Parasitology – Intestinal Amoeba

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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** - Cyst

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

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

**Entamoeba hartmanni - Cyst**

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

**Entamoeba coli - Troph**

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

**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

**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

**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**
Who am I?

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