



Giardiasis

Giardiasis is caused by an intestinal infection of the protozoal organism *Giardia spp.* The organism is found worldwide. The organism has two stages in its lifecycle:

- 1) *Trophozoites* which live in the upper portion of the small intestine
- 2) *Cysts* which are formed by trophozoites as they are carried down towards the large intestine. Cysts leave the host via the feces with as few as 10 cysts being infective and infected individuals shedding up to 900 million cysts in the feces daily. The cysts can survive more than 2 months in cool water and about one month at room temperature. The cysts are susceptible to desiccation (drying), sunlight and freezing.

Infection in humans

Endemic throughout the world the prevalence of giardiasis ranges from 2-4% in industrialized countries to 15% or higher in developing countries. Contaminated drinking water supplies have led to outbreaks in the United States. Regardless of location, both infection and disease are more commonly seen in children.

The primary source of infection in humans is other infected humans who shed cysts in their feces and often contaminate water supplies. The infection is usually mild and self-limiting. Some animals may also serve as a reservoir for human infection. Known outbreaks have occurred from infected beavers contaminating mountain water and from non-human primates infecting zoo personnel. Deer and coyotes are common shedders of the organism. Infection in humans most commonly occurs in children with an impaired immunity. The incubation period (time between infection and the development of symptoms) is 3 - 25 days with the symptoms of diarrhea, bloating and abdominal pain.

Infection in animals

As with humans, the disease is usually asymptomatic and more commonly seen in the young, with prevalence surveys of 20 -35% in young dogs 10 -15% of young cats. Symptoms in dogs and cats are similar to those in infected humans and like in humans symptoms are more commonly seen in the young.

Diagnosis

Diagnosis is confirmed by finding *Giardia* cysts or trophozoites in the microscopic examination of feces. Cysts are often found in formed stool with trophozoites more often being found in diarrheal stools. Special concentration techniques or chemical tests such as ELISA testing can also be performed to confirm infections.

Control and Treatment

Public water supplies should be protected from contamination with feces from humans and animals that may be infected with *Giardia* spp. Water should be boiled in situations of potential exposure and travelers should drink only bottled water. While there is no evidence, that domestic animals are a significant source of infection for humans, dogs and cats infected with *Giardia* should be treated because of the likelihood of contact with children. Metronidazole, febantel and fenbendazole are commonly recommended treatments for giardiasis. Bathing during treatment is also advised to prevent re-infection from ingestion of *Giardia* oocysts during grooming.