Ova and Parasite Training

Mid America Clinical Laboratories

O&P / TCS

- Ova and Parasite
  - Read by dayshift
  - Concentrated stool specimen (performed by lab assistant)
  - Wet mount with Iodine or saline
- Trichrome stain (TCS)
  - Read by evening/nightshift
  - Direct smear
  - Fixed and stained (permanent stain)
- Always performed both tests for stool specimens
  - Pink vial: O&P (concentrated and wet mount)
  - Gray vial: Direct smear (fixed and stained)
  - Black vial: Both O&P and TCS

O&P / TCS

- Other (non-stool) specimens that are acceptable for direct wet mount, not TCS.
  - Skin scrapings
  - Sputum
  - Urine
  - Duodenal and liver aspirates

QC

- Ova and Parasite
  - QC is performed daily
    - A QC concentration is provide that is positive for a known parasite
- Trichrome
  - QC is preformed with each batch of staining reagents
    - A new batch is made every day
    - A QC slide that is positive for a known parasite is stained with patient slides

O&P

- View with 10x objective and 50/100x objective
- Report parasite and lifecycle when applicable
  - Not quantitation
- Always get a 2nd Tech to confirm all positive
- Always communicate with eve/night shift on suspicious structures or parasites
  - Some objects are easier to see in TCS/O&P

TCS

- View with 100x objective
- Report parasite and lifecycle when applicable
  - Not quantitation (unless *B. hominis*)
- Always get a 2nd Tech to confirm all positive
- If TCS is positive and O&P negative, leave note for dayshift to review O&P
  - Some objects are easier to see in TCS/O&P

Intestinal protozoa and flagelletes

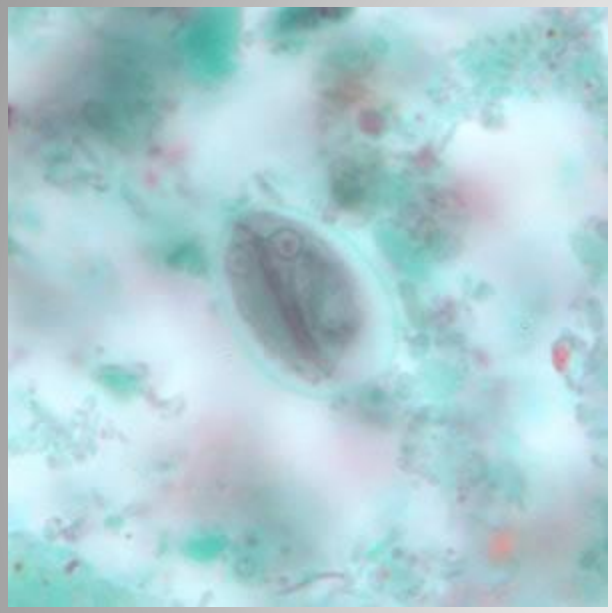
- Most common parasites
- Use 50x and/or 100x objectives
- *Giardia lamblia* and *Entamoeba histolytica* indicate pathogenic parasitic infections
- Other protozoa are also reported
  - Considered nonpathogenic, but indicate possible infection with pathogenic parasite or cause issues in immunocompromised patients

Giardia lamblia

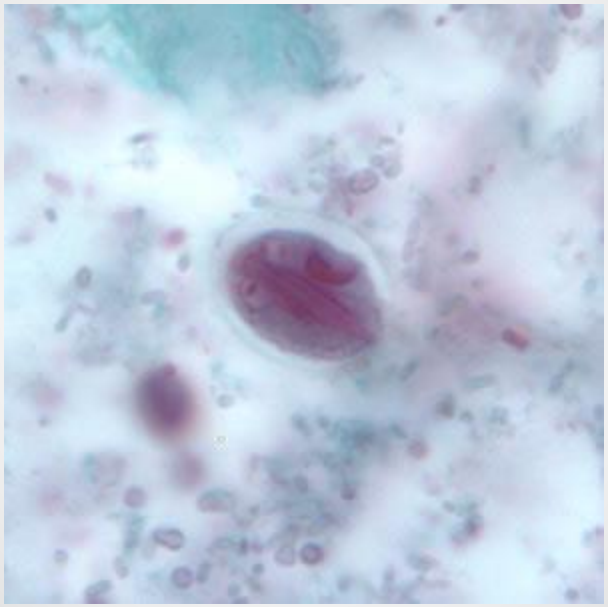
Cysts 8-19 um

Trophozoite 10-20 um

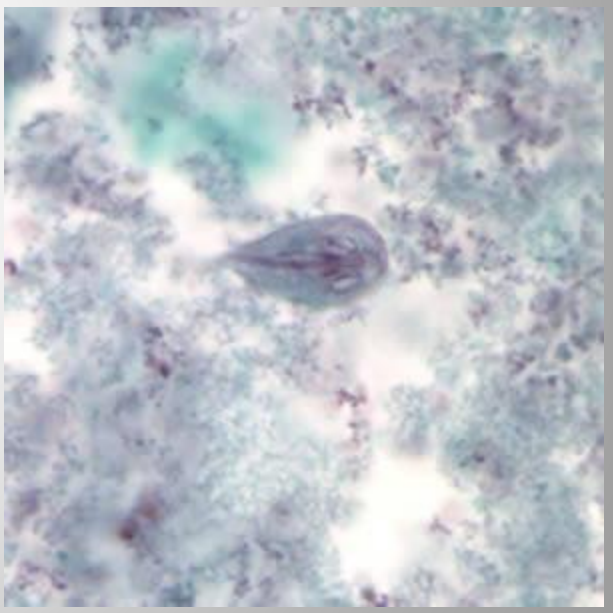
Giardia lamblia



Cysts 8-19 um

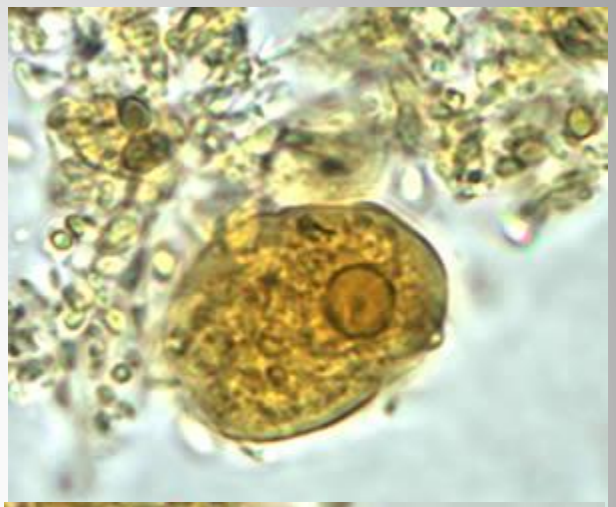


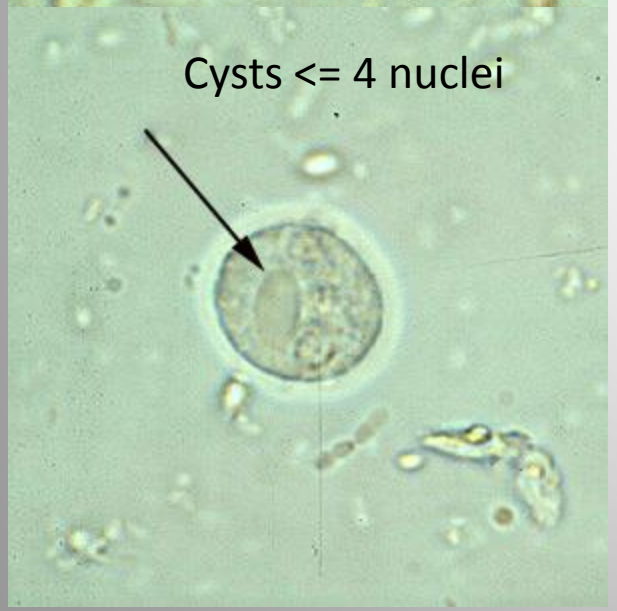
Trophozoite 10-20 um



Entamoeba histolyica/dispar

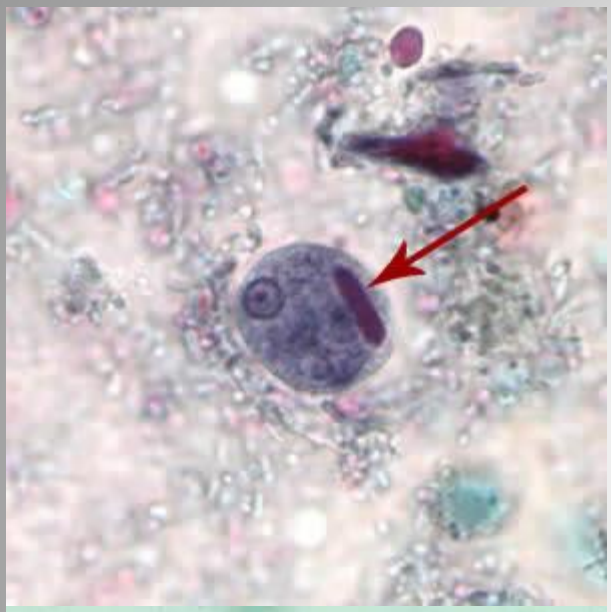
Cannot tell difference between E. histolytica and E. dispar unless ingested RBCs are present



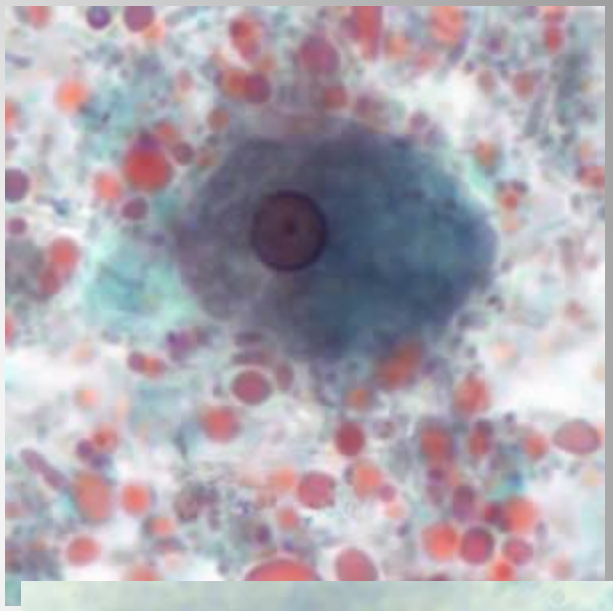


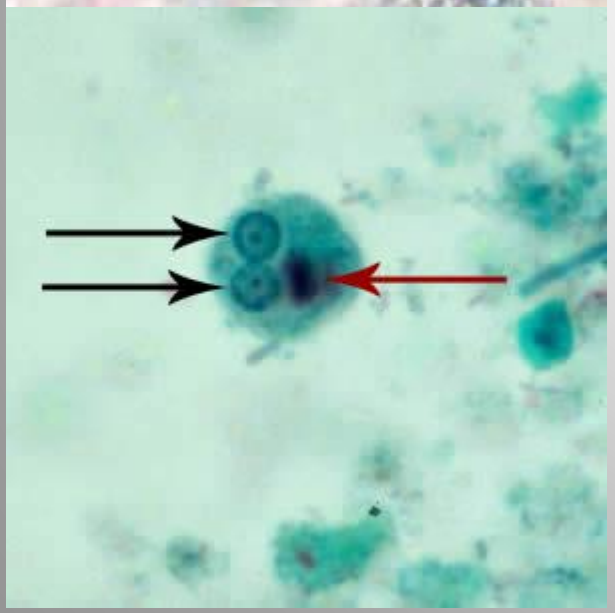
Cyst: 12-15 um
Troph: 15-20 um

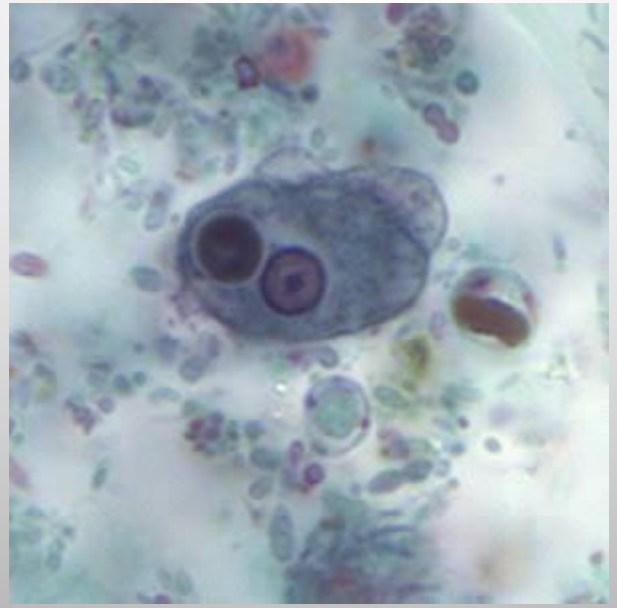
Entamoeba histolyica/dispar

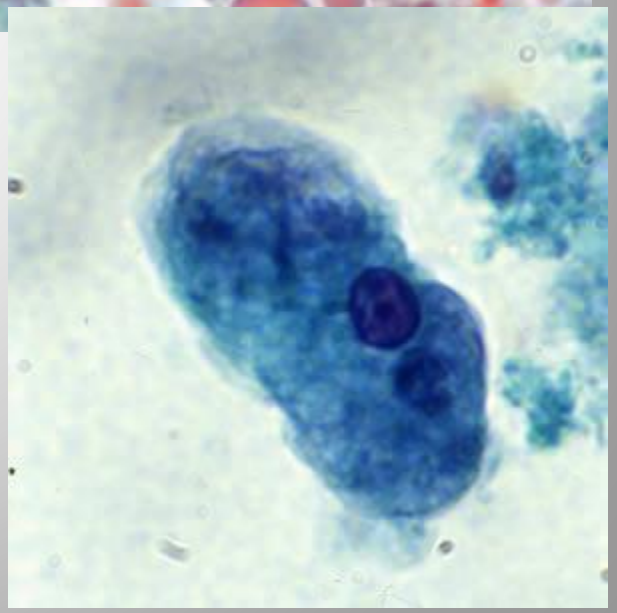


Cyst: 12-15 um
Troph: 15-20 um

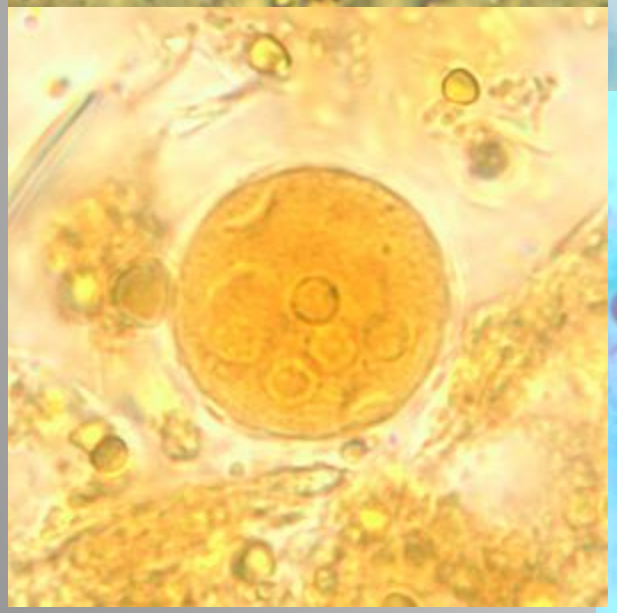




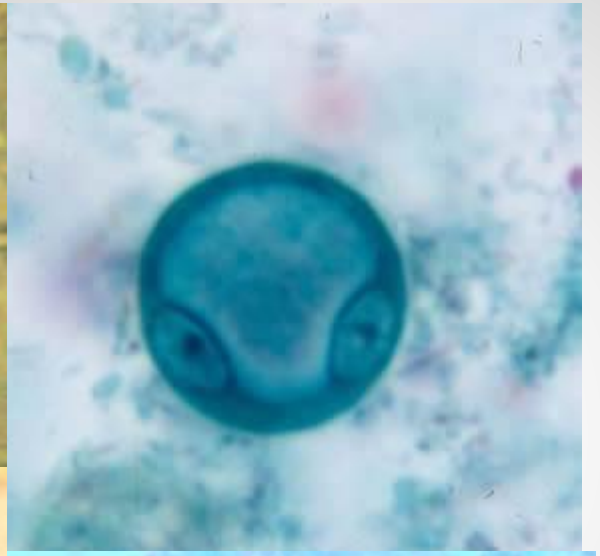


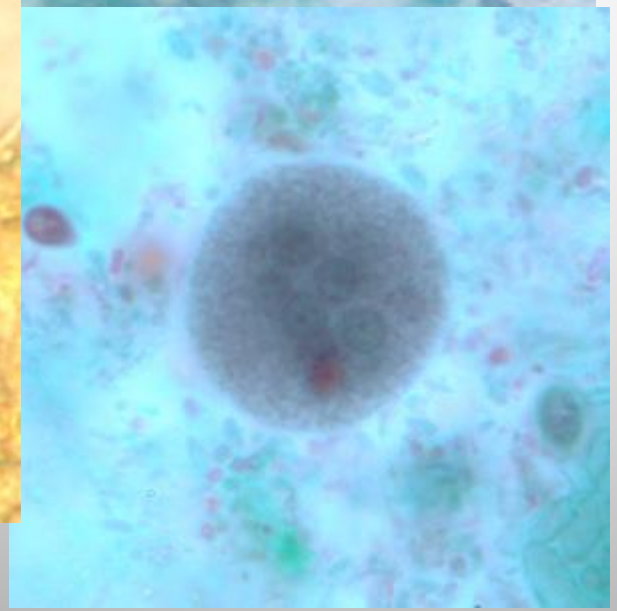


Entamoeba coli



Cysts: >4 nuclei

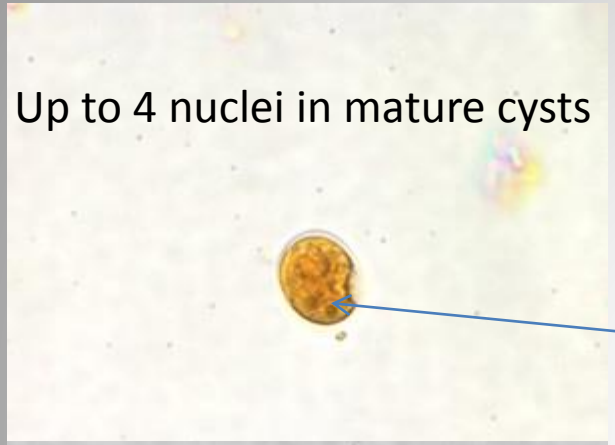




Cyst: 10-35 um
Troph: 15-50 um

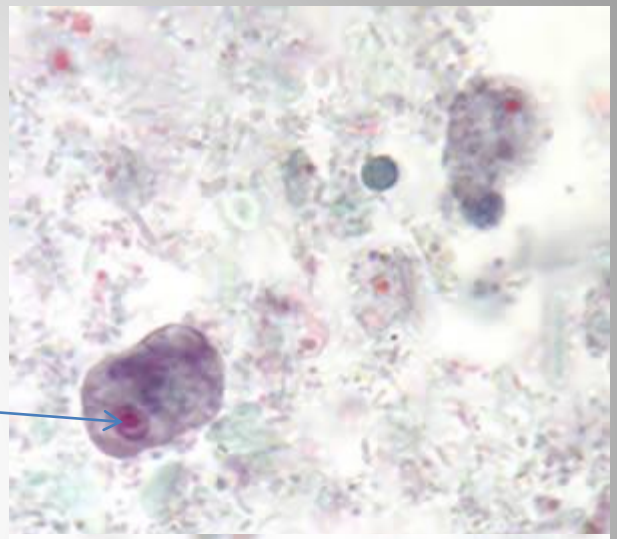
Endolimax nana

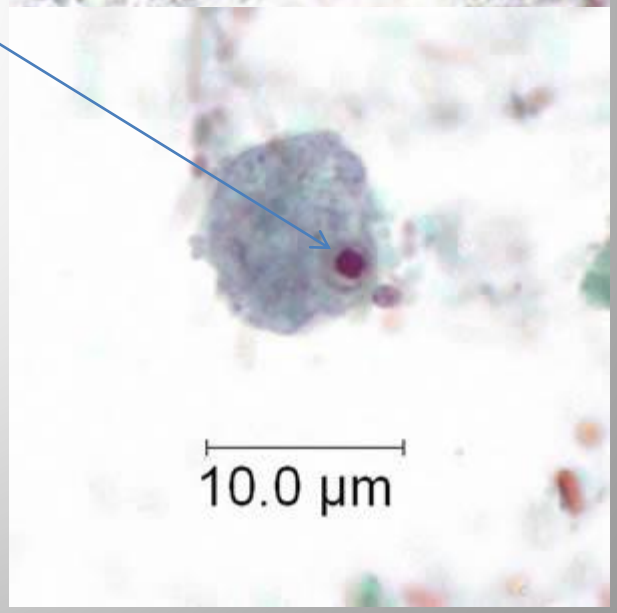
Up to 4 nuclei in mature cysts



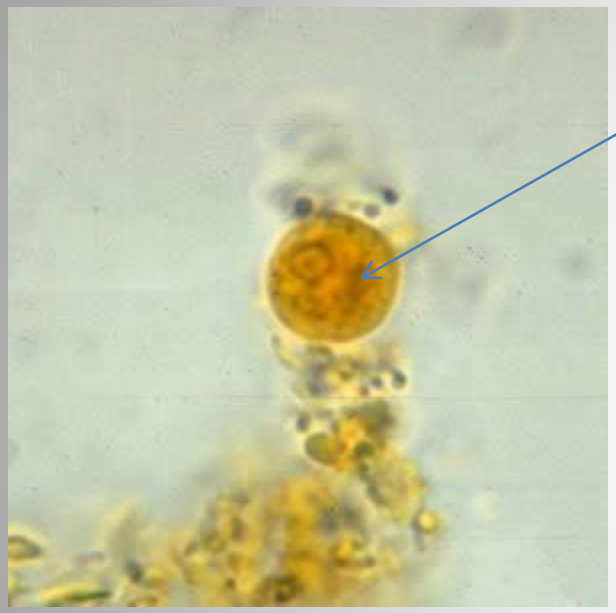
Large nuclei ‘dot’ in both cysts and trophs

Cyst: 5-10 um
Troph: 6-12um



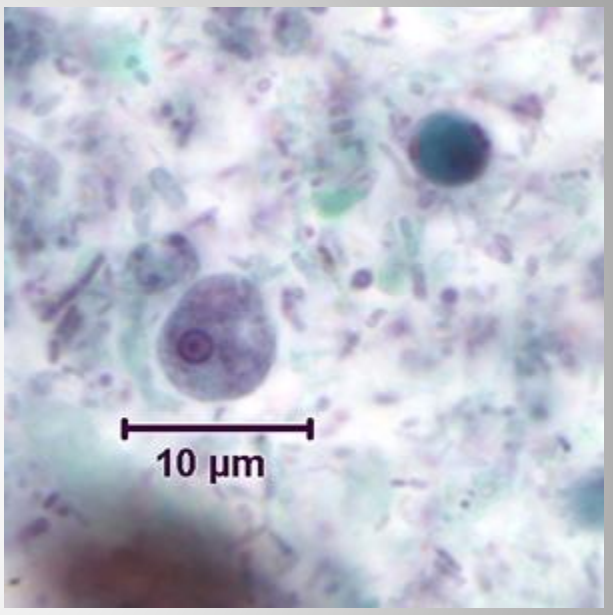


Entamoeba hartmanii

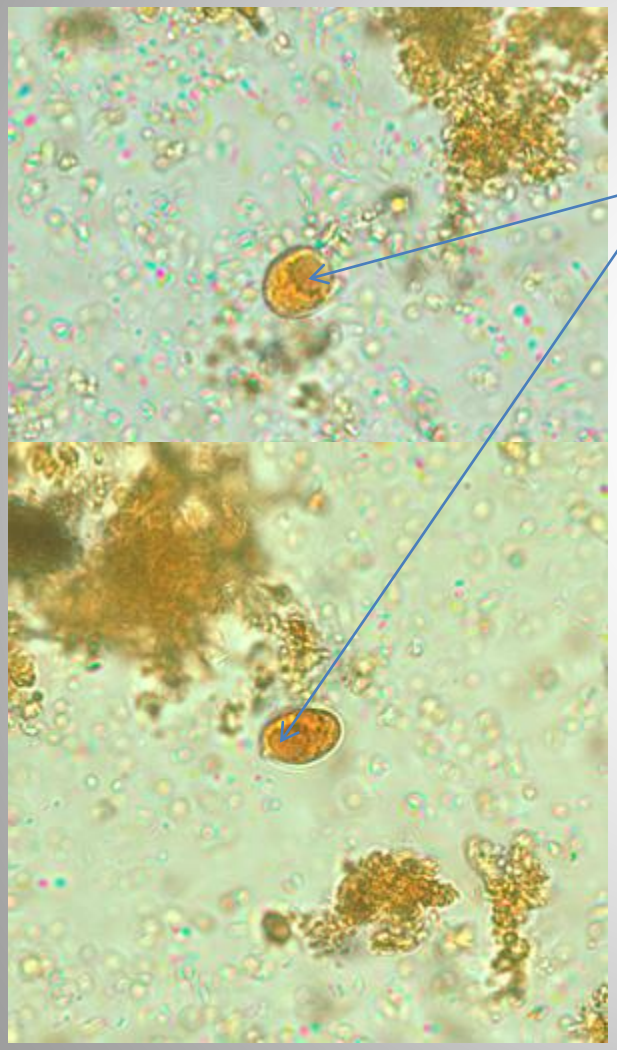


Discrete centrally located karyosome

Cyst: 5-10um
Troph: 5-15um

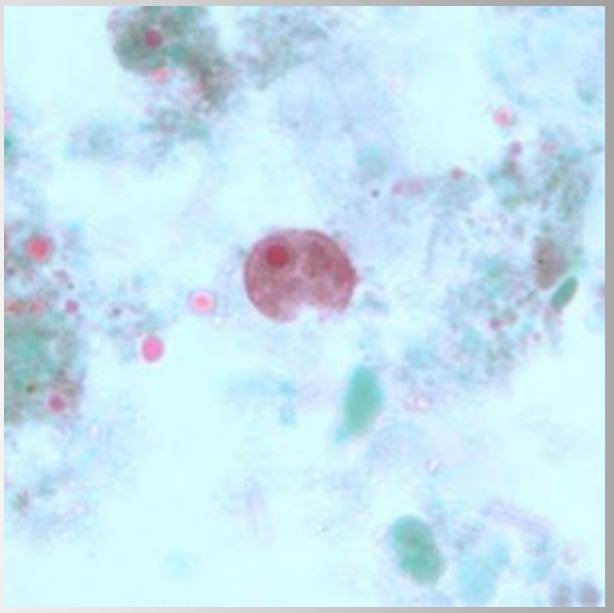


Iodamoeba buetschlii



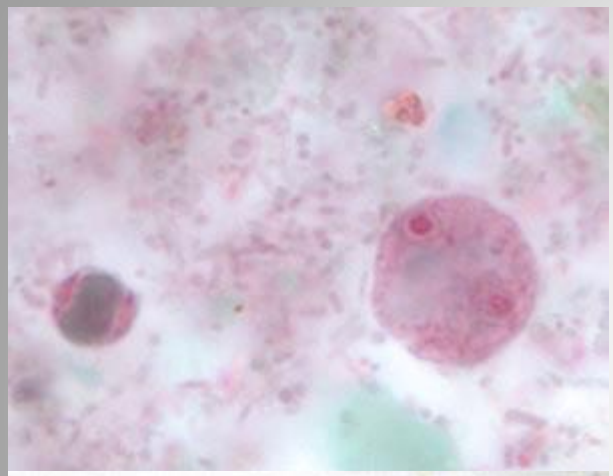
Large glycogen vacuole usually present

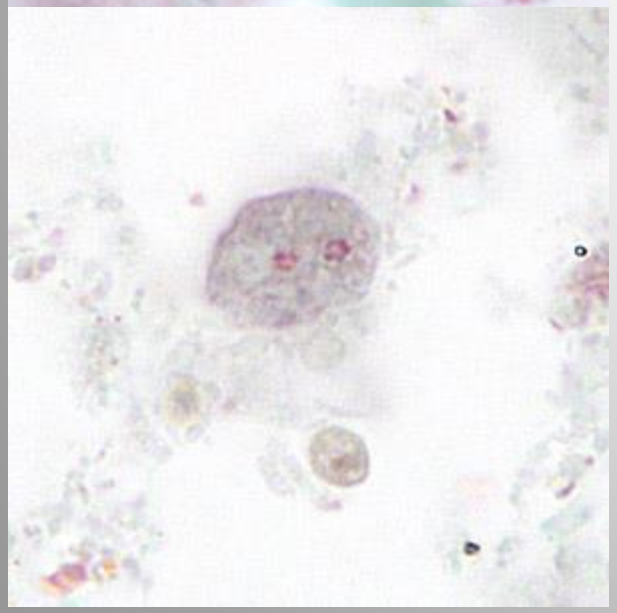
Cyst: 5-20um
Troph: 8-20um

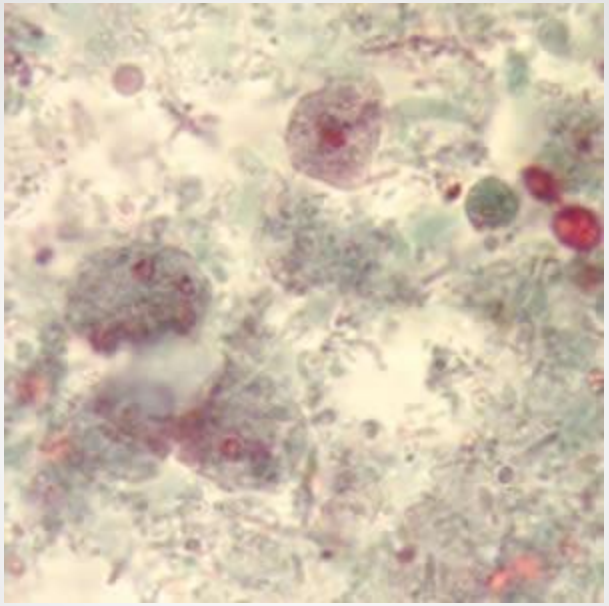


Trophs are similar to *E. nana*

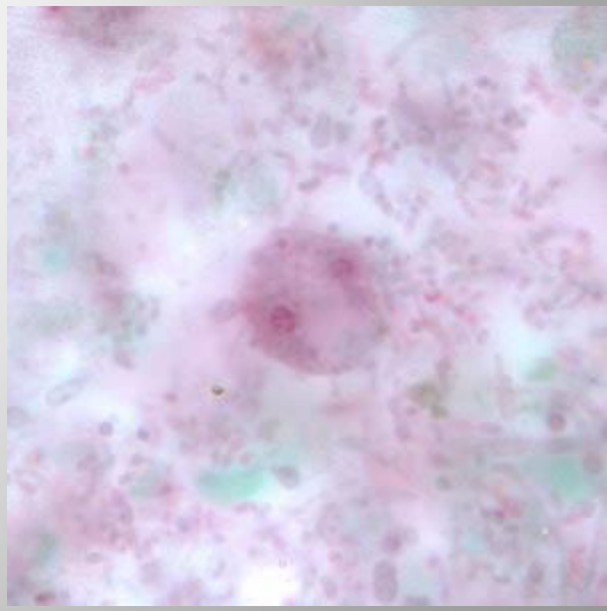
Dientamoeba fragilis



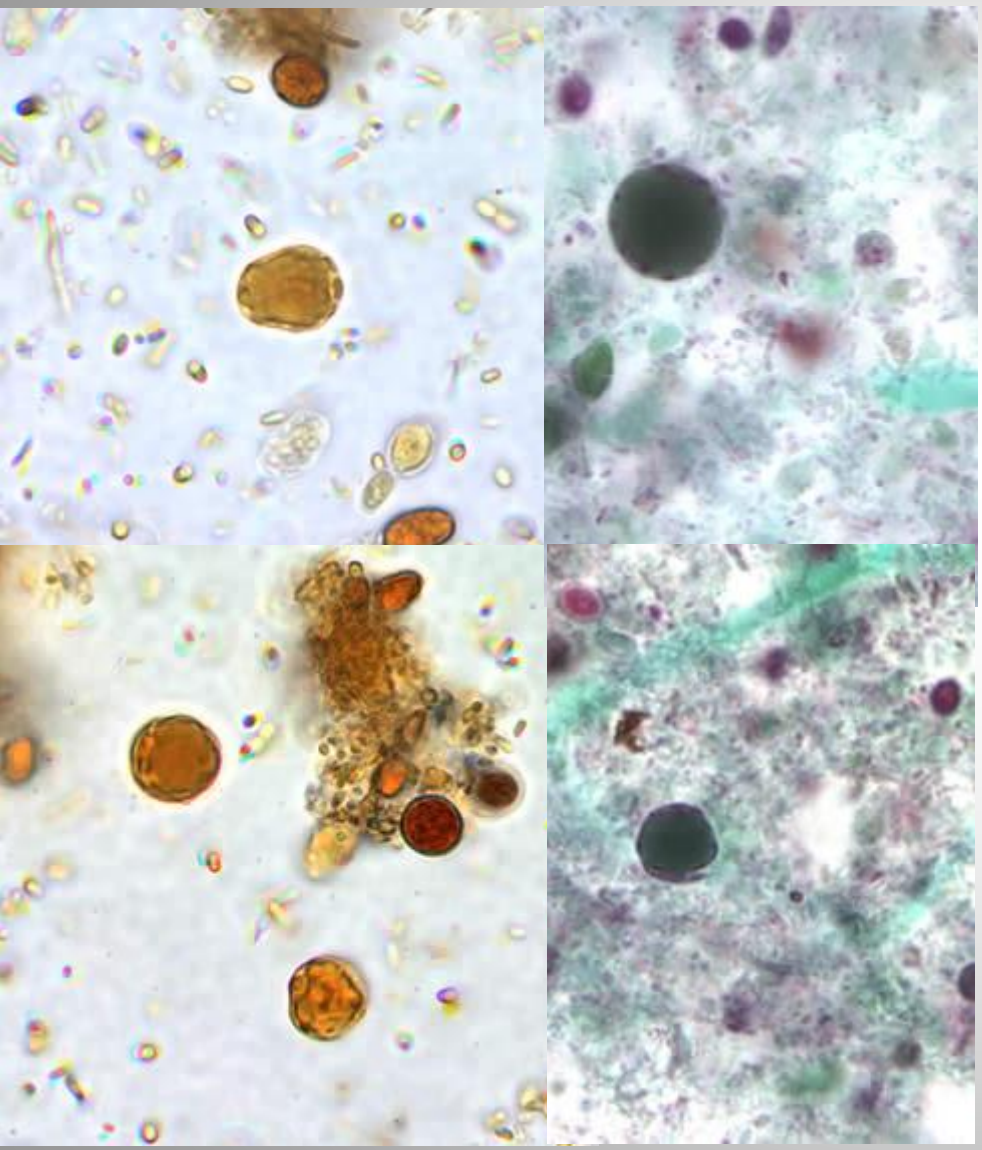




Dientamoeba fragilis has no cyst stage, and its trophozoites measure 5 to 15 µm.

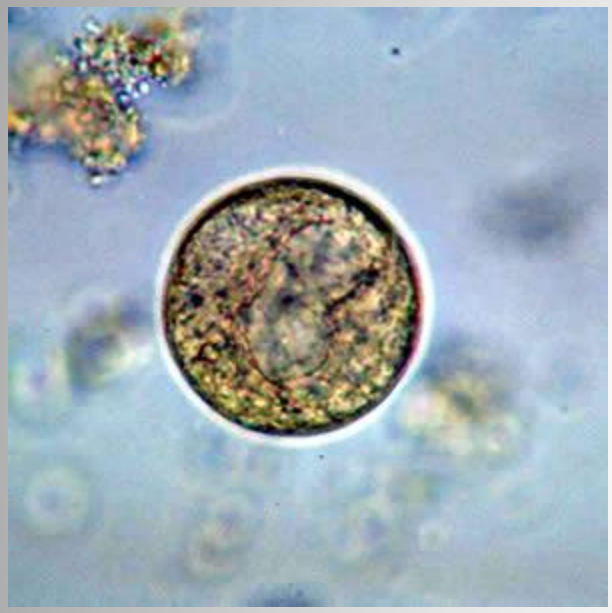


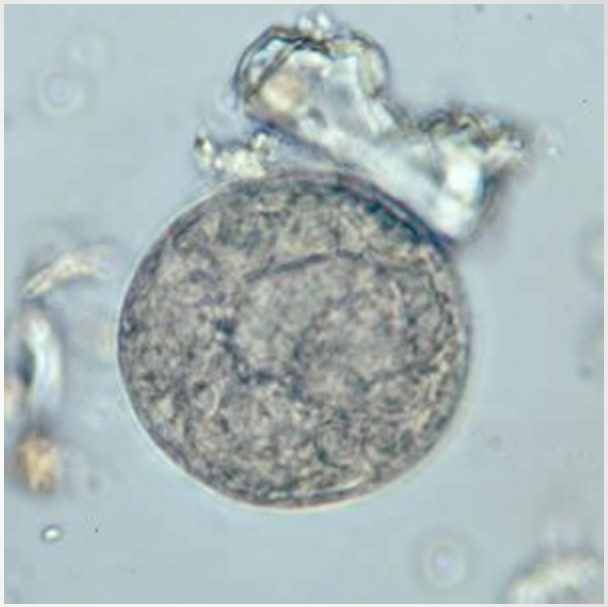
Blastocystis hominis



- Unknown lifecycle, only ‘cyst-like’ stage, just report ‘*Blastocystis hominis*’
- Only report when moderate or many on TCS
- O&P: Make note on work list if you suspect many/mod B. hominis to help TCS

Balantidium coli



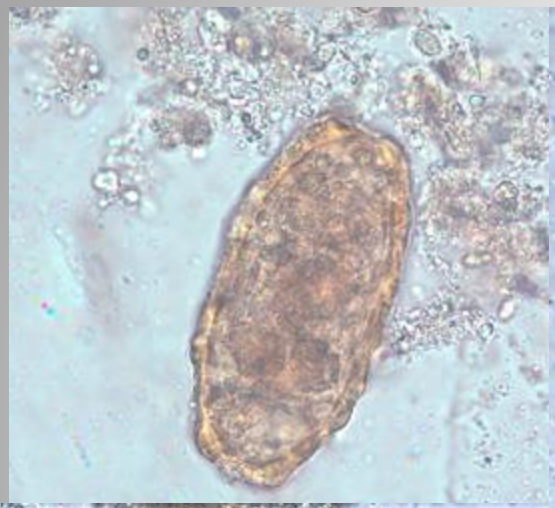


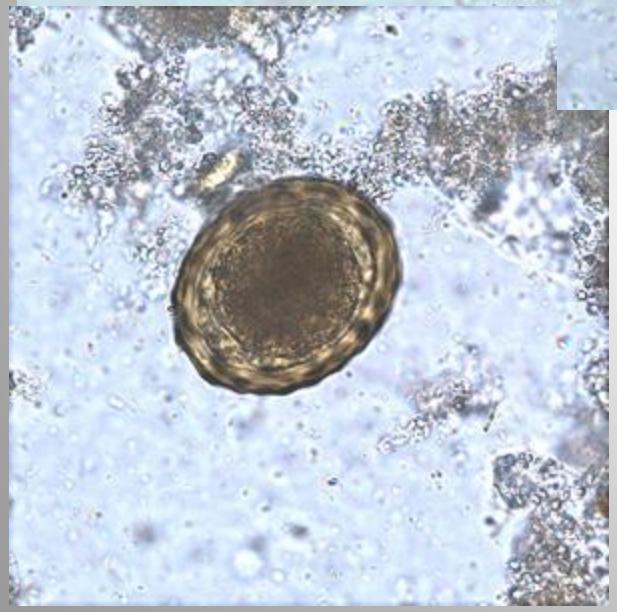
Cyst: 50-70um
Troph: 40–200um

Eggs

- Pathogenic worms release eggs in intestines
- Eggs more commonly seen than adult worm
- Always scan on 4x objective to see eggs, scan entire wet mount before changed to higher objective

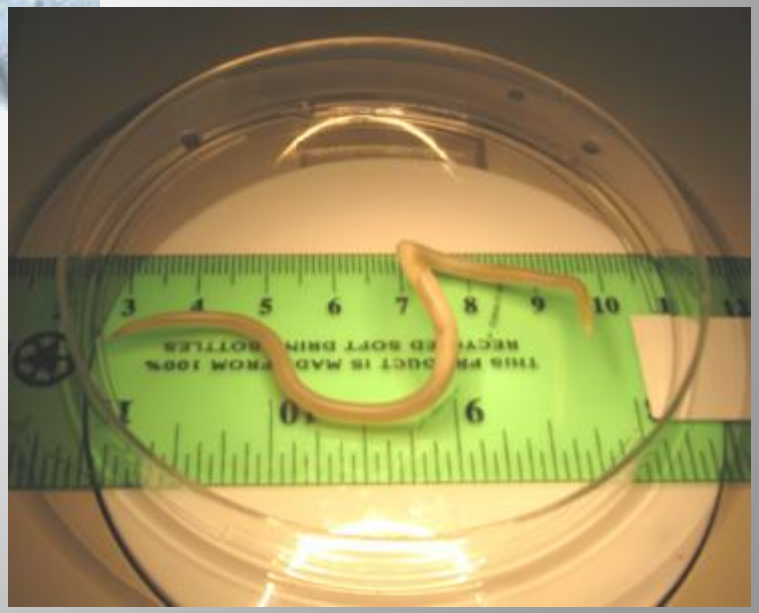
Ascaris lumbricoides





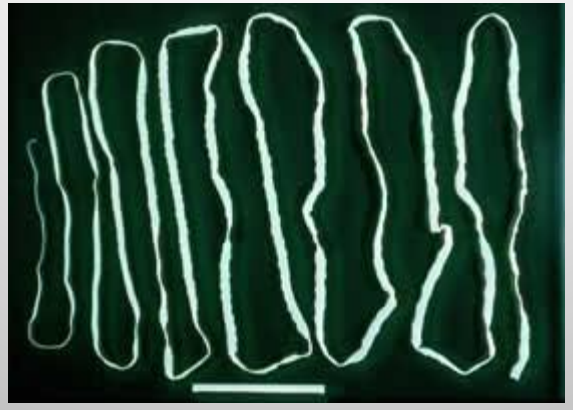
“Roundworm”

Eggs: 45-75um



Taenia spp.

Eggs: 30-35um



Diphyllobothrium spp.

Eggs: 55-70um long by 40-50um wide

Hymenolepis spp

Six hooks

Eggs: 30-50 um

Enterobius vermicularis

- aka pinworm
- Also found on ‘scotch tape prep’

50-60um by 20-30um

Always remember

- Get second opinion if an object is suspicious
- There are many more parasites than are described here
  - Use reference material
    - Books, bench aids and www.dpd.cdc.gov