iardiasis

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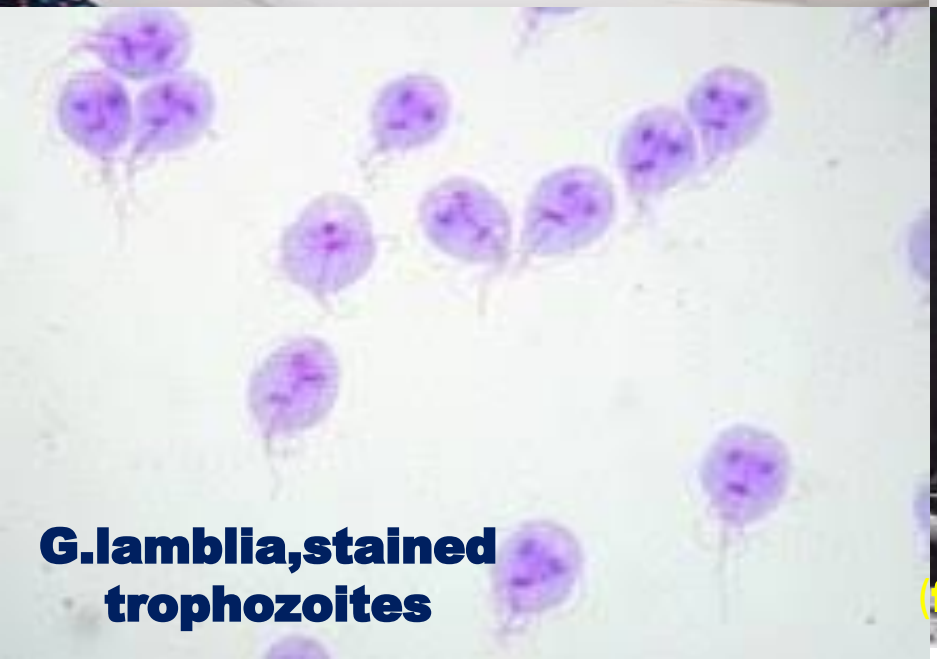
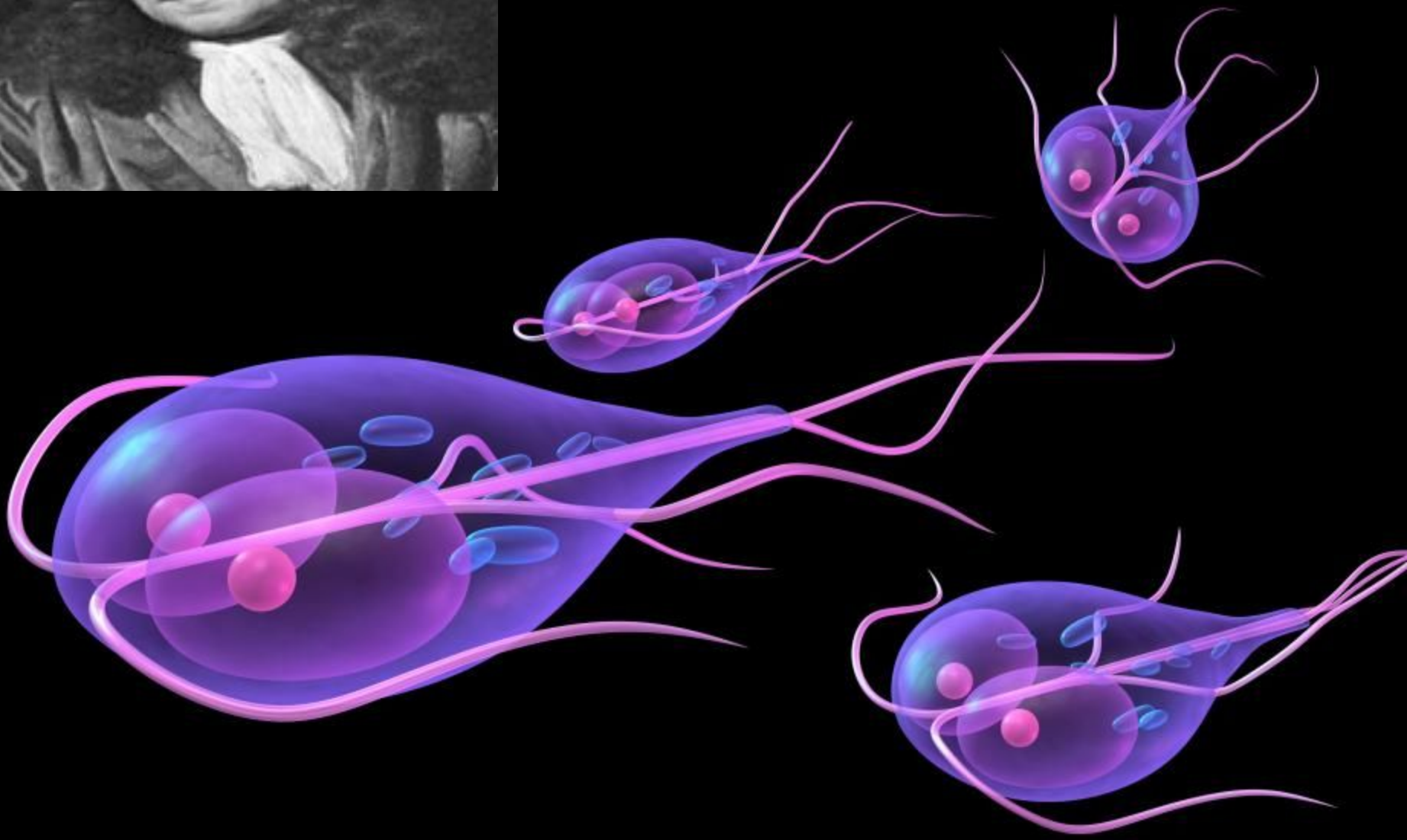


G.lamblia,stained trophozoites

Electron micrograph of G. lamblia trophozoites (feeding stage)

The Giardia microorganism was originally discovered
van Leeuwenhoek. He described the Giardia trophoz
sample of his own stool in 1681

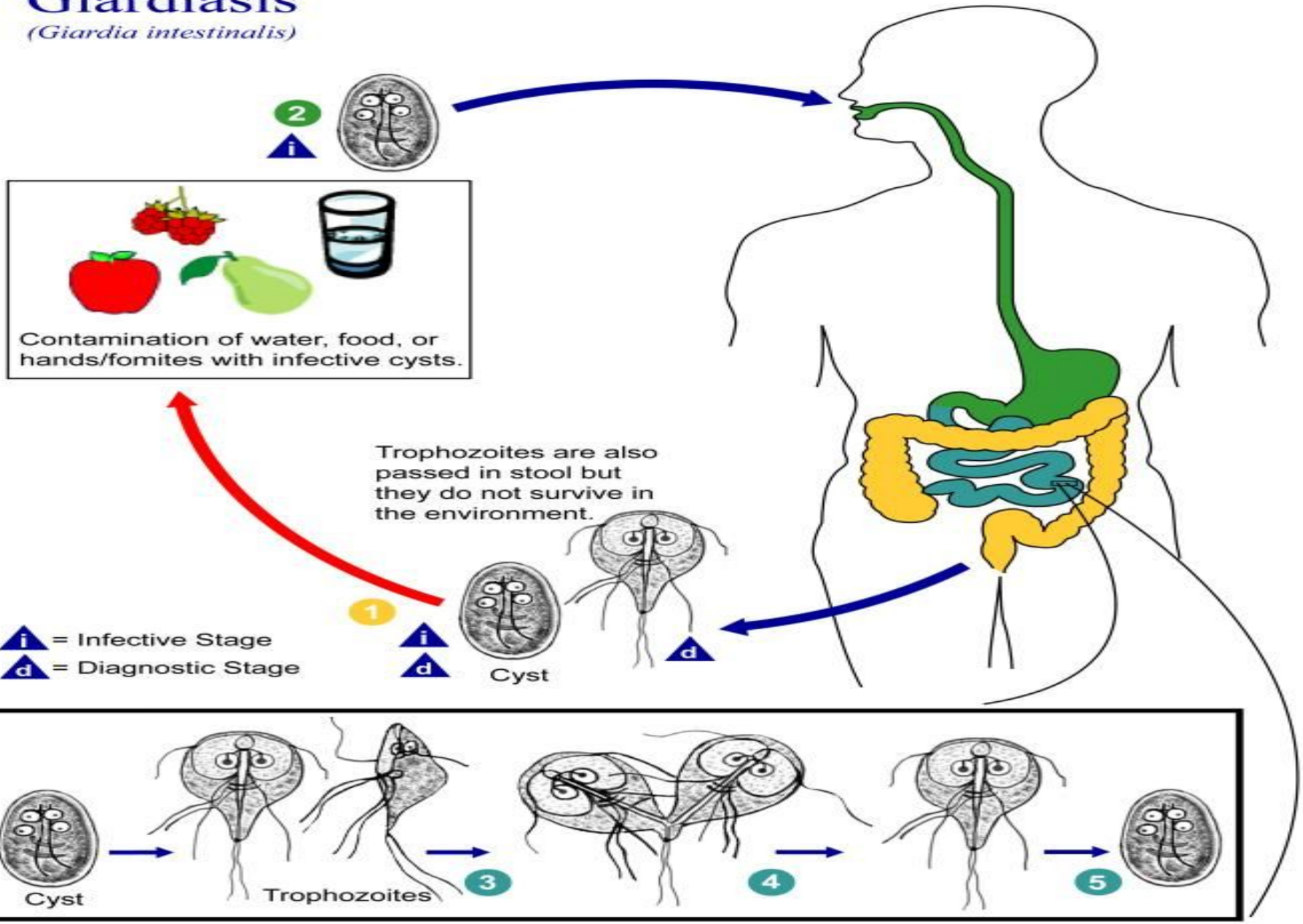


Introduction

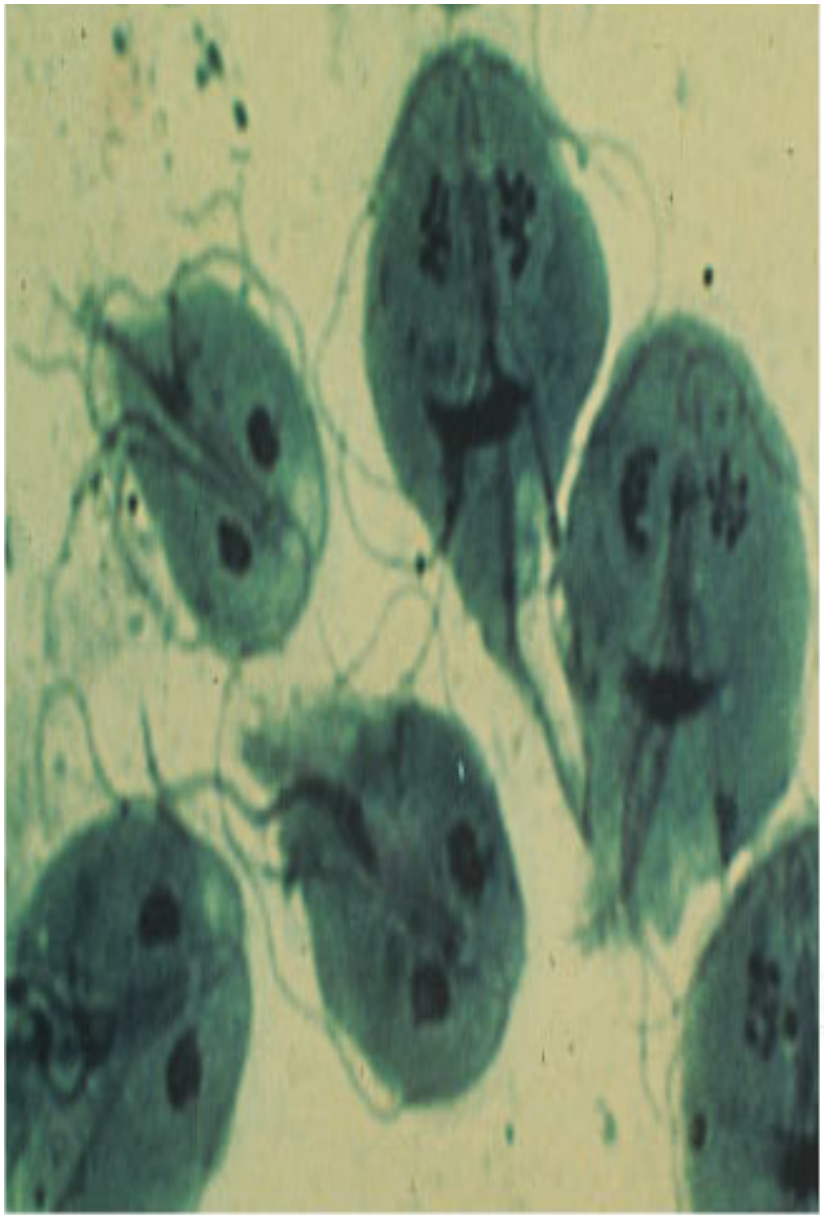
- Giardiasis is a worldwide, especially in areas with poor sanitation and unsafe water, parasitic intestinal infection caused by the protozoan *Giardia lamblia*(also called *G. intestinalis*).
- Transmission usually occurs via the fecal-oral route (mostly from contaminated drinking water but can be transmitted through food and person-to-person contact.
- Giardia live in two states: as active trophozoites in the human body and as infectious cysts surviving in various environments up to 3 months.
- Following ingestion of the cyst, individuals may experience abdominal cramps and frothy, greasy diarrhea.
- Chronic infection leads to malabsorption & growth retardation in children.
- Diagnosis of giardiasis involves analyzing stool for microscopic confirmation of cysts(mostly) & sometime the trophozoites, and possibly immunoassays to detect antigens.
- The disease is most often self-limiting.
- Complications include hypokalemia, malnutrition, growth stunting, cognitive deficits.
- First-line treatment is with metronidazole.

Giardiasis

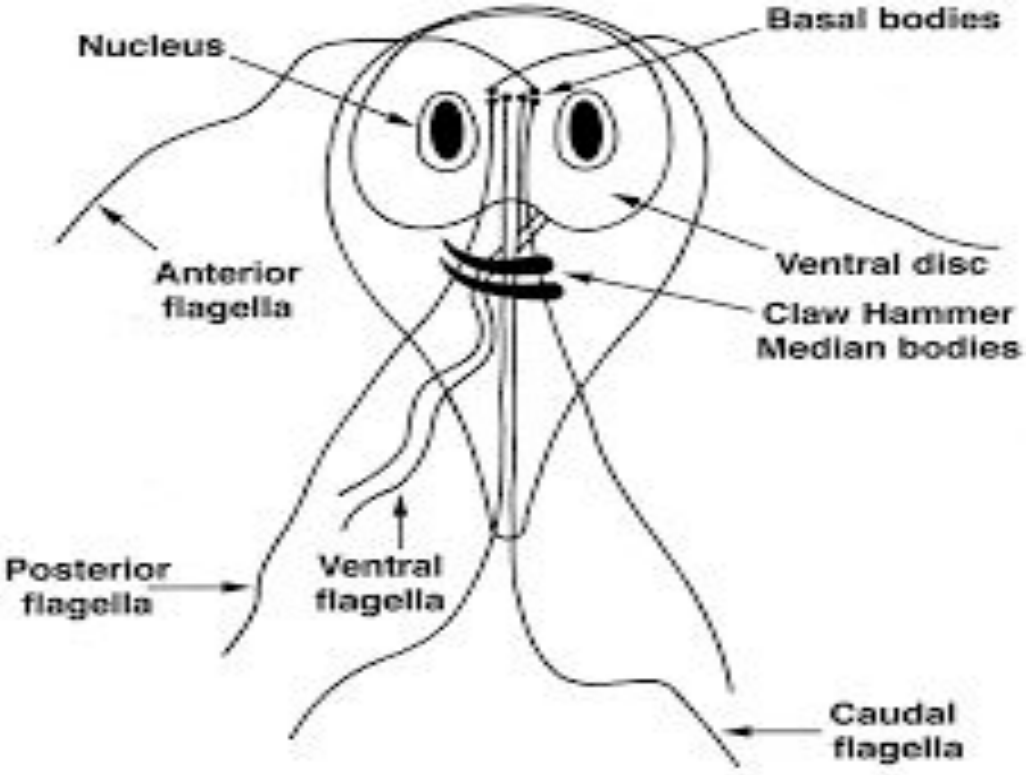
(Giardia intestinalis)



flagellated trophozoites

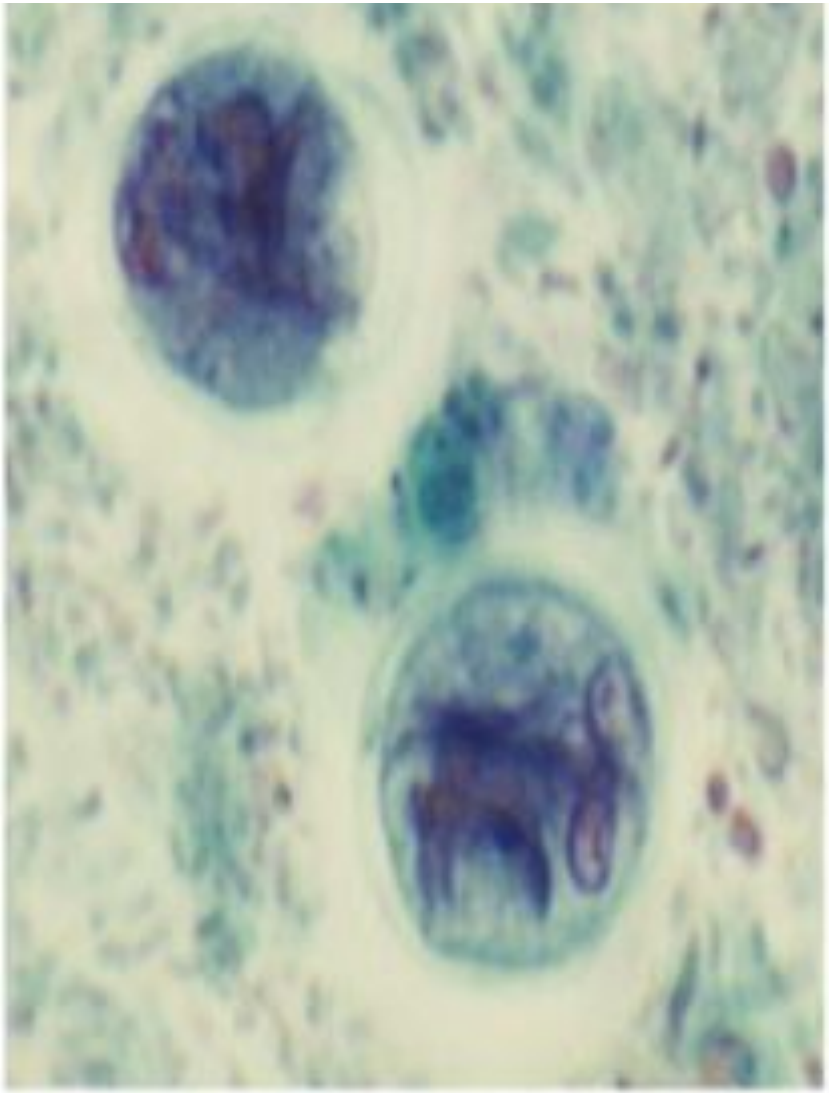


Pear-shaped, (10 to 20 µm long × 5 to 15 µm wide) contain two nuclei and resemble a "face" microscopically. Trophozoites proliferate in the small bowel and may be identified in the liquid stools of symptomatic .patients

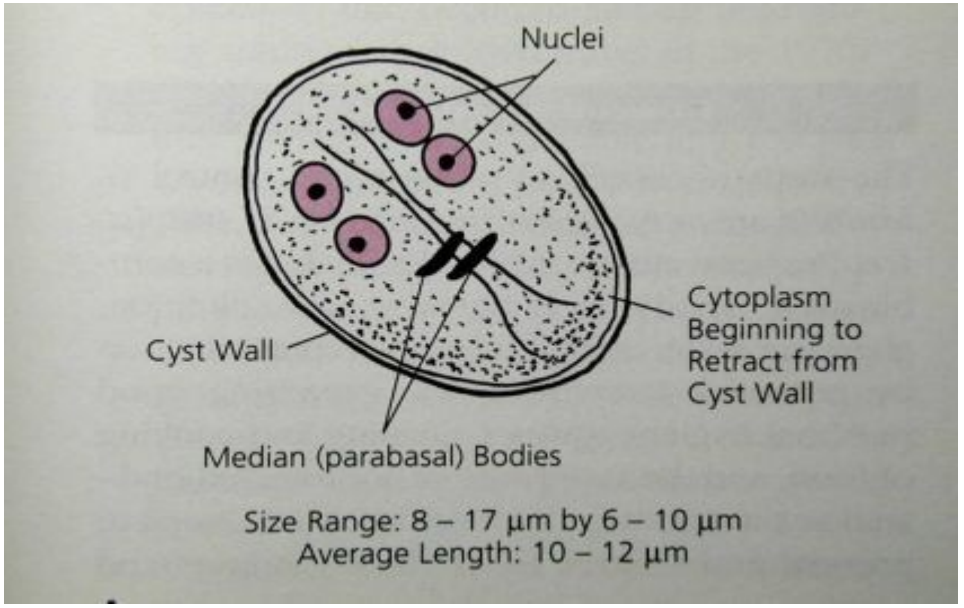


he infective cyst stage

ingestion of as few as 10 -25 op to 100 *G. lamblia* cysts(infective dose)



Encystation in the jejunum yields the infective cyst stage (12 µm long × 7 to 10 µm wide) that is identified in the formed stools of asymptomatic carriers and in the liquid stools of symptomatic patients. The oval cysts are resistant to chlorine and can .survive in water for up to 3 months



pidemiolo

- Distributed worldwide, Giardia is probably the most frequent pathogenic intestinal protozoon in children and adults, and one of the most common non viral causes of diarrhea, afflicting annually .an approximate 280 million individuals
- In developed countries, giardiasis is associated with social and climatic factors and is referred as a re-emerging infectious agent. Some epidemiological studies have shown that its prevalence varies between the population studied and the location, from 2 to 5% on industrialized countries to 20–30% in developing countries , and these changes in prevalence are associated, among others, with the level of .hygienic standard

ansmission

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Transmission of *G. lamblia* infection occurs indirectly by ingestion of contaminated water or, less often food also directly from person to person. Person-to-person, fecal-oral transmission and small-scale water contamination results in endemic infection, whereas epidemic disease is recognized when food or large-scale(Large source of water) drinking water .contamination occurs

The infection is transmitted by. Persons of all age groups are susceptible to this infection, although exclusive breast-feeding may lower the risk of infection in young children. In the developing world, infection is nearly universal by the age of 5.

Pathogenesis

ingestion of the cyst → Excyst into their trophozote form due to the combination of low gastric pH and pancreatic enzyme release in the duodenum

G. lamblia inhabits in the duodenum and upper ileum

↓

Trophozoites are attached to the mucosa surface by sucker, reproduced by binary fission

↓

Histology: shortening of microvilli, elongation of crypts, and damaging the brush border of the absorptive cells

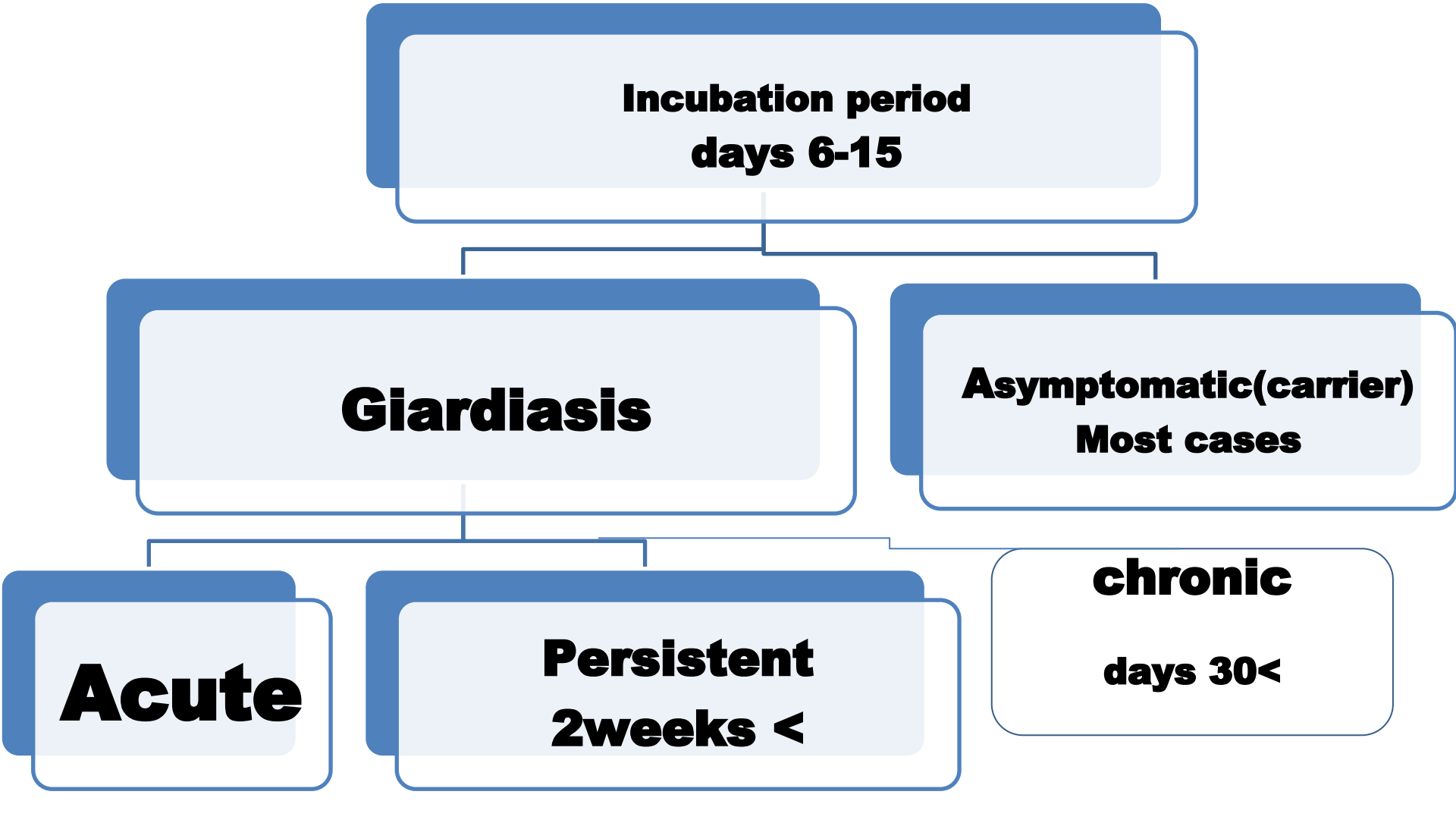
↓

Mechanical blockage of the intestinal mucosa, competition for nutrients, inflammation

↓

Diarrhea, abdominal pain, bloating, nausea, and vomiting

CLINICAL MANIFESTATIONS



Acute features

Diarrhea (At beginning watery then alternate to soft, voluminous, frothy, and greasy stools .The stools tend to .float; offensive & no blood)

.Malaise, weakness

.Abdominal distention

.Flatulence

.Abdominal cramps

.Nausea & sometime vomiting

.Malodorous, greasy stools

.Anorexia

. Sulfuric eructation

Persistent infection

- chronic diarrhea, mild to severe, with ,bulky ,greasy(steatorrhoea) ,frothy Malodorous stools .(offensive)

chronic infection

- Diarrhea may not be a predominant symptom.
- In young children, symptoms may also include weight loss and failure to thrive.
- Approximately 5% to 10% of patients diagnosed with inflammatory bowel syndrome

DIAGNOSIS

Demonstration of the cysts or, rarely, trophozoites-1 of *G. lamblia* in fecal specimens is most often essential for diagnosis.(3 samples on 3 successive days)

Sensitive direct immunofluorescence assay or-2 other serological tests

Use of an "enterotest" (i.e., gelatin capsule-string-3 test) or endoscopy(deudenal or upper jejunal fluid aspirates or biopsy) can improve detection of trophozoites in the upper small bowel, these examinations are rarely necessary for patient .management

But nowadays,duodenal biopsy & aspiration of-4 duodenal fluids via endoscopy had been replaced this test

Treatment

Supportive Care

In patients with mild-to-moderate dehydration, oral rehydration solution (ORS) should be initiated. In patients with moderate-to-severe dehydration or patients who do not tolerate ORS, intravenous (IV) rehydration with .normal saline or lactated Ringer solution may be used

Antimicrobial Therapy

Metronidazole has been the first-line treatment ; however, a recent study has concluded that treatment with tinidazole is superior and may offer a shorter treatment course and fewer .effects

The two drugs recommended to treat women with giardiasis during pregnancy are paromomycin during the first trimester and paromomycin or metronidazole during the last two trimesters. It is reasonable to delay treatment in the first trimester as long as the woman's symptoms are mild comparable efficacy and .decreased adverse effects as well

Adverse effects of metronidazole

Abstinence from alcohol • during metronidazole treatment should be stressed to avoid a disulfiram-like reaction. Adverse effects include reddish-brown urine, headache, nausea, vomiting, metallic taste, and .abdominal pain

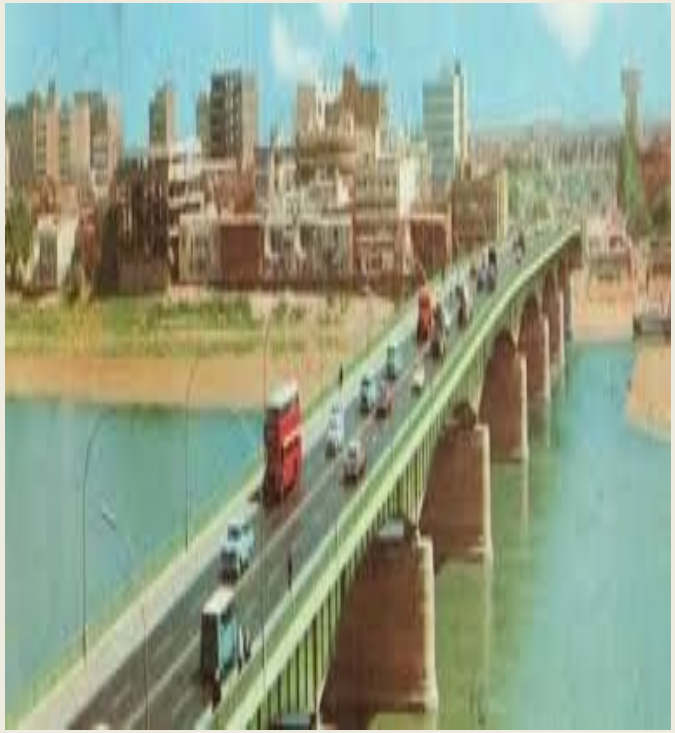
PREVENTION

- Because *G . lamblia* is a zoonosis transmitted by environmentally resistant cysts and does not stimulate complete protective immunity, prevention of infection requires public health measures to ensure the availability of clean water and education to promote excellent personal hygiene to interrupt the infection cycle. Boiling of water for 1 minute or treatment with two to four drops of household bleach or 0.5 mL of a 2% tincture of iodine per liter for at least 60 minutes (overnight if the water is cold) before drinking .renders the parasite non infective

بدر شاكر السياب:

الشمس أجمل في بلادي من سواها ، و الظلام

حتى الظلام - هناك أجمل ، فهو يحتضن العراق

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