*. People most often become infected by drinking water from contaminated sources or from direct contact with other infected humans. It is not known if dogs and cats can directly transmit *Giardia* to people, but because *Giardia* of the same types have been found to infect humans, dogs, and cats, it is

recommended that giardiasis in cats and dogs be treated as a potentially communicable (**zoonotic**) disease. This means close attention needs to be paid to basic hygiene, such as wearing gloves or washing hands after handling a pet with giardiasis, to reduce the risk of pet-to-human transmission. Any suspicion of human *Giardia* infection should be discussed with a medical doctor.

TREATMENT

Pet: *Giardia* infection is fairly easily treated with one of several available drugs. Most are safe, but some treatments have caused mild to severe side effects in some dogs and cats. Tell your veterinarian if your pet is or may be pregnant because some medications should not be used in pregnant animals. Treatment of giardiasis is highly effective in some individuals and only partially so in others. A dog or cat that has been treated for giardiasis could still be infected with *Giardia* because the organism may be quite resistant. Also, reinfection can occur because the cysts can survive in the environment for weeks. Therefore, it is important to follow up with your veterinarian. Immunodeficient animals and animals with other disease conditions can have a harder time clearing the infection. Because dogs and cats infected with *Giardia* can be a source of contamination of the environment and may possibly transmit the infection to people, veterinarians will usually recommend treatment of infected dogs and cats even when these animals are not showing any signs of illness. A vaccine is available, but it is not recommended for general use. It is recommended for use in dogs and cats that do not clear the infection or easily become reinfected and also for animals living in crowded environments (kennels, shelters, etc.). If a pet with giardiasis is having severe diarrhea, hospitalization may be required to administer fluid therapy and prevent dehydration. If the diarrhea is not very severe and the pet is not vomiting, your veterinarian may recommend offering the pet an oral electrolyte supplement to drink in addition to water.

Environment: Thorough cleaning of the immediate environment is important to eliminate or reduce the numbers of cysts. Many common household disinfectants are effective against *Giardia* cysts. Diluted bleach may be used at 1:16 (one part bleach and 16 parts water) or 1:32 (one part bleach and 32 parts water) dilutions. Quaternary ammonium compounds (your veterinarian may be using such products to disinfect the veterinary hospital) are especially effective against *Giardia* cysts. *Giardia* cysts are sensitive to heat (steam and boiling water); sterilization of food and water bowls will facilitate the elimination of *Giardia* cysts. *Giardia* cysts are also susceptible to drying. Therefore, allow areas that are cleaned to dry thoroughly. For cats, also allow the litter pan to dry completely before adding more litter; disposable litter pan liners may also be helpful since they can be completely discarded. Note that all of the disinfectants described above are for surfaces (tables, walls, etc.) and NOT for use directly on the dog or cat, since the products are too corrosive for living tissue.

DOs

- Be sure to give the medication(s) prescribed for your pet exactly as directed.
- Let the veterinarian know if you missed or delayed giving any doses of the prescribed medication(s).
- Watch for signs such as lethargy, weakness, loss of appetite, or other indications of not feeling well when your pet is taking anti-*Giardia* medication, and notify your veterinarian if any of these signs occurs.
- Be sure your pet has access to clean uncontaminated water at all times.
- Use proper hygiene. Wear gloves and wash hands after handling infected pets or their feces.
- Remove the pet's feces from the premises, to be discarded as soon as possible to minimize contamination and reinfection.
- Bathe the animal if there is soiling (fecal contamination) of the hair coat. It may also be helpful to trim the hairs around the anal area to prevent or reduce soiling.
- Have other pets that have had contact with the infected pet or exposure to the pet's feces examined by your veterinarian to determine if treatment is required.
- Have your veterinarian examine your pet and perform a fecal exam at least once per year, even if your pet appears healthy.

DON'Ts

- Do not allow a pet with giardiasis to be around other people, especially children and immunodeficient individuals (e.g., persons undergoing chemotherapy, HIV-positive individuals).
- Do not allow a pet with giardiasis around other animals if possible.
- Do not allow a pet with giardiasis to defecate in recreational areas.
- Do not allow a pet with giardiasis to swim in recreational areas.
- Do not allow a pet with giardiasis to drink untreated water (e.g., from streams, lakes).
- Do not miss follow-up appointments with your veterinarian.

When to Call Your Veterinarian

- If your pet continues to have diarrhea after the initial treatment.
- If your pet develops other digestive disorders (vomiting, not eating, weight loss, abnormal stools).
- If the diarrhea is severe and very watery (this could cause the pet to become dehydrated).
- If the condition is not improving.
- If your pet has a reaction (depression, sluggishness, inactivity, stops eating, vomiting, hives, abnormal behavior, etc.) to the medication(s).
- If you are unable to return for your recheck appointment as scheduled.

Signs to Watch For

- Giardia can cause diarrhea in people; as with cats and dogs, it may become chronic and cause malabsorption that leads to weight loss and on-and-off diarrhea if the problem is not treated. It can also cause liver problems in humans. Concerned persons should contact their physicians (MDs).