

Giardiasis

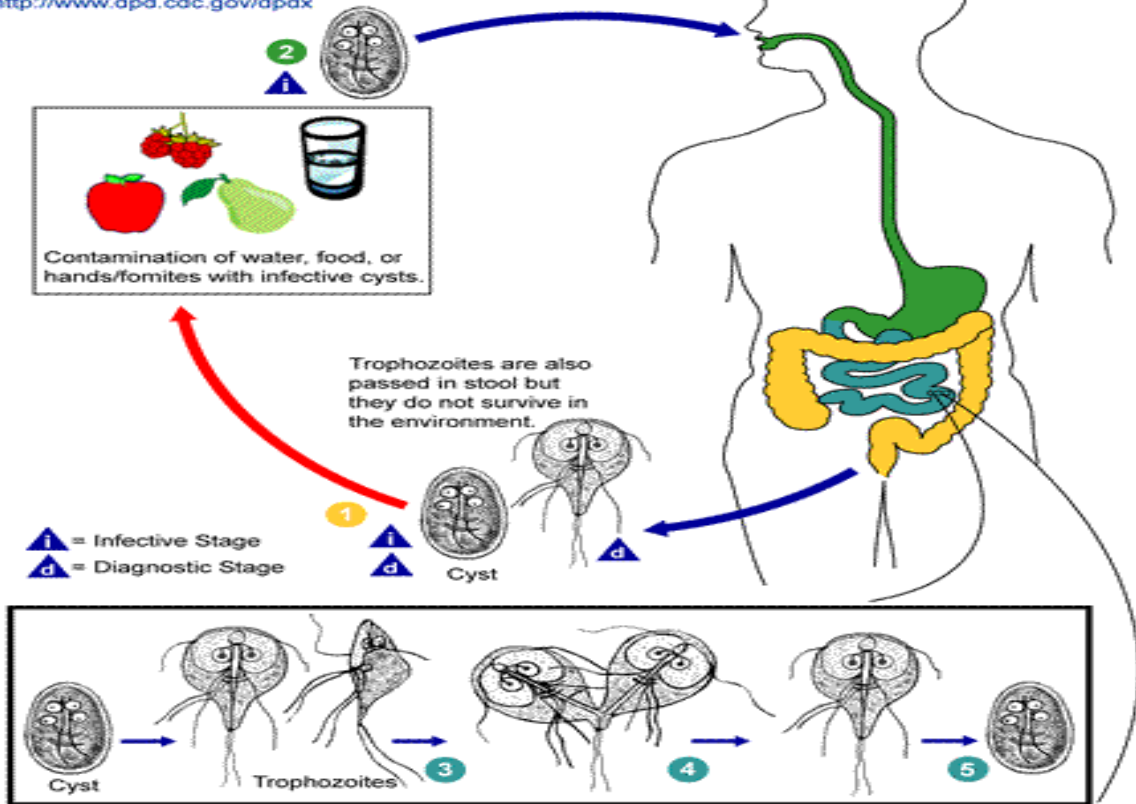
Giardia is a microscopic parasite that causes the diarrheal illness known as giardiasis. *Giardia* (also known as *Giardia intestinalis*, *Giardia lamblia*, or *Giardia duodenalis*) is found in soil, food, or water that has been contaminated with feces from infected humans or animals.

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 (المياه الترفيهية) water) is the most common method of transmission.

Cysts are resistant forms and are responsible for transmission of giardiasis. Both cysts and trophozoites can be found in the feces (diagnostic stages) . The cysts are hardy and can survive several months in cold water. Infection occurs by the ingestion of cysts in contaminated water, food, or by the fecal-oral route (hands or fomites) . In the small intestine, excystation releases trophozoites (each cyst produces two trophozoites) . Trophozoites multiply by longitudinal binary fission, remaining in the lumen of the proximal small bowel where they can be free or attached to the mucosa by a ventral sucking disk . Encystation occurs as the parasites transit toward the colon. The cyst is the stage found most commonly in non diarrheal feces . Because the cysts are infectious when passed in the stool or shortly afterward, person-to-person transmission is possible

Clinical Presentation

The spectrum varies from asymptomatic carriage to severe diarrhea and malabsorption. Acute giardiasis develops after an incubation period of 1 to 14 days (average of 7 days) and usually lasts 1 to 3 weeks. Symptoms include diarrhea, abdominal pain, bloating, nausea, and vomiting. In chronic giardiasis the symptoms are recurrent and malabsorption and debilitation may occur.



Laboratory Diagnosis

Giardiasis is diagnosed by the identification of cysts or / & trophozoites in the feces:

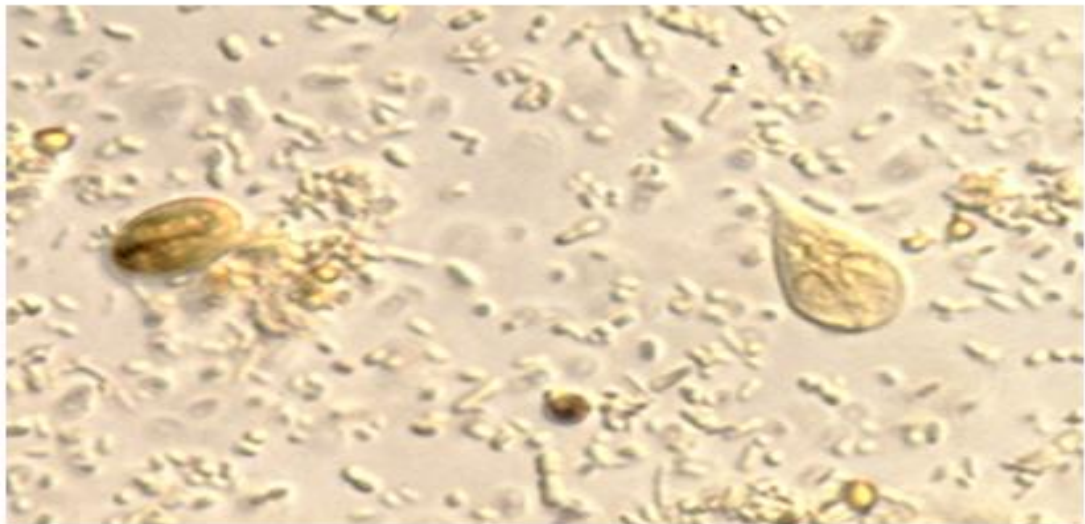
- Microscopic diagnosis using :

1- direct smears , 2- concentration procedures, 3- staining.

Because *Giardia* cysts can be excreted intermittently, multiple stool samples may be collected (i.e., three stool specimens collected on separate days) increase test sensitivity, because variability in the concentration of organisms in the stool can make difficult to diagnose this infection.

- duodenal biopsy (string test) .

- fecal immunoassays (antigen detection tests by enzyme immunoassays), and detection of parasites by immuno-fluorescence that are more sensitive and specific should be used.
- duodenal biopsy (String test or Enterotest): samples of duodenal fluid to demonstrate trophozoites. gelatin capsule containing thread is swallowed by patient & free part of thread is fixed on patient cheek by adhesive tape it remain for 12hrs then draw the thread & exam under microscope to detect trophozoites.
- The molecular testing (e.g., polymerase chain reaction PCR) can be used to identify the subtypes of *Giardia*.



Cyst & trophozoite of *Giardia* in wet mount



Giardia duodenalis cysts are oval to ellipsoid . Mature cysts have 4 nuclei, while immature cysts have two Nuclei and fibrils are visible in both iodine-stained wet mounts and trichrome-stained smears



Giardia duodenalis trophozoites in Giemsa permanent, stained specimens are pear-shaped, 2 large nuclei are usually visible. The sucking disks (used for attaching to the host's mucosal epithelium), median bodies, and (8) flagella may also be seen.

