

Tikrit University

College of Nursing

Basic Nursing Sciences



Second Year - 2023-2024

Microbiology

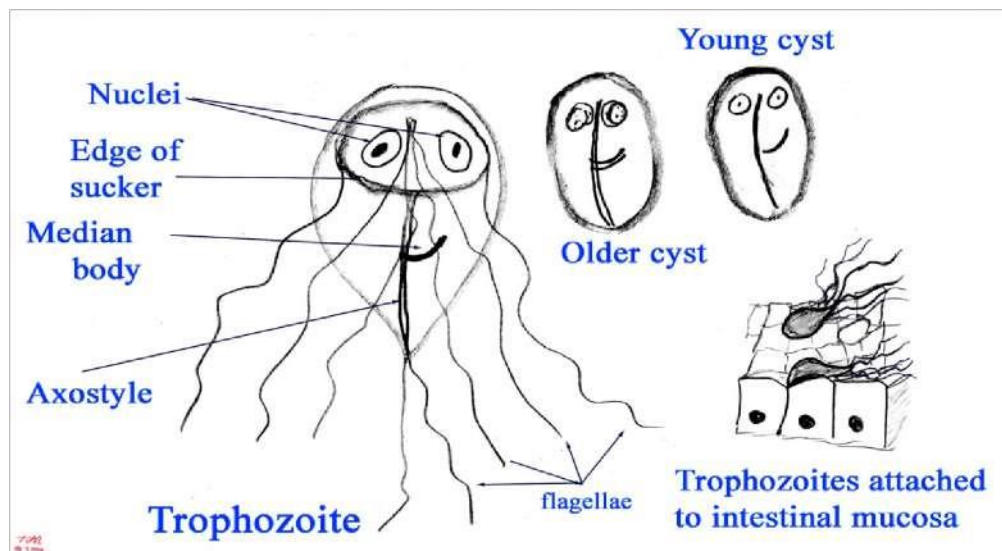
(Giardia lamblia)

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Giardia lamblia

Giardia is a microscopic parasite that causes the diarrheal illness known as giardiasis. Giardia (also known as *Giardia intestinalis*, *Giardia lamblia*, or *Giardia duodenalis*) is found on surfaces or in soil, food, or water that has been contaminated with feces from infected humans or animals.

Giardia cyst is protected by an outer shell that allows it to survive outside the body for long periods of time and makes it tolerant to chlorine disinfection. While the parasite can be spread in different ways, water (drinking water and recreational water) is the most common mode of transmission

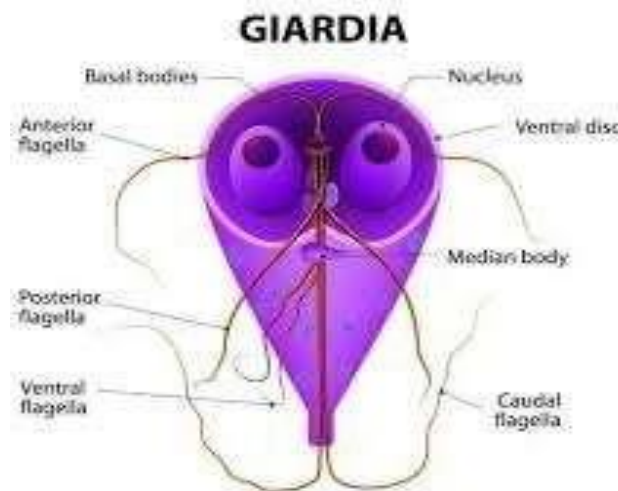


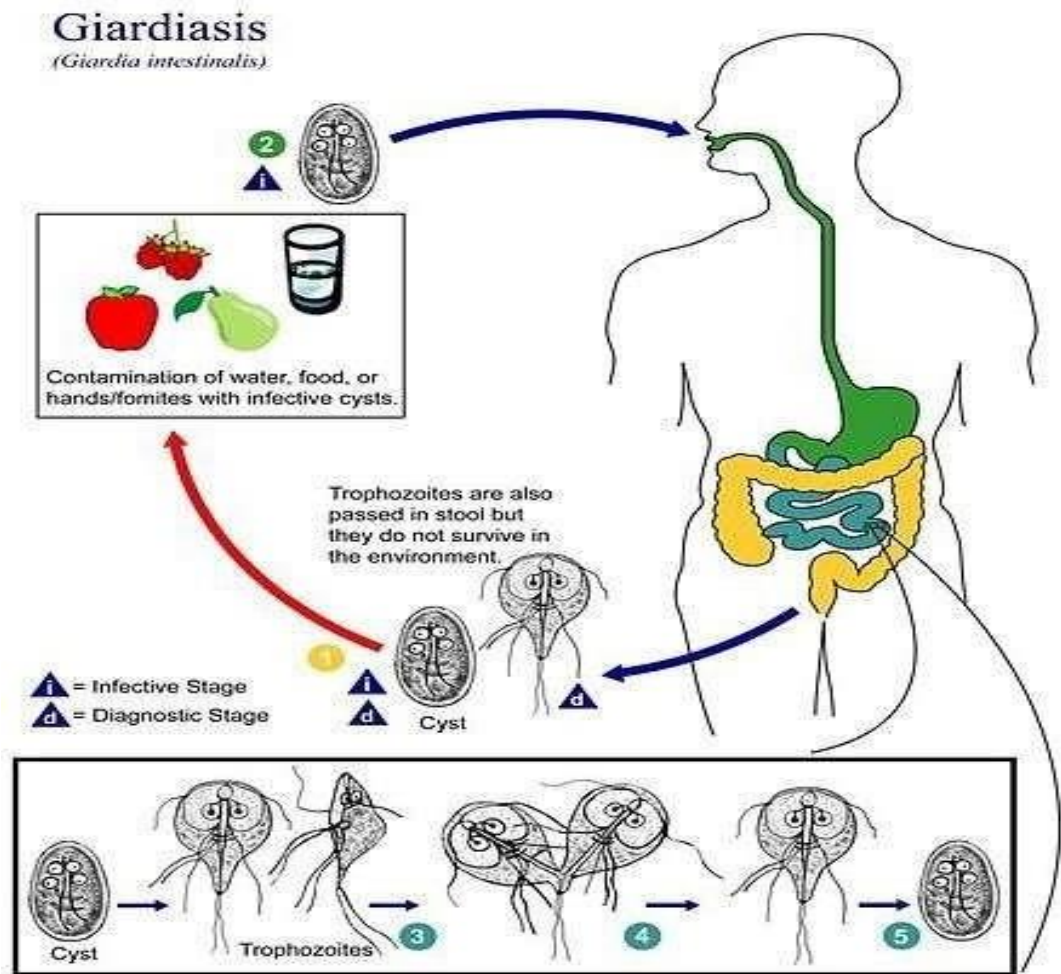
G. lamblia has two morphological stages: the trophozoite and the cyst.

- The trophozoite is pear shaped, with a broad anterior and much attenuated posterior . It is 10-12 μ m long and 5-7 μ m wide,

bilaterally symmetrical, and has two nuclei. It is also relatively flattened, with a large sucking disk on the anterior ventral side, which serves as the parasite's method of attachment to the mucosa of the host. The trophozoite also has two median bodies(it function to support posterior part of parasite and as source of energy) and four pairs of flagella (anterior, caudal, posterior lateral and ventral lateral

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- The *G. lamblia* cyst is egg-shaped, and measures 8-14 μ m by 710 μ m. After encystation, each organelle duplicates, so each cyst contains four nuclei, four median bodies, eight pairs of flagella-although these organelles are not arraigned in any clear pattern. Upon excystation, each cyst produces two trophozoits





- **Transmission:**

- Giardiasis is transmitted via the fecal-oral route with the ingestion of cysts. Primary routes are personal contact and contaminated water and food. The cysts can stay infectious for up to three months.

- Person-to-person contact: Infection may be caused by poor hygiene and most commonly occurs in daycare centers, nursing homes.

Diagnosis

- A trichrome stain of preserved stool is another method used to detect giardia.
- Microscopic examination of the stool for motile trophozoites or for the distinctive oval *G.lamblia* cysts can be performed.
- The entero-test uses a gelatin capsule with an attached thread. One end is attached to the inner aspect of the patient's cheek, and the capsule is swallowed. Later, the thread is withdrawn and shaken in saline to release trophozoites which can be detected with a microscope.
- Immunologic enzyme-linked immunosorbent assay (ELISA) testing is now available. These tests are capable of a 90% detection rate or more.
- Because Giardia lamblia is difficult to detect, this often leads to a delay in diagnosis or misdiagnosis; several tests should be conducted over a one-week period

Prevention

Hand-washing and avoiding potentially contaminated food and untreated water.

Boiling suspect water for one minute is the surest method to make water safe to drink and kill disease-causing microorganisms such as *Giardia lamblia* if in doubt about whether water is infected. Chemical disinfectants or filters may be used.

Treatment

Treatment is not always necessary as the infection usually resolves on its own. However, if the illness is acute or symptoms persist and medications are needed to treat it, a nitroimidazole medication is used such as metronidazole, tinidazole.