CILIATES

College of Medical Laboratory Science
Our Lady of Fatima University
Introduction:
Ciliates are parasites that move by means of hairlike cytoplasmic extensions called cilia and contains one human pathogen known as *Balantidium coli*.

Laboratory Diagnosis:
Laboratory diagnosis of *B. coli* is accomplished by examining stool specimens for the presence of trophozoites and cysts. Stools from infected patients experiencing diarrhea are more likely to contain *B. coli* trophozoites.

Morphology:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Trophozoite</th>
<th>Cyst</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>28 to 152 μm in length 40 μm in width</td>
<td>43 to 66 μm</td>
</tr>
<tr>
<td>Shape</td>
<td>ovoid to sac-shaped</td>
<td>subspherical to oval</td>
</tr>
<tr>
<td>Motility</td>
<td>rotary, boring motility</td>
<td>-</td>
</tr>
<tr>
<td>Nucleus</td>
<td>micronucleus and macronucleus</td>
<td>micronucleus and macronucleus</td>
</tr>
<tr>
<td>Cytoplasm</td>
<td>contain food vacuoles, as well as ingested microbes</td>
<td>-</td>
</tr>
<tr>
<td>Others features</td>
<td>two contractile vacuoles, cytostome, cilia for locomotion</td>
<td>two contractile vacuoles, cyst wall, mature cysts tend to lose their cilia</td>
</tr>
</tbody>
</table>
Balantidium coli

Cyst

- Cilia
- Contractile vacuole
- Micronucleus
- Macronucleus
- Cyst wall

Trophozoite

- Cytostome
- Vacuole
- Ingested microbes (bacteria)
- Micronucleus
- Macronucleus
- Cilia
Balantidium coli trophozoite under the microscope
DIRECT FECAL SMEAR

• About 2 mg of stool (amount forming a low cone at the tip of an applicator stick) is comminuted thoroughly with a drop of 0.85% sodium chloride solution (NSS) and then covered with cover slip.
• Primary useful in the detection of motile protozoan trophozoites (pale and transparent).
• Weak iodine solution (Lugol’s and D’ Antoni) are temporary stain to demonstrate nuclei.
REFERENCES


Diagnostic Parasitology Laboratory Manual. Our Lady of Fatima University. Valenzuela City.

https://www.youtube.com/watch?v=Ds6TjKKxEpU (Balantidium coli under microscope)

https://www.cdc.gov/dpdx/balantidiasis/index.html