

*ENTAMOEBEA (E.
HISTOLYTICA AND E. COLI,
E. GINGIVALIS)*

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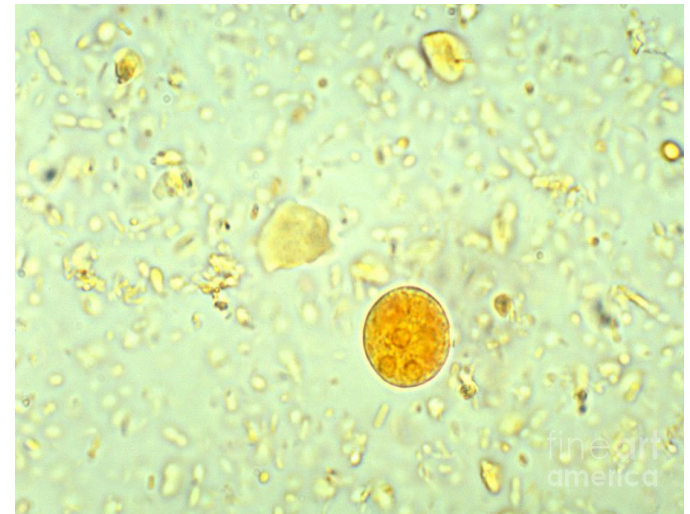
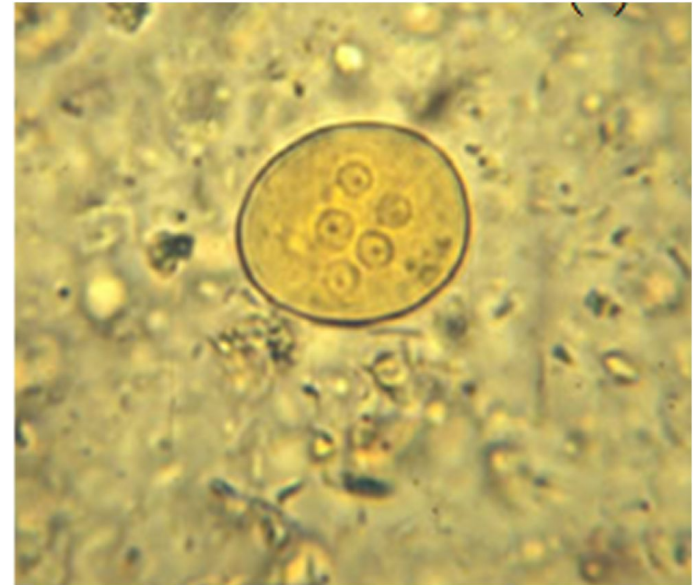
Entamoeba histolytica

- *E. histolytica* is a pathogen or invasive parasite, and noninvasive parasites that are identical morphologically to *E. histolytica* , which live in the human intestinal lumen

- **The trophozoite** of *E. histolytica* can convert to a precyst form with a nucleus (*E. coli* precysts have two nuclei), and this form matures into a tetranucleated cyst as it migrates down and out of the colon. The precyst contains aggregates of ribosomes, called chromatoid bodies, as well as food vacuoles that are extruded as the cell shrinks to become a mature cyst.



- **Cysts** can remain alive outside the host for weeks or months, especially under damp conditions ,but are rapidly destroyed at temperatures under -5°C and over 40°C . Cysts are not invasive, but trophozoites can penetrate the gastrointestinal mucosa . Chromatoid Bodies Present like Elongated bars with bluntly rounded ends.



amebiasis

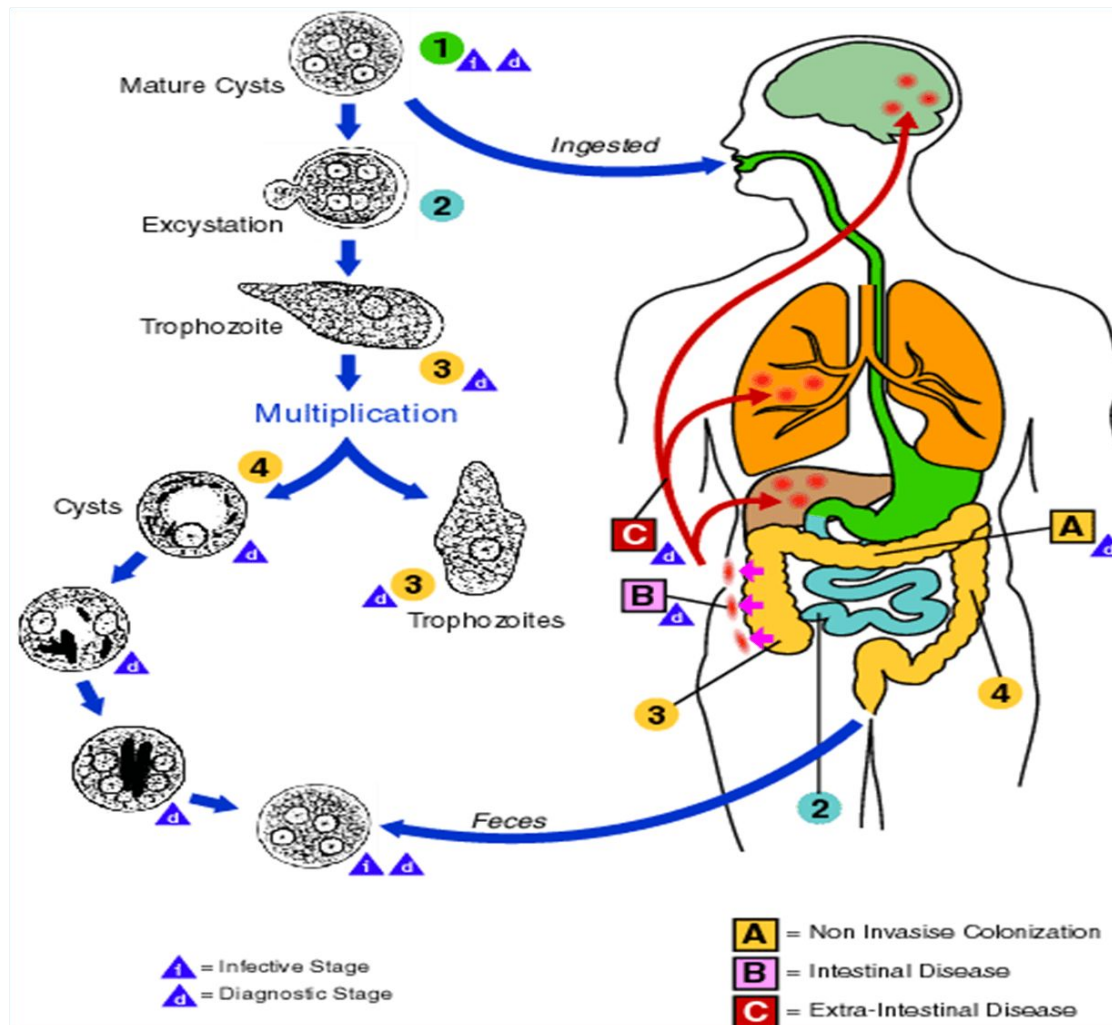
- **What is amebiasis?**
- Amebiasis is a disease caused by infection with a parasitic amoeba that, when symptomatic, can cause dysentery and invasive extraintestinal problems. The cause of amebiasis is mainly the protozoan parasite *Entamoeba histolytica*.

The lifecycle of *Entamoeba histolytica*

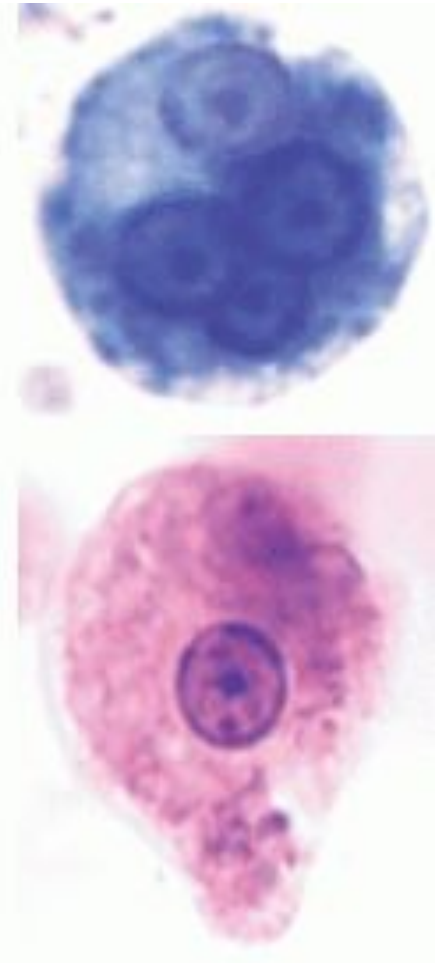
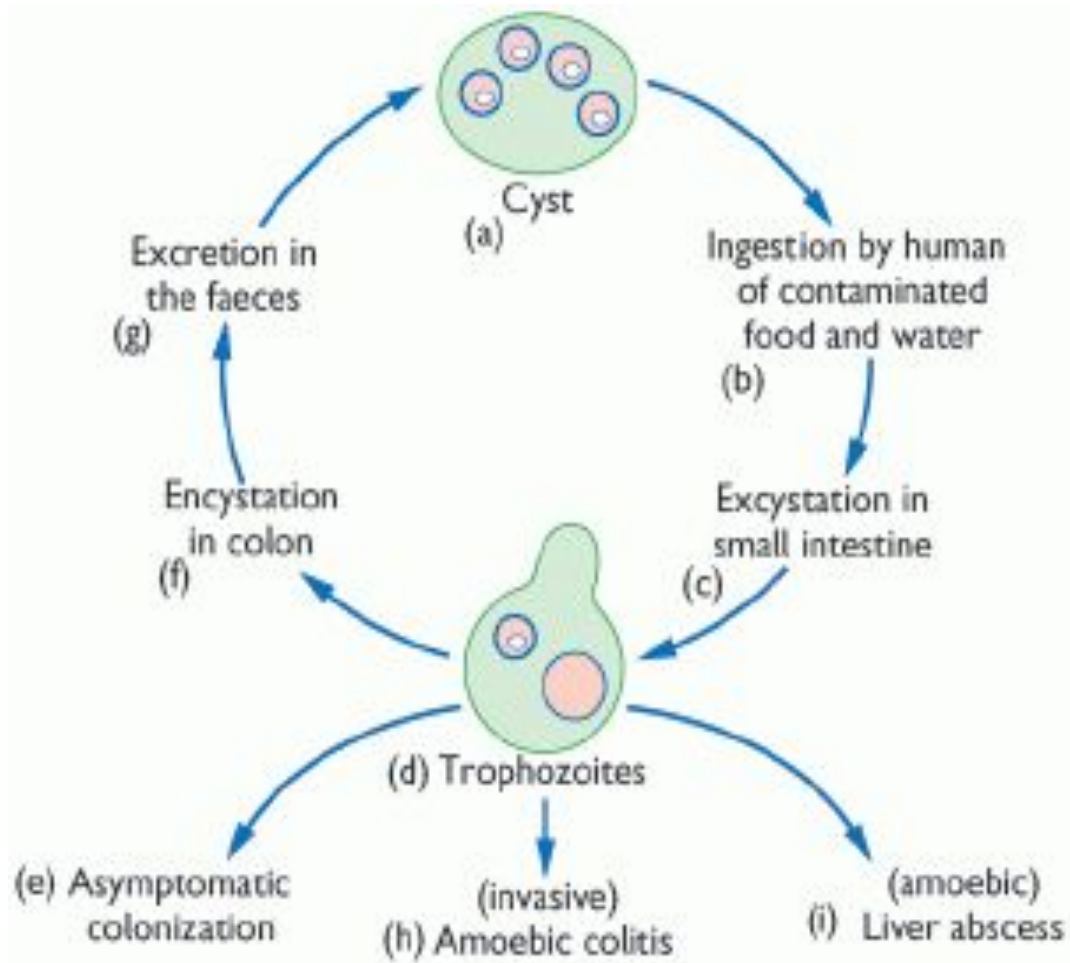
- The lifecycle of *Entamoeba histolytica* is in two stages: cysts and trophozoites. Cysts (10–15 μ m across) typically contain four nuclei . During excystation in the gut lumen, nuclear division is followed by cytoplasmic division, giving rise to eight trophozoites.

- Trophozoites (10–50 μ m across) contain one nucleus with a central karyosome (lower right image). Trophozoites inhabit the caecum and colon. Re-encystation of the trophozoites occurs in the colon, and excretion of cysts in faeces perpetuates the lifecycle.

The lifecycle of *Entamoeba histolytica*



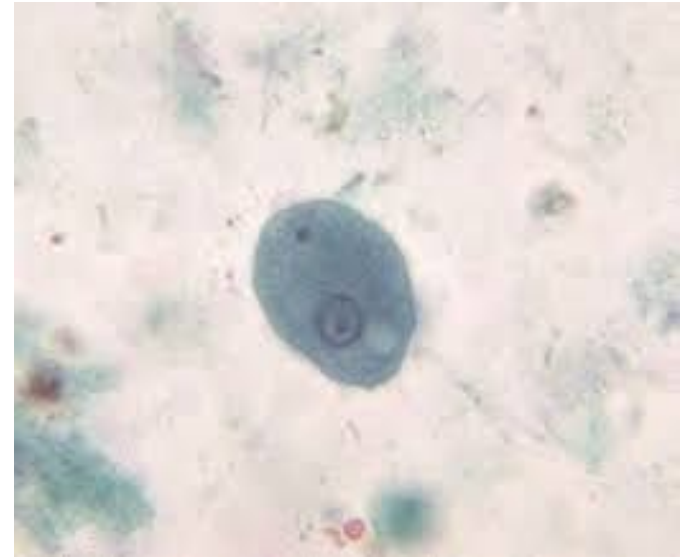
Entamoeba histolytica



Entamoeba coli

- *Entamoeba coli* is one of many non-pathogenic protozoa found in humans. It is transmitted through fecal-oral contact, and the mature cyst can be found in contaminated water. Typically, these protozoa inhabit the large intestinal tract and can be identified in diagnostic stool specimens.

- **The trophozoite** is larger than that of *E. histolytica* ranging from 15-50mm in diameter. It exhibits blunt pseudopodia with sluggish movement. A permanently stained preparation shows a nucleus with a moderately large eccentric karyosome with the chromatin clumped on the nuclear membrane. The cytoplasm appears granular containing vacuoles with ingested bacteria and other food particles



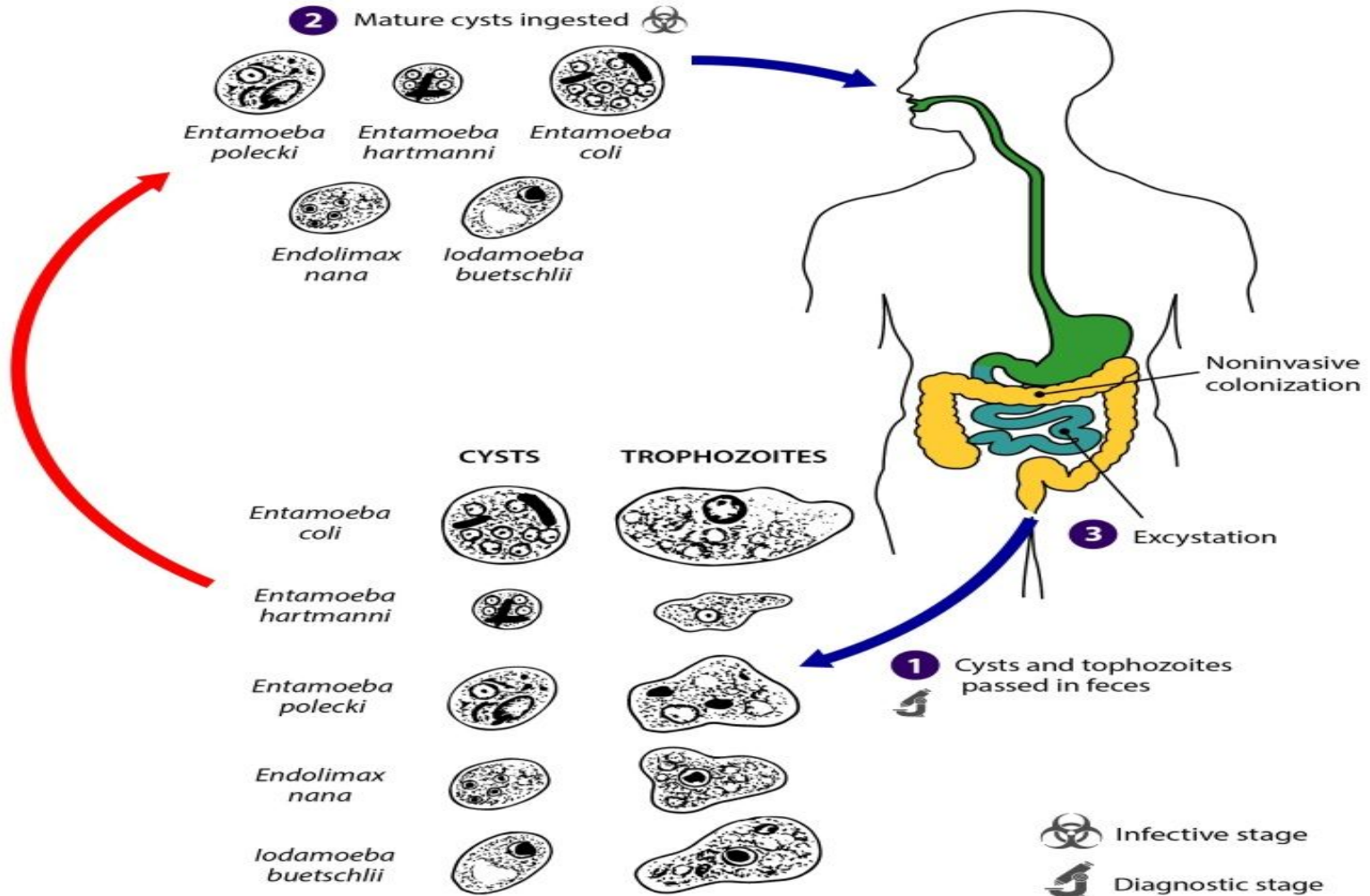
- **Cysts** of *E. coli* are 15 - 30 μ in diameter and contain 1 - 8 nuclei. Chromatoid bodies are not frequently seen but when present they are usually splinter-like with pointed ends. Glycogen is usually diffuse but in young cysts is occasionally found as a well defined mass which stains reddish brown with iodine.



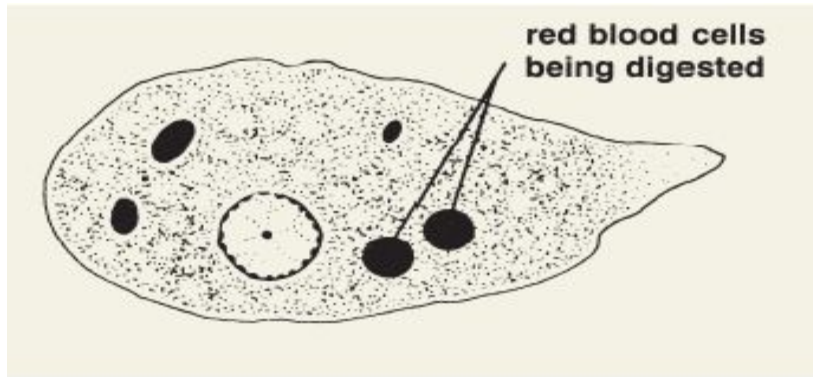
The lifecycle of Entamoeba coli



Intestinal Amebae (Nonpathogenic)

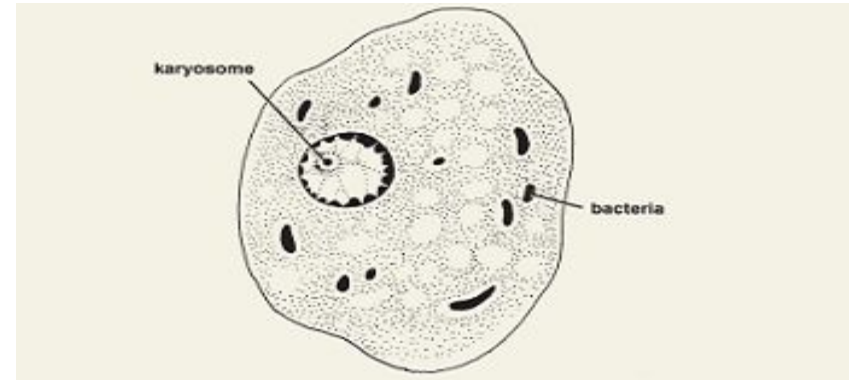


Entamoeba histolytica (Trophozoite)



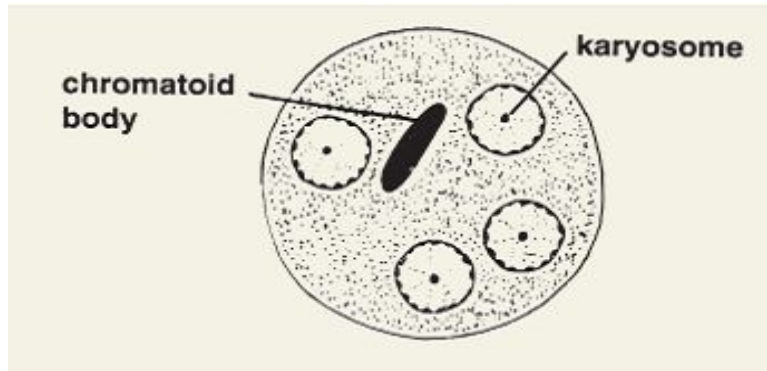
- Size 12-30 μm
- **Nucleus** 1, difficult to visualize in unstained smear
- **Karyosome** Sharp central
- **Peripheral Chromatin** Fine and dispersed
- **Cytoplasmic Inclusions** RBCs, leukocytes and tissue debris but no bacteria

Entamoeba coli (Trophozoite)



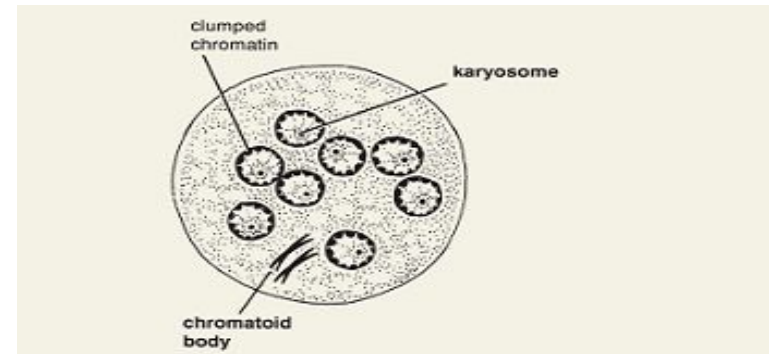
- Size 20-40 μm
- **Nucleus** 1, often visible in unstained smear
- **Karyosome** Eccentric
- **Peripheral Chromatin** Coarse and Clumped
- **Cytoplasmic Inclusions** Bacteria and other material but never RBCs

Entamoeba histolytica (Cysts)



- Size 10-15 μm
- **Shape** Usually spherical
- **Nucleus** Mature Cyst=4 nuclei
- **Peripheral Chromatin** Fine and dispersed
- **Chromatoid Bodies** seem Elongated bars with bluntly rounded ends.
- **Glycogen Mass** Visible in uninucleate stage

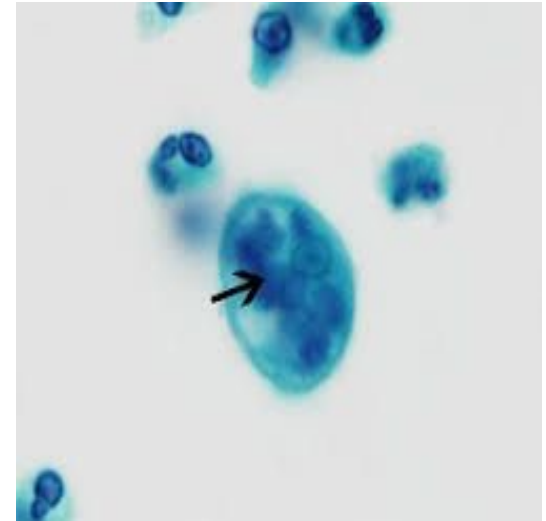
Entamoeba Ecoli (Cysts)



- Size 15-25 μm
- **Shape** Usually spherical, may be oval, triangular or other shaped
- **Nucleus** Mature Cyst=8 Nuclei
- **Peripheral Chromatin** Coarsely granular or clumped
- **Chromatoid Bodies** Filamentous, thread like, pointed ends
- **Glycogen Mass** Large and visible in binucleate stage

Entamoeba gingivalis

Entamoeba gingivalis is a common inhabitant of the oral cavity, particularly in patients who have poor oral hygiene. As a result, trophozoites of *E. gingivalis* may lead to the misdiagnosis of amebic lung abscess by morphologic examination of pulmonary material, especially sputum.



- Entamoeba gingivalis Trophozoite The trophozoite of Entamoeba gingivalis ranges in size from 8 to 20 μm and morphologically resembles that of *E. histolytica*. Entamoeba gingivalis trophozoites characteristically exhibit active motility. The multiple pseudopods vary in their appearance as the trophozoite moves.

- . The pseudopods may appear long when seen at one point in time and short and blunt the next time they are seen . The single nucleus contains a central karyosome surrounded by peripheral chromatin that is for the most part fine and evenly distributed . Achromatic granules arranged in strands may be visible extending from the karyosome to the peripheral chromatin ring . A number of inclusions are typically found in the finely granular cytoplasm , including : food vacuoles containing phagocytosed and partially digested white blood cells (leukocytes) and epithelial cells of the host , bacteria , and ingested RBCs . It is important to note that *E. gingivalis* is the only amoeba that ingests white blood cells

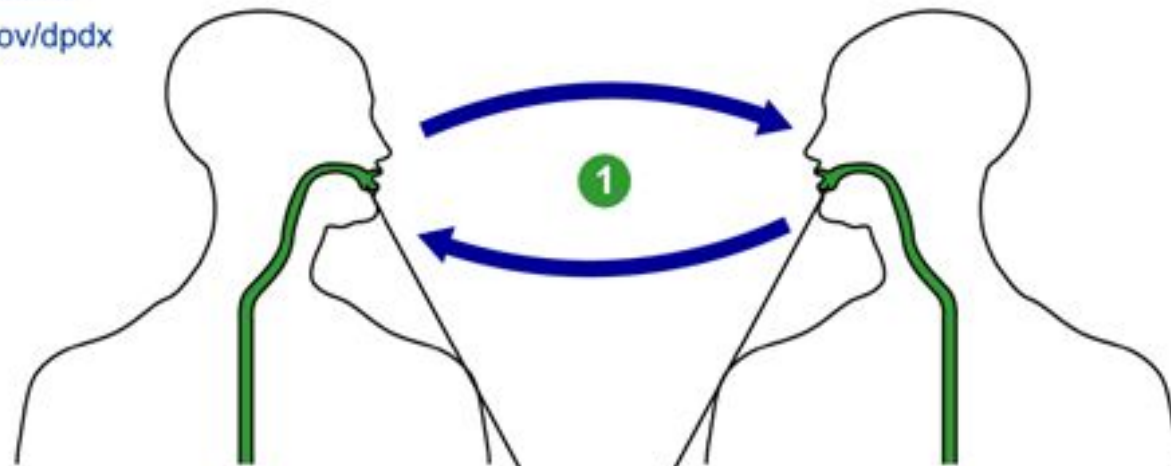
Life cycle

- There is no known cyst stage for *Entamoeba gingivalis*; trophozoites live in the oral cavity of humans, residing in the gingival pockets near the base of the teeth. They are not considered pathogenic, and feed on bacteria and other debris. Trophozoites are transmitted person-to-person orally by kissing or fomites (such as eating utensils). The trophozoite stage of *E. gingivalis* is morphologically similar to that of *E. histolytica*. The two should be differentiated, as both can be coughed up in sputum specimens (if *E. histolytica* is present in pulmonary abscesses).

life cycle



<http://www.dpd.cdc.gov/dpdx>



A



Trophozoite **i** **d**

i = Infective Stage

d = Diagnostic Stage

A = Noninvasive Colonization

THANKS
