

Giardiasis

ABOUT THE DIAGNOSIS

Giardiasis (also called *Giardia* infection or “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; both are too small to be seen with the naked eye and require microscopic identification. The stage of *Giardia* that causes illness is the cyst. Cysts are passed in the feces (excrement, stool) of infected animals and humans. These cysts can contaminate the environment. When an animal or a human comes in contact with these *Giardia* 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 multiply 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, where they can then be taken up by another individual, perpetuating the spread of *Giardia*. It takes about 1 to 2 weeks for a person or an animal to begin passing (**shedding**) cysts in the stool after first taking the cysts in. 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, which explains the widespread existence of giardiasis in nature.

Several tests are available to screen for giardiasis in pets, but in some cases the diagnosis can be difficult to make because *Giardia* cysts are usually shed only intermittently. Therefore, your veterinarian may need to perform more than one type of test or repeat a particular test to confirm giardiasis. 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 and the veterinarian suspects that giardiasis is present but just escaping detection. A positive response is diagnostically useful: 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) or may be analyzed biochemically for giardial proteins (enzyme-linked immunosorbent [ELISA] test and immunofluorescent antibody [IFA] test). A more recently developed test, polymerase chain reaction (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 if an altogether different disorder was suspected, warranting intestinal biopsies.

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 by infected animals; this route of infection is called fecal-oral transmission, and the 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. Still, *Giardia* infection occurs routinely in healthy pets living in home environments with access to the outdoors.

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 caused by giardiasis. 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, and return 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 the same strains of *Giardia* have been found in 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 diarrhea of any cause, and confirmed giardiasis in particular, 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 received a course of treatment for giardiasis could still harbor *Giardia* because the organism may be quite resistant. Also, reinfection can occur because the cysts can survive in the environment for weeks and can be picked up by the same dog or cat who passed them. Therefore, it is important to follow up with your veterinarian. Immunodeficient animals and animals with other disease conditions can have more difficulty

clearing the infection and eliminating symptoms. 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 overt symptoms of illness (for example, treating with antiparasitic drugs based on a finding of *Giardia* on microscopic fecal examination, even if there is no diarrhea). A vaccine is available, but it is not recommended for general use because it reduces cyst shedding in the feces but not infection/acquisition of *Giardia*. It is recommended for use in dogs and cats 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 simply recommend offering the pet an oral electrolyte supplement to drink at home in addition to water.

ENVIRONMENT: Thorough cleaning of the immediate environment is important to reduce or eliminate 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 to kill the *Giardia* cysts. 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, but be sure your cat does not resent them (as some cats do) and begin to eliminate outside the litter box because of the presence of a plastic liner in the box. 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. Ending medication prematurely can allow a chronic *Giardia* infection to persist.
- Let the veterinarian know if you missed or delayed giving any doses of the prescribed medication(s). This is important especially if the symptoms persist because otherwise, the veterinarian may think the diarrhea is caused by something else, steering the treatment plan in the wrong direction.
- Watch for signs such as 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. The medication should not cause such effects, and if you are seeing this kind of symptom, a recheck may be warranted to make sure an uncomplicated *Giardia* infection is really the only health problem.

- Use proper hygiene. Wear gloves and wash hands after handling the feces of infected pets, and avoid contact that can carry *Giardia* to you: when a pet has diarrhea, for example, don't touch your face after touching the pet; wash your hands first. Likewise, don't let a pet who has diarrhea lick your face or hands, because their mouths are often loaded with the germs (like *Giardia*) that are causing the diarrhea.
- 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 and retention of feces on the haircoat.
- Have your veterinarian examine your pet and perform a laboratory-based (microscopic) 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, etc.).
- Do not allow a pet with giardiasis around other animals if possible, until the condition has resolved.
- Do not allow a pet with giardiasis to defecate in recreational areas until the condition has resolved.
- Do not allow a pet with giardiasis to swim in recreational areas until the condition has resolved.
- Avoid allowing a dog to drink untreated water (e.g., from streams, lakes); dogs do this often, and yet this is also a major way that dogs develop giardiasis.
- 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).

Other information that may be useful: "How-To" Client Education Sheet:

- How to Collect a Fecal Sample

Practice Stamp or Name & Address