

## Giardia lamblia

Giardia lamblia is a protozoan parasite that infects the small intestine, causing giardiasis. The life cycle of Giardia begins with a cyst that is excreted in the feces of an infected individual. The cyst can survive for weeks to months, and can contaminate food or water sources. In addition to food and water sources, fecal-oral transmission can occur. This is commonly observed in day care centers or mental hospitals, where there may be poor hygiene practices. Once ingested by a host, trophozoites are released in an active state in the small intestine and undergo replication via binary fission. Colonization of the gut results in severe inflammation and villous atrophy, causing reduced absorptive capability. Symptoms of infection include bloating, flatulence and foul-smelling, fatty diarrhea. This condition is usually self-limiting but can cause prolonged symptoms in the immunocompromised. Individuals with lack of IgA are especially prone to recurring Giardia infections and can develop chronic disease. Metronidazole is the current first-line therapy for Giardia infections.



PLAY PICMONIC

### Characteristics

#### Protozoa

##### Propeller-protozoa

Giardia lamblia is a flagellated protozoan parasite. As a protozoan, Giardia is a unicellular eukaryotic organism.

#### Ingestion of Cysts

##### Sisters

Giardia's cycle of life begins as a non-infective cyst that is excreted in the feces of an infected individual. The cyst can survive for weeks to months, and can contaminate food or water sources. Individuals acquire the parasite via ingestion of cysts in the contaminated food or water.

#### Seen in Campers

##### Tent

Giardia infection is common in people that camp in the wilderness and drink from unfiltered water. It is for this reason that Giardia lamblia is the most common protozoan etiology of traveler's diarrhea.

#### Daycare Centers

##### Daycare kids with toys

In addition to ingestion of the cyst from food and water sources, fecal-oral transmission is a common route of contracting Giardiasis. This is commonly observed in day care centers or mental hospitals, where there may be poor hygiene practices.

#### Mental Hospitals

##### Straightjacket

In addition to ingestion of the cyst from food and water sources, fecal-oral transmission can occur. This is commonly observed in mental hospitals, where there may be poor hygiene practices.

#### Infects Small Intestine

##### Small Intestine border

This organism classically infects the small intestines, resulting in severe inflammation and villous atrophy. It is important to note that fats, or lipids, are normally absorbed in the small intestines, and because of intestinal inflammation Giardia infections can cause severe steatorrhea.

## Signs and Symptoms

### Bloating

#### [Bloated-balloon](#)

Bloating is a common symptom in Giardiasis, as a result of excess gas formation. Patients may also complain of abdominal cramping.

### Flatulence

#### [Farting](#)

Flatulence is a common symptom in Giardiasis, and patients can become so bloated with gas that burping or belching can also be elicited.

### Fatty Diarrhea

#### [Bacon-toilet-water](#)

Individuals with Giardiasis have characteristic fatty, foul-smelling stools due to severe inflammation and villous atrophy of the gut. This gastrointestinal inflammation and tissue damage causes poor fat absorption.

## Diagnosis

### Crescent-shaped Protozoa Adjacent to Epithelial Brush Border

#### [Crescents on the Border of bushes](#)

Biopsy of the small intestine in Giardia infections can reveal numerous crescent-shaped protozoa adjacent to the epithelial brush border.

### Predisposed if Low IgA

#### [\(IgA\) Apple-goblin](#)

IgA plays a critical role in mucosal immunity, especially in the gastrointestinal tract. Therefore, individuals with lack of IgA are especially prone to recurring Giardia infections, and can develop chronic disease.

## Treatment

### Metronidazole

#### [Metro-knight](#)

Treatment for Giardia includes metronidazole, which alters oxidative patterns within the protozoa, resulting in death. This is a first-line medication used to treat Giardiasis.