

Giardia lamblia



Giardia lamblia

- also called *Giardia intestinalis* and *Giardia duodenalis*
- causes the highly contagious diarrheal disease giardiasis, also known as *Giardia* enteritis
- more prevalent in children than in adults
- the most frequent cause of non-bacterial diarrhea in North America.
- implicated in 25% of the cases of gastrointestinal disease and may be present asymptotically
- overall incidence of infection in the United States is estimated at 2% of the population
- common in child day care centers, especially those in which diapering is done



The Organism

- flagellated protozoan parasite that exists in two forms:
 - immobile cyst
 - outside the body
 - mobile trophozoite
 - inside small intestine
- cyst is hardy, providing protection from various degrees of heat and cold, desiccation, and infection from other organisms
- resistant to conventional water treatment methods such as chlorination
- once the cyst enters the host's small intestine it releases the trophozoite
- after multiple divisions the active form encysts itself and is passed in the feces



Reservoir/Sources

- humans are the main reservoir
- the beaver is a possible reservoir
- other wild and domestic animals
- most frequently associated with the consumption of contaminated water
- outbreaks have been traced to food contamination by infected or infested food handlers



Mode of Transmission

- principal mode of spread is person-to-person transmission via the fecal-to-oral route
 - ingestion of cyst
- swallowing contaminated recreational or drinking water
- eating contaminated food that is not properly cooked
- swallowing *Giardia* cysts picked up from surfaces contaminated with feces from an infected person
- sexually transmitted via anal intercourse

Signs and Symptoms

- usually asymptomatic but can lead to:
 - diarrhea
 - chronic, soft, pale stool
 - acute, explosive, sometimes bloody/mucous
 - steatorrhea
 - presence of excess fat in the stools
 - malabsorption
 - fats and fat-soluble vitamins
 - dehydration
 - abdominal cramps
 - bloating
 - fatigue
 - weight loss



Incubation Period

- median of 7 – 10 days
- usually 3 – 25 days or longer



Diagnosis and Treatment

- traditionally made through identification of cysts or trophozoites in feces
 - to rule out diagnoses at least 3 negative results are needed
- because infection is usually asymptomatic the presence of *Giardia* in the stool or duodenum does not necessarily mean that it is the cause of illness
- tests using ELISA or direct fluorescent antibody methods to detect antigens in the stool are available
- standard medical therapy consists of rehydration with fluids and antibiotic therapy
 - metronidazole is most commonly prescribed

Prevention

- wash hands thoroughly with soap and water after using the toilet and before handling or eating food
- do not swim in public waters if you are experiencing diarrhea
- avoid water that might be contaminated
 - do not swallow recreational water
 - do not drink untreated water from shallow wells, lakes, rivers, springs, ponds, and streams
- water can be made safe by:
 - heating it to a rolling boil for at least 1 minute
 - using a filter that has an absolute pore size of 1 micron or smaller, or one that has been NSF rated for "cyst removal"

