There are three group of flagellates according to there habitat

- **Luminal Flagellates**

Giardia lambelia,Chilomastic mesnili,Dientamoeba fragiles

- **Genital flagellates**

Trichomonas Spp

- **Hemoflagellates**

Trypanosoma Spp. , Leishmania Spp.

Giardia Lambelia

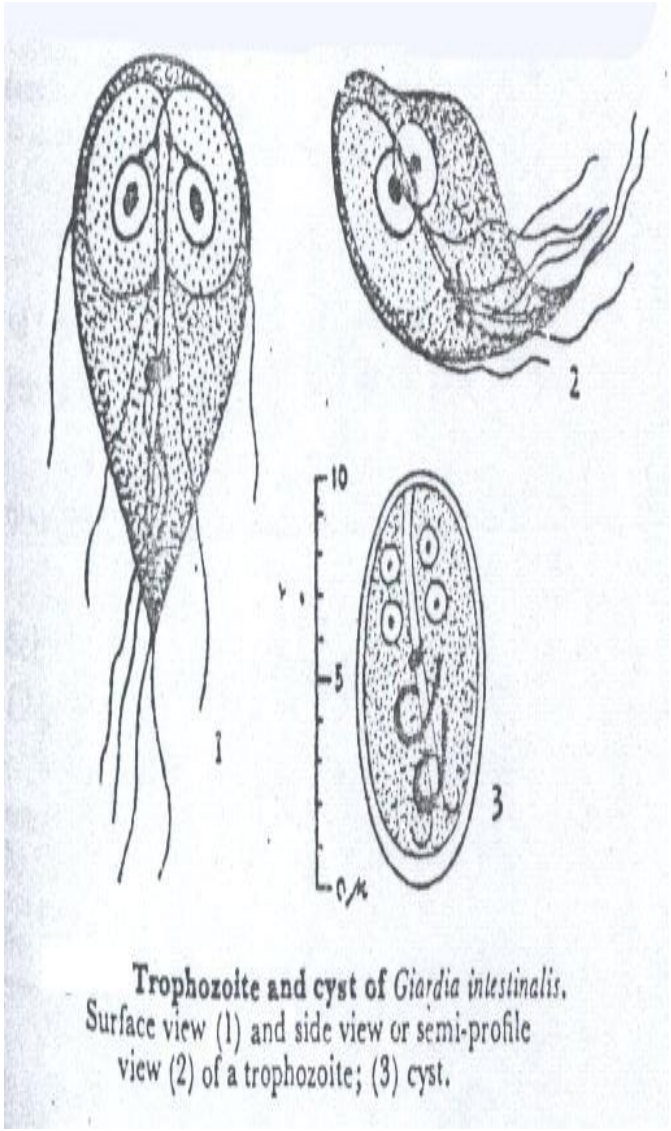
Disease : Giardiasis, G. intestinalis,G.doudenalis)

Habitat : Small intestine (Doudenum,Jejunum)

Morphology : *G. lambelia* **have two stages, Trophozoite,Cyst**

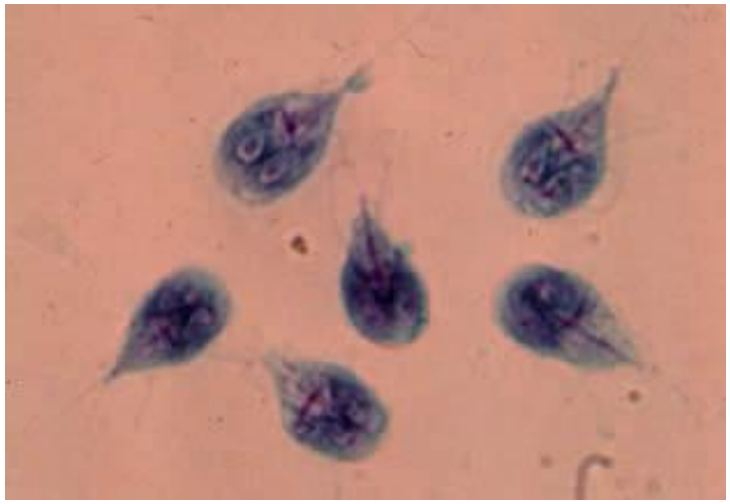
Trophozoite:It is bilaterally symmetrical,Pear shape look like tennis rackets without handle, rounded anteriorly and pointed posterior, with two nuclei (large central karyosome),four pairs flagella for locomotion(anterior,lateral,ventral,posterior), two sucking dick which are found on their ventral surface use for attaching to the mucosa ,two axonemes and two median bodies,falling leave motility.troph,. is responsible for producing disease in human,

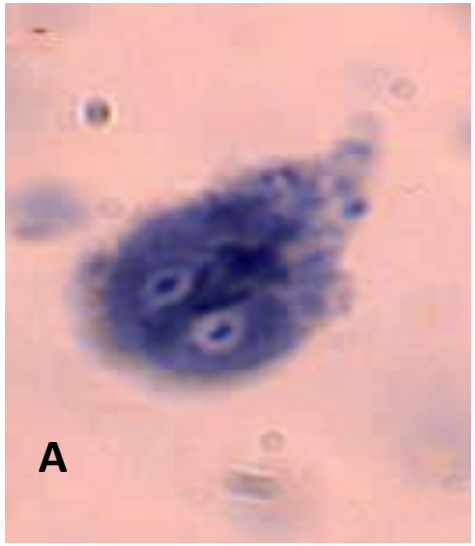
Cyst : oval or ellipsoid in shape ,thicked wall, four nuclei with small karyosome and several four median bodies,resistane form and are responsible for disease transmission.

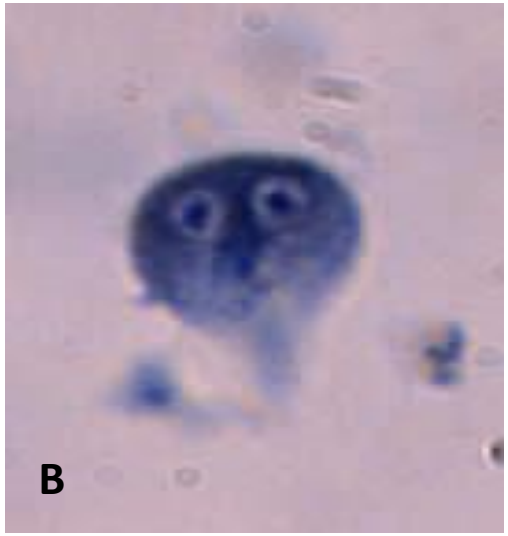


Trophozoite and cyst of *Giardia intestinalis*. Surface view (1) and side view or semi-profile view (2) of a trophozoite; (3) cyst.

Fig : Giardia intestinalis in culture. In preparations the flagellae







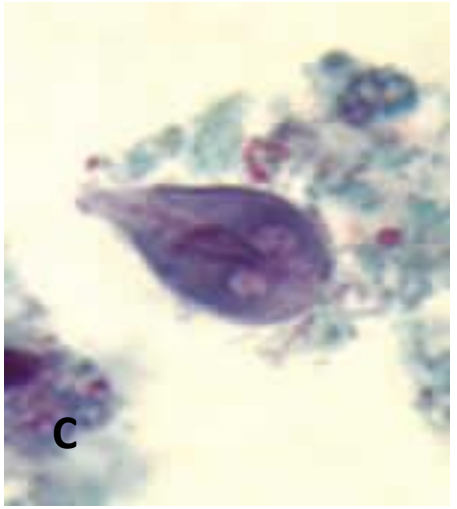


Fig : A, B, C: three trophozoites of Giardia intestinalis. Stained with trichrome (A) and stained with iron hematoxyline (B and C) each cell has two nuclei with a large, central karyosome. (duodenal aspiration smear)

- Life cycle : the infection occur after ingestion the cyst by oral route through water, food,hand or other contact,cyst are able to survive exposure to gastric acid,mature cyst in small intestine release two troph. after excystation, troph. Multiply by binary fission and it have ventral sucker help the parasite to attachment epithelial cell, duodenal mucosa, encystation occurs as the parasite transit toward the colon,both troph. and cyst can be found in feces(diagnostic stage), the cyst remain several months in cool, moist condition, natural surface water,and they also survive in std. concentration of chlorine used in water purification, the parasite may be found in gallbladder and in biliary duct .

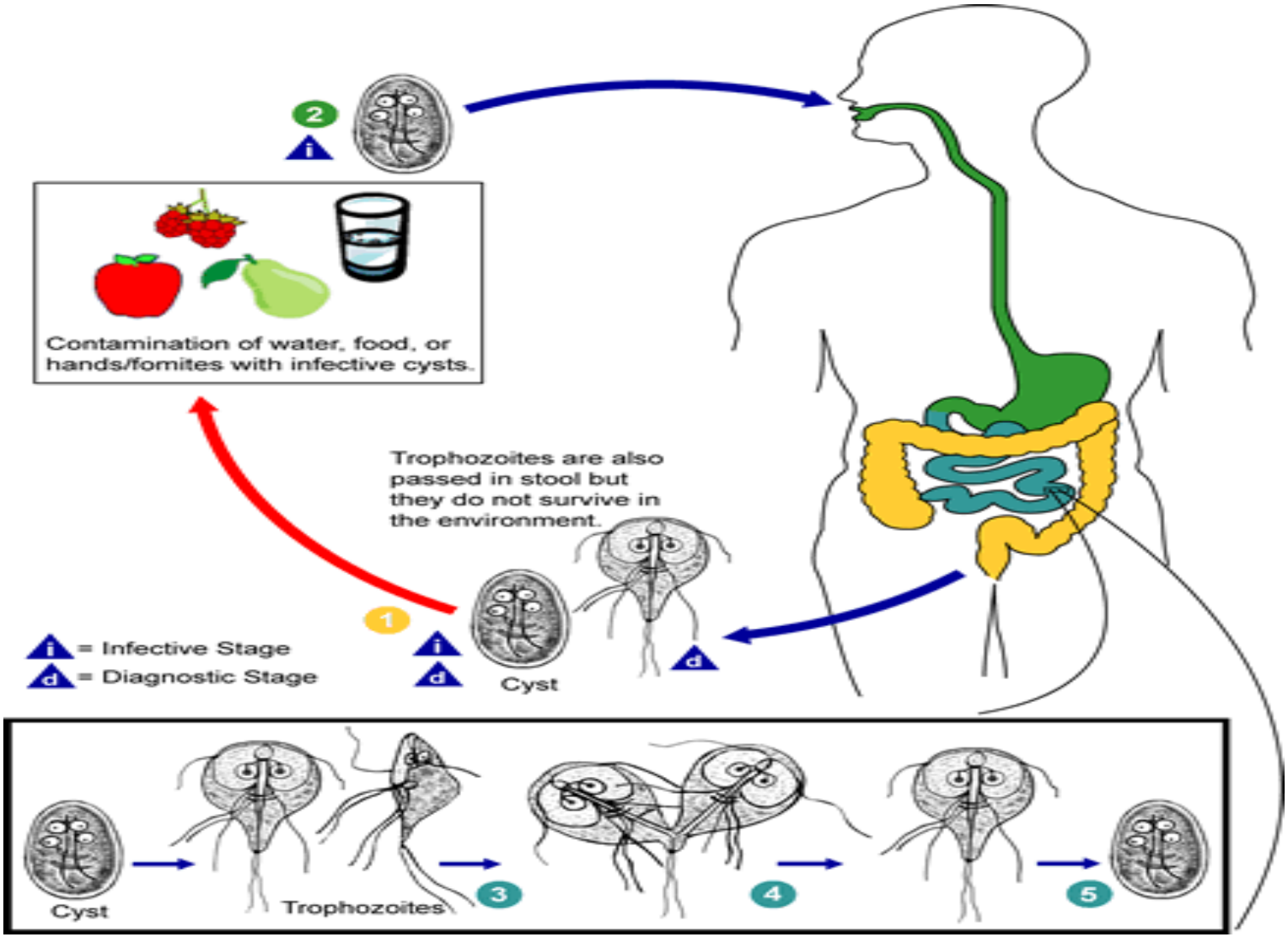


Fig : life cycle of *Giardia lamblia*

- **Pathogenesis and clinical features**

Clinical presentation ranges from asymptomatic to chronic or severe diarrhea and malabsorption,,in asymptomatic patients no abnormal representation, clinical presentation (symptomatic) when the parasite found in small intestine , acute Giardiasis develop after 1 to 14 days or 21 days, included diarrhea(watery),abdominal pain, nausea, vomiting, and anorexia in chronic disease are recurrent and malabsorption.

- The mucosa may be damage by troph. Itself disrupting the epithelial during attachment , release of toxic substance from the parasite may damage the intestinal epithlium ,absorptive activities may also be blocked due to the troph.(balnketing) and causing functional mucosal obstruction.

- **Laboratory Diagnosis**

1- Identification of cyst or troph. In feces by General Stool Examination (Formed stool contain Cysts =chronic infection or asymptomatic)(Liquid stool contain Trophozoite =Acute infection)

2- Troph. are found by examination of fluid from duodenal or jejunal aspirate or by intestinal biopsy.

3- Serological test either detection of antigen (stool)(ELISA,PCR) or detection of antibody (serum)(ELISA, Indirect Immunoflouresent)

- **Treatment**
- The drug of choice is quinacrine hydrochloride or metronidazole

Chilomastic mesnili (nonpathogenic)

The largest flagellate found in man

Habitat : found in small intestine (caecum and colon of human)

Morphology : it exists in two forms Trophozoite and cyst

Trophozoite : pear or shape and measure 10 – 20 Mm in length by 3-10 Mm in width ,one large nucleus with small karyosome ,three flagella that extend from the nucleus at the anterior end of the parasite, oral groove or cytostome can be seen near the nucleus ,move in directional manner.

Cyst : small in size 6 – 10 Mm,lemon shape with anterior hyaline nipple ,have single nucleus with large karyosome

.curved cytostomal fibirils(shepherds crook)

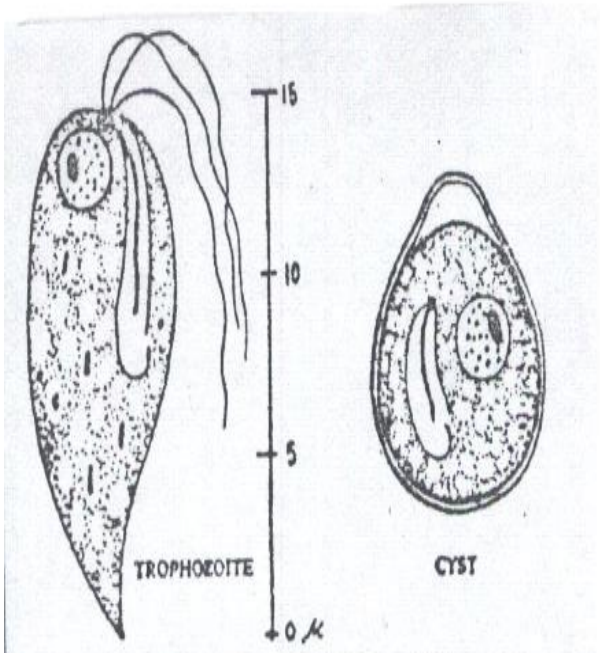
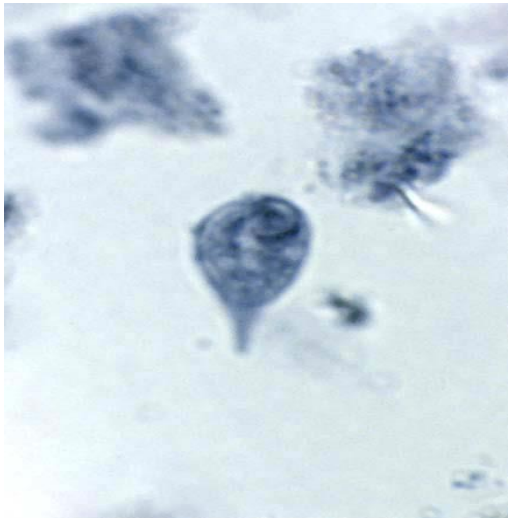


Fig. 52 —Trophozoite and cyst of *C. mesnili*.

Fig : *Chilomastix mesnilli* (Trophozoite), stool smear



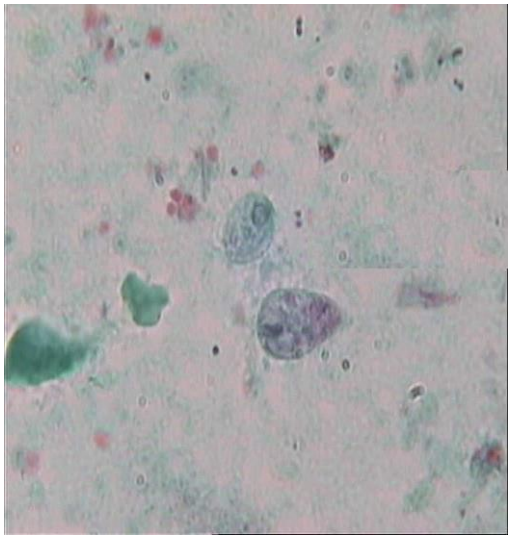
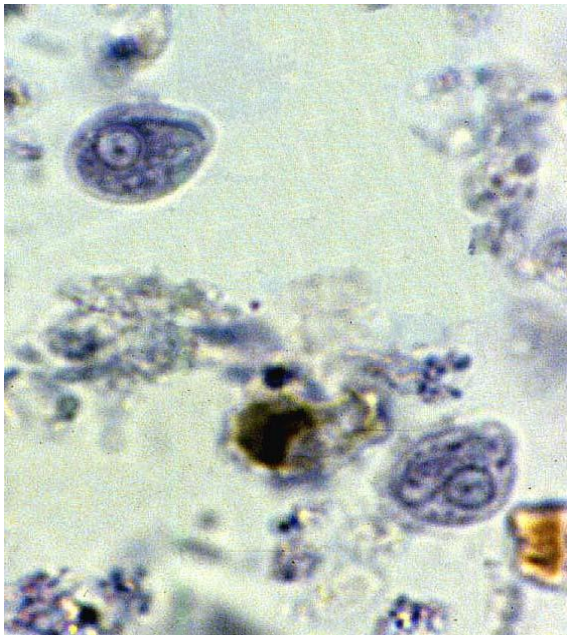


Fig : *Chilomastix mesnilli* (Cyst), stool smear



- **Laboratory Diagnosis :**

  The characteristic lemon shaped cyst in formol-ether concentration, or by general stool examination, motile of Trophozoite can be seen in wet preparation of afresh stool.

Dientamoeba fragilis

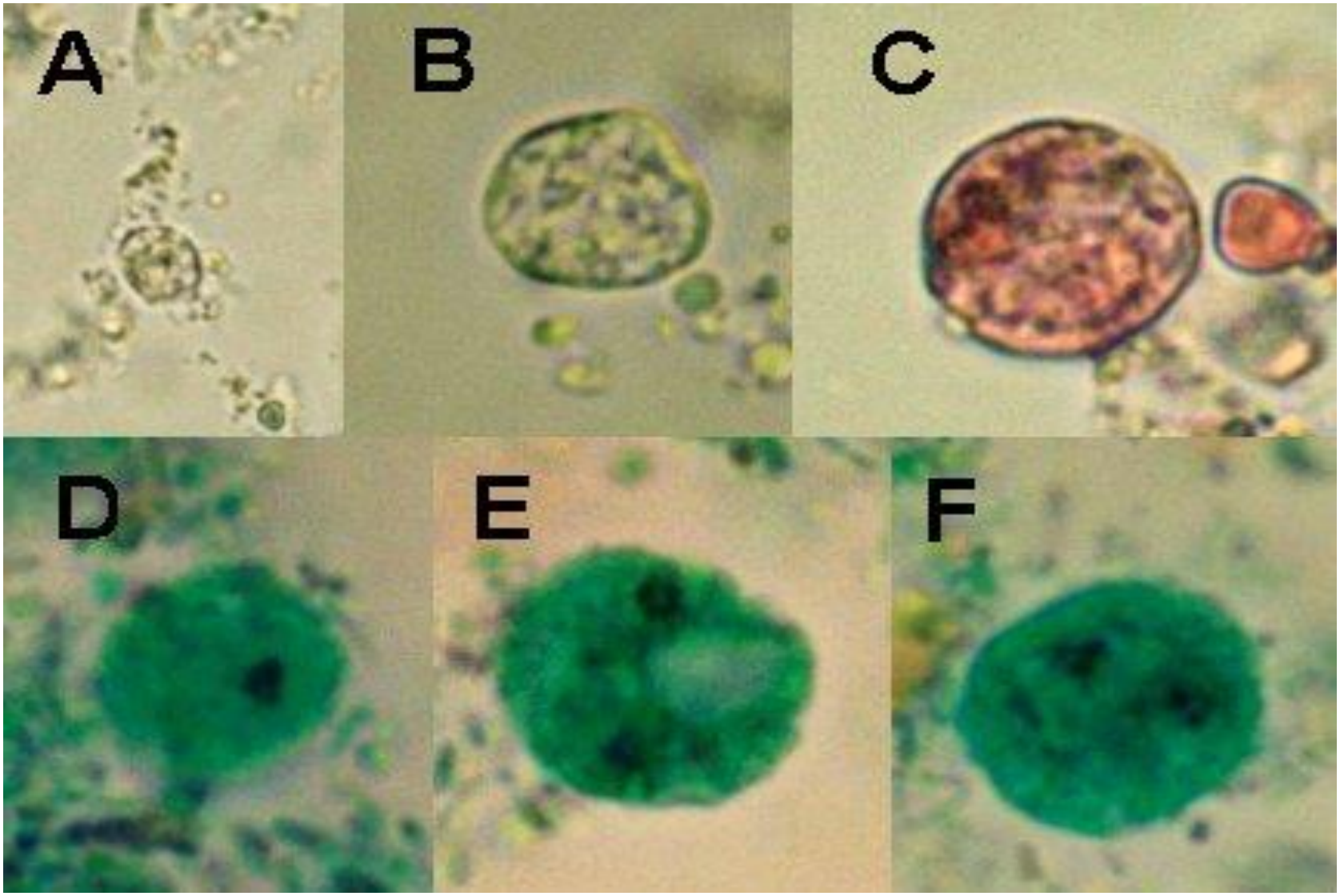
- *Dientamoeba fragilis* was initially classified as an amoeba,but the internal structures of the trophoziote are typical of a flagellate. No cyst stage has been described.
- The life cycle and mode of transmission of *D. fragilis* are not known.
- It has worldwide distribution.
- The transmission is postulated, via helminthes egg such as those of Ascaris and Enterobius species.
- Transmission by faecal- oral routes does occur.

- Trophozoites of *D. fragilis* characteristically have two nuclei
- The species name refers to the fact that the trophozoite stages are fragile - they do not survive long in the stool after leaving the body of the human host.

Clinical Signs

Most infection with *D. fragilis* is asymptomatic, with colonization of the cecum and upper colon. However, some patients may develop symptomatic disease, consisting of abdominal discomfort, flatulence, intermittent diarrhea, anorexia, and weight loss

- Life Cycles
- Human may be infected by eating ,touching and bringing to your mouth anything, such as fingers, that have touched the stool of a person infected with *D. fragilis*.
- By swallowing something, such as water or food, contaminated with *D. fragilis*.
- By touching and bringing to your mouth *D. fragilis* picked up from contaminated surfaces.
- Treatment
- The therapeutic agent of choice for this infection is iodoquinol, with tetracycline and parmomycine


A
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