

# Giardiasis

Client Education  
Sheet on Website



DISEASES AND  
DISORDERS

## BASIC INFORMATION



### DEFINITION

*Giardia lamblia* is a flagellate protozoan parasite that can be found in the intestinal tract of humans and most domestic animals. Giardiasis can cause protracted intermittent diarrhea in some individuals but can exist as a latent infection in others.

### EPIDEMIOLOGY

**SPECIES, AGE, SEX:** Can affect humans and most domestic animals. Younger animals may be more susceptible.

**RISK FACTORS:** Immunodeficient adults, young animals, and animals confined in large groups are at increased risk.

**CONTAGION AND ZONOSIS:** *Giardia* isolates do not appear to be highly host specific; zoonosis from dogs and cats to people should be considered possible.

### CLINICAL PRESENTATION

#### HISTORY, CHIEF COMPLAINT

- Most infections produce no clinical signs.
- If diarrhea results, it can be acute and short lived, intermittent, or chronic.
- Steatorrhea or weight loss may be observed.
- Emesis, fever, and anorexia may occur but are not typical.
- Signs consistent with either acute or chronic large bowel diarrhea occur in cats.

**PHYSICAL EXAM FINDINGS:** No specific abnormalities.

### ETIOLOGY AND PATHOPHYSIOLOGY

- The *Giardia* life cycle is direct. Cysts are ingested and excyst in the duodenum, each cyst producing two motile trophozoites that replicate within the lumen of the small intestine. Before being shed in feces, the trophozoite encysts. On excretion, the cysts are infective to another host. Cysts can survive for days to weeks in a cool, moist environment.
- Trophozoites are thought to cause sloughing of intestinal epithelial cells, resulting in blunting of the intestinal villi and subsequent reduction in absorptive surface area causing malabsorption.
- Abnormalities in cellular and humoral immune system likely predispose individuals to clinical infection.
- Immunosuppressive drugs may predispose to clinical infection.

## DIAGNOSIS



### DIFFERENTIAL DIAGNOSIS

- Intestinal parasitism
- Idiopathic inflammatory bowel disease
- Maldigestion secondary to pancreatic exocrine insufficiency
- Neoplastic intestinal disease (i.e., lymphoma)
- Infectious intestinal disease (viral, bacterial, fungal)
- Food intolerance or dietary indiscretion (acute cases)

### INITIAL DATABASE

- Fecal suspension: observation of trophozoites in fresh feces.
  - Feces mixed with a drop of saline and examined microscopically at 40x under a coverslip with the condenser in the lowest position.
  - Positive result is definitive; negative result does not rule out infection.
- Fecal flotation: zinc sulphate concentration technique. Sensitivity is increased by examining two or more fresh fecal samples obtained over 3 to 5 days. If samples are shipped for testing, they should be maintained at 4°C.

### ADVANCED OR CONFIRMATORY TESTING

- Enzyme-linked immunosorbent assay (ELISA) kits to identify fecal *Giardia* antigens. Fresh, frozen, or formalin-preserved feces suitable. Sensitivity of one ELISA is similar to the sensitivity of two or more fecal samples tested using zinc sulfate concentration.
- Direct immunofluorescent testing. This test detects *Giardia* cysts in feces. Feces should be preserved in 10% formalin before being shipped to the laboratory.

## TREATMENT



### THERAPEUTIC GOAL(S)

- Eliminate clinical signs of *Giardia* infection including diarrhea and weight loss
- Eliminate shedding of infective cysts

### ACUTE GENERAL TREATMENT

- Fenbendazole (50 mg/kg PO q 24h for 3 days): 90–100% effective in eliminating cysts in feces of dogs.
- Fenbendazole (25 mg/kg PO q 12h for 7 days) is safe and effective in the cat.
- Metronidazole (15–30 mg/kg PO q 12–24h for 5 to 7 days [dogs]; 10–25 mg/kg PO q 12–24h for 5 to 7 days

[cat]) as second choice. Less effective than fenbendazole.

- *Giardia* vaccination has not been shown to be an effective treatment.

### CHRONIC TREATMENT

- Autoinfection from fecal material adhered to the haircoat or cysts in a moist, cold environment is possible due to short prepatent period (resulting in cysts being infective, including autoinfective, when excreted in the feces).
- Reinfection is probable in catteries and kennels due to environmental contamination.
- Allowing the environment to dry, cleaning contaminated surfaces with disinfectants containing quarternary ammonium, bathing animals, and re-treating before returning to the clean environment are important in preventing reinfection.

### POSSIBLE COMPLICATIONS

- Mild diarrhea is a possible side effect with fenbendazole.
- Albendazole (alternative to fenbendazole): myelosuppression, hepatotoxicity (especially in cats) and suspected teratogen. Not recommended.

## PROGNOSIS AND OUTCOME



- Prognosis variable; many individuals may be cured with prompt diagnosis and appropriate treatment, but recurrent clinical signs due to persistent infection are well documented.
- Because treatment efficacy has been evaluated based on the elimination of cysts from the feces rather than on removal of organisms from the intestinal tract, cure rates are not known.

## PEARLS & CONSIDERATIONS



### COMMENTS

- Empiric fenbendazole treatment is recommended in dogs with diarrhea, to address both *Giardia* and occult whipworm infection as possible underlying causes.
- The *Giardia* vaccine may be effective in reducing fecal shedding of cysts in dogs but is ineffective in prevention of infection. In a study of cats, the vaccine was ineffective for both.