



كلية الرشيد الجامعة

قسم تقنيات المختبرات الطبية

الطفيليات الطبية

**FLAGELLATES**

المرحلة الثانية – النظري

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## FLAGELLATES

Flagellates are unicellular microorganisms. Their locomotion is by lashing a tail-like appendage called a flagellum or flagella and reproduction is by simple binary fission.

There are three groups of flagellates:

- 1- Luminal flagellates : *Giardia lamblia*
- 2-Hemoflagellates : Trypanosoma species. Leishmania species.
- 3- Genital flagellates : Trichomonas vaginalis

### 1- Luminal flagellates

#### *Giardia lamblia*

- ✓ It is one of the earliest protozoan parasite to have been recorded.
- ✓ It is the most common protozoan pathogen and is worldwide in distribution.
- ✓ Endemicity is very high in areas with low sanitation, especially tropics and subtropics. Visitors to such places frequently develop traveller's diarrhea caused by giardiasis through contaminated water.

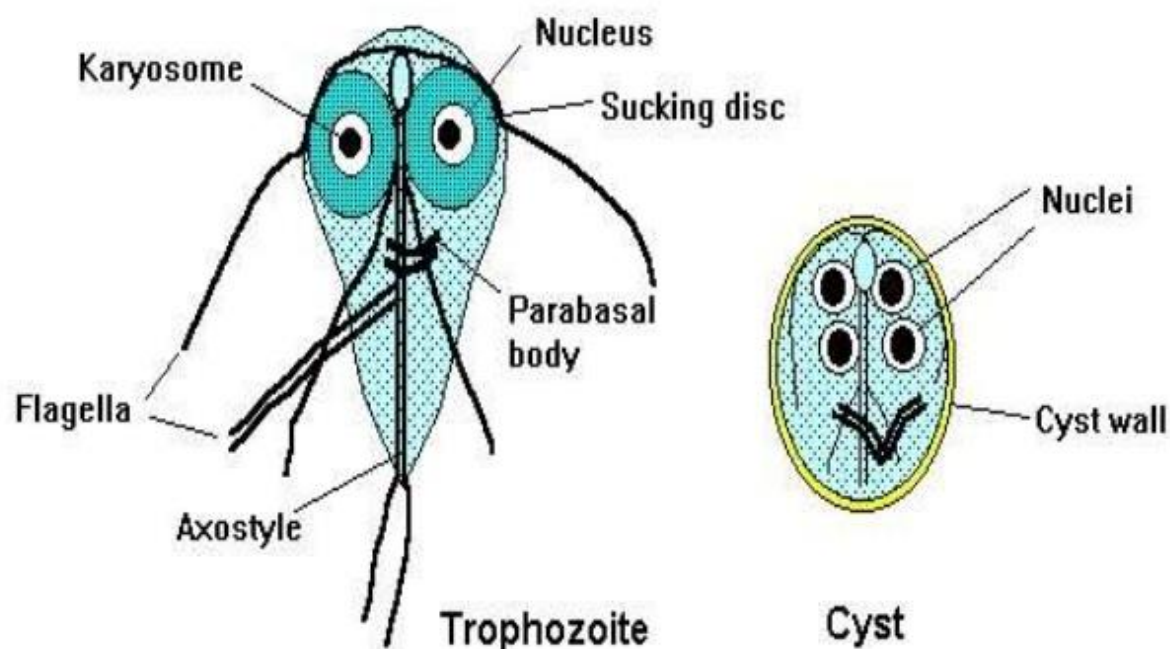
**the life cycle consists of two stages:**

### **A- The trophozoite**

is 9-12  $\mu\text{m}$  long and 5-15 $\mu\text{m}$  wide anteriorly. It is bilaterally symmetrical, pear-shaped with two nuclei (large central karyosome), four pairs of flagella, two axonemes, and a suction disc with which it attaches to the intestinal wall.

### **B-The cyst**

is 8-12 $\mu\text{m}$  long and 7-10 $\mu\text{m}$  wide, thick-walled with four nucleus and several internal fibera. Each cyst gives rise to two trophozoites during excystation in the intestinal tract.

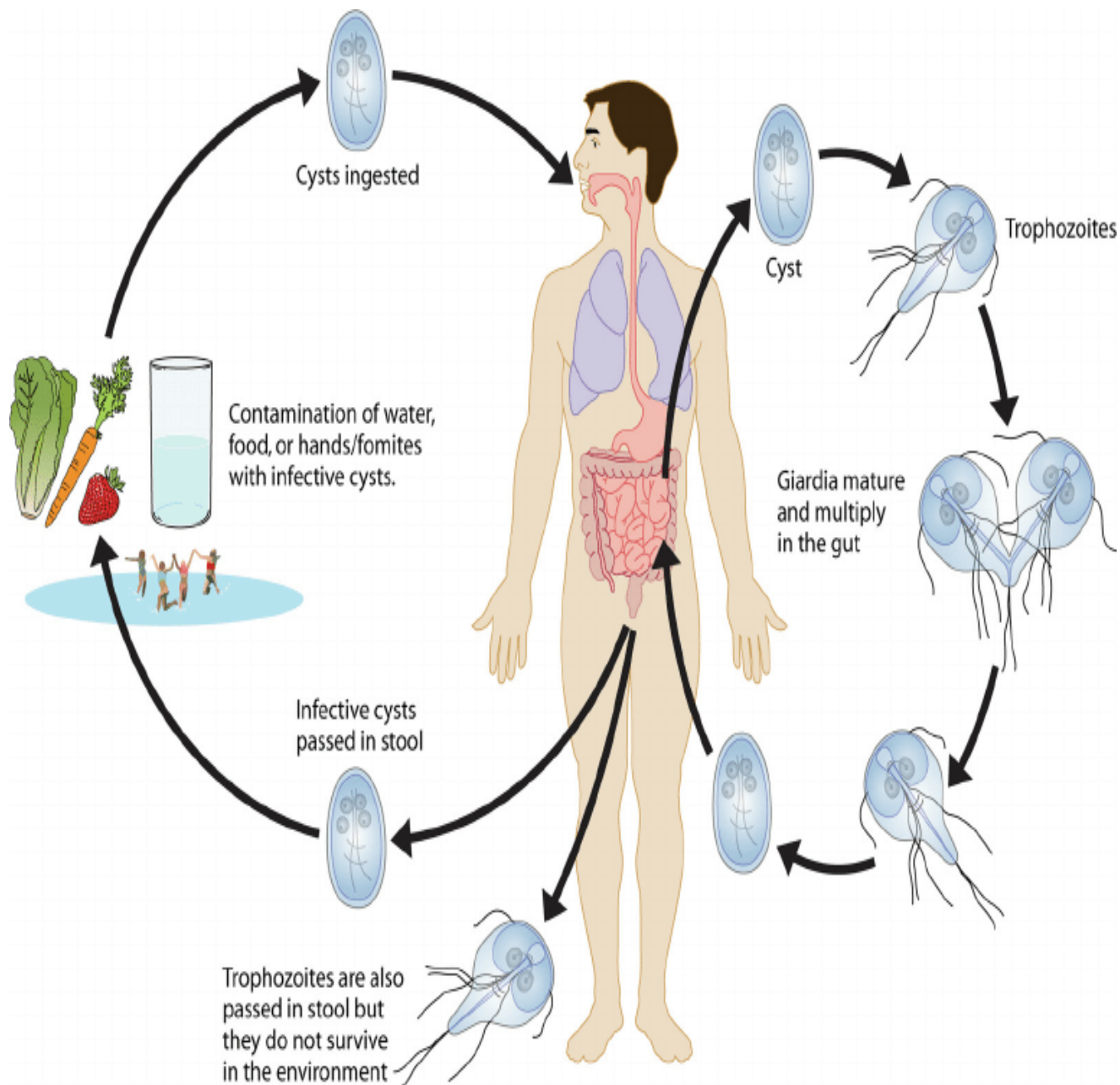


## **Habitat**

G. lamblia lives in the duodenum and upper jejunum and is found in the lumen of the human small intestine.

## **Life Cycle**

Man acquires infection by ingestion of cysts in contaminated water and food. Direct person to person transmission may also occur in children. Within half an hour of ingestion, the cyst hatches out into two trophozoites, which multiply successively by binary fission and colonize in the duodenum. Gastric acid stimulates excystation, with the release of trophozoites in duodenum and jejunum. The trophozoites can attach to the intestinal villi by the ventral sucking discs without penetration of the mucosa lining, but they only feed on the mucous secretions. In symptomatic patients, however, mucosa-lining irritation may cause increased mucous secretion and dehydration. Metastatic spread of disease beyond the GIT is very rare .



## **Pathogenicity**

- Often they are asymptomatic, but in some cases Giardia may lead to mucus diarrhea, fat malabsorption (steatorrhea), and flatulence. The stool contains excess mucus and fat but no blood.
- Children may develop chronic diarrhea, malabsorption of fat, vitamin A, protein, sugars, weight loss.
- Occasionally, Giardia may colonize the gall bladder, causing biliary colic and jaundice.

## **Laboratory Diagnosis**

Stool Examination :Giardiasis can be diagnosed by identification of cysts of Giardia lamblia in the formed stools and the trophozoites and cysts of the parasite in diarrheal stools