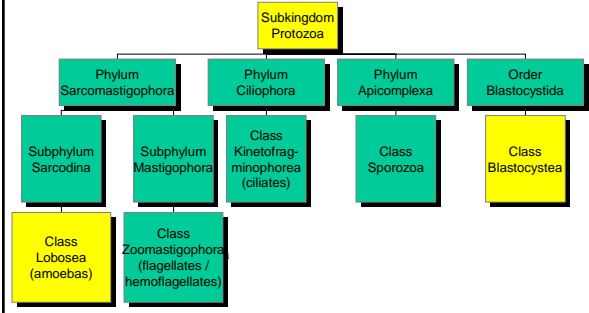


Parasitology – Intestinal Amoeba

Student Lab
Division of Medical Technology
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Classification - Protozoa



Stools for O&P Examination

- Microscopic Examination
 - Direct examination – wet mounts
 - Saline prep
 - Iodine prep
 - Concentration procedure
 - Permanent staining procedure

Stool Specimen

- Wet preps (direct and concentrate)
 - Saline (look for motility)
 - Iodine
 - Scan entire slide on 10x
 - Examine suspects on 40x
- Permanent stained smears
 - Scan on 40x
 - Examine suspects on 100x (oil)

What to look for

- Size = 5-60 μm
- Shapes
 - Round, oval, oblong, pseudopods
- Internal structures
 - Nucleus (karyosome, peripheral chromatin)
 - Cytoplasm (vacuoles, chromatoid bars, inclusions such as RBCs and bacteria)

What to look for

- Trophozoite
 - Motile on warm saline prep (fresh specimen)
 - Can contain bacteria, RBCs, food particles
 - Pseudopods
 - One nucleus

What to look for

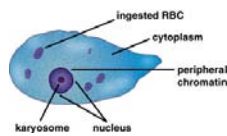
- Cyst
 - Chromatoid bars
 - Glycogen vacuoles
 - Inclusion mass
 - Cell wall is smooth and round
 - Can have more than one nucleus

Identify Specific Amoeba

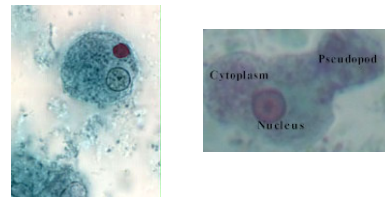
- *Entamoeba histolytica*
- *Entamoeba hartmanni*
- *Entamoeba coli*
- *Endolimax nana*
- *Iodamoeba bütschlii*
- *Blastocystis hominis*

Entamoeba histolytica - Troph

- Motility
 - Progressive, rapid
- Nucleus
 - PC: fine, even
 - K: usually central
- Cytoplasm
 - Clean appearance
 - RBCs diagnostic

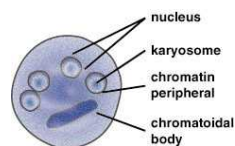


Entamoeba histolytica - Troph

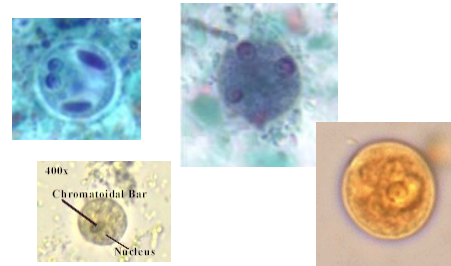


Entamoeba histolytica - Cyst

- Nucleus
 - Mature = 4
 - PC: fine, even
 - K: usually central
- Cytoplasm
 - Chromatoid bars
cigar-shaped
rounded ends



Entamoeba histolytica - Cyst

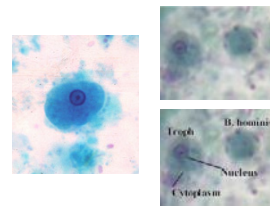


Entamoeba hartmanni - Troph

- Motility
 - Non-progressive
- Nucleus
 - PC: fine, even
 - K: usually central
- Cytoplasm
 - Clean appearance
 - Bacteria, no RBCs

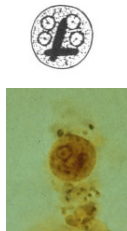


Entamoeba hartmanni - Troph



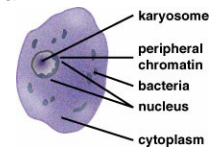
Entamoeba hartmanni - Cyst

- Nucleus
 - Mature = 4
 - PC: fine, even
 - K: usually central
- Cytoplasm
 - Chromatoid bars
cigar-shaped
rounded ends

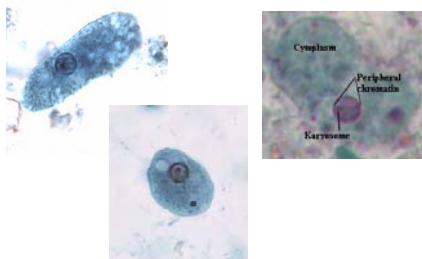


Entamoeba coli - Troph

- Motility
 - Sluggish, non-directional
- Nucleus
 - PC: clumped, uneven
 - K: usually eccentric
- Cytoplasm
 - Dirty appearance
 - Bacteria, yeast, debris

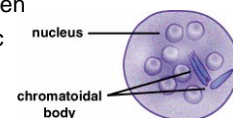


Entamoeba coli - Troph

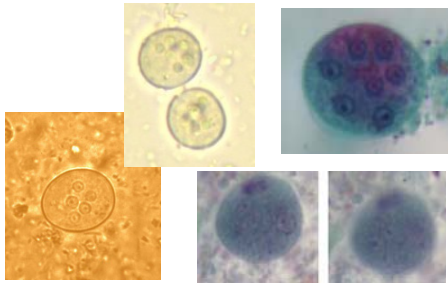


Entamoeba coli - Cyst

- Nucleus
 - Mature = 8
 - PC: clumped, uneven
 - K: usually eccentric
- Cytoplasm
 - Chromatoid bars
splinter shaped
rough, pointed ends

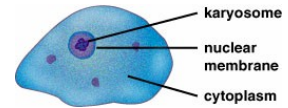


Entamoeba coli - Cyst

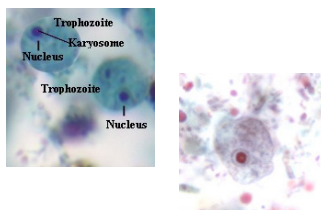


Endolimax nana - Troph

- Motility
 - Sluggish, non-progressive
- Nucleus
 - PC: absent
 - K: large, blot-like, irregular
- Cytoplasm
 - Granular, vacuolated
 - Bacteria

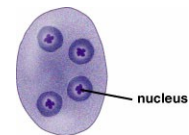


Endolimax nana - Troph

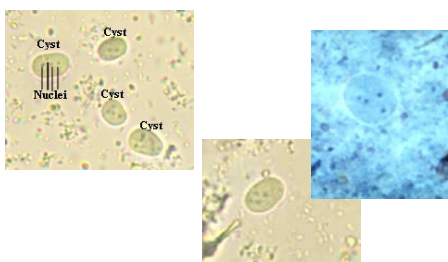


Endolimax nana - Cyst

- Nucleus
 - Mature = 4
 - PC: absent
 - K: large, blot-like, irregular
- Cytoplasm
 - Granular, vacuolated

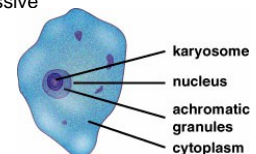


Endolimax nana - Cyst

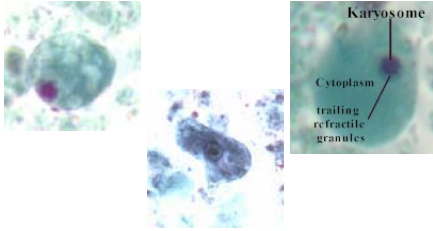


Iodamoeba bütschlii - Troph

- Motility
 - Sluggish, non-progressive
- Nucleus
 - PC: absent
 - K: large, eccentric
 - Achromatic granules
- Cytoplasm
 - Coarsely granular
 - Vacuolated, bacteria, yeast, debris

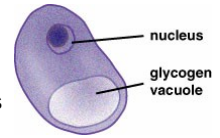


Iodamoeba bütschlii - Troph

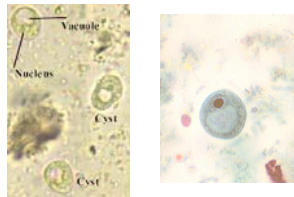


Iodamoeba bütschlii - Cyst

- Nucleus
 - Mature = 1
 - PC: absent
 - K: large, eccentric
 - Achromatic granules
- Cytoplasm
 - Large glycogen vacuole

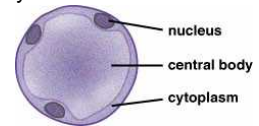


Iodamoeba bütschlii - Cyst

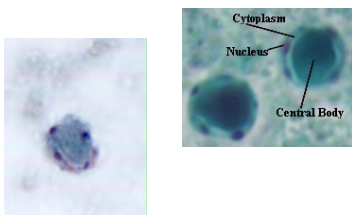


Blastocystis hominis – Cyst-like

- Nucleus
 - 2-6 around periphery
- Cytoplasm
 - Ring around periphery of vacuole
- Large vacuole
 - Central body (90%)



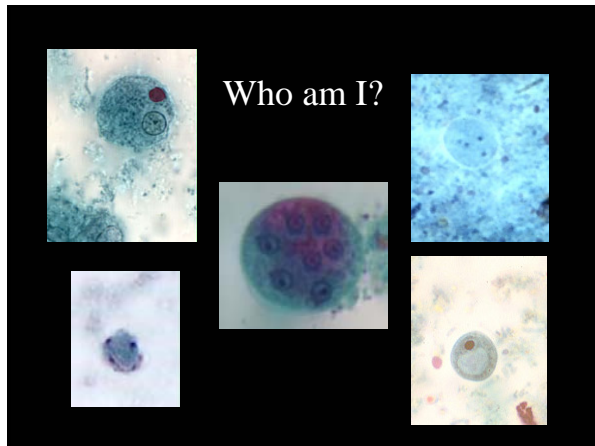
Blastocystis hominis – Cyst-like



Size Comparison

	AMEBAE						
	<i>Eutamoeba histolytica</i>	<i>Eutamoeba hartmanni</i>	<i>Entamoeba coli</i>	<i>Entamoeba polecki</i> ¹	<i>Endolimax nana</i>	<i>Iodamoeba bütschlii</i>	<i>Discosomamoeba fragilis</i> ²
Trophozoite							
Cyst							No cyst

¹Rare, probably of animal origin
²Flagellate
 Scale: 0 5 10 μm
 Adapted from Brooks and Melvin, 1967



Clinical Significance

- Amebic dysentery
 - *Entamoeba histolytica*
 - Infective form: cyst
 - Diarrhea
 - Differentiate from *Shigella* dysentery
- All other amoebas considered commensal and non-pathogenic

In Summary ...

- Specimens
- What to look for
- Key characteristics of intestinal amoebas
- Clinical significance