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Practical parasites : Lab - 10 -

Ciliates

Kingdom : Animalia

Phylum : Protozoa

Subphylum : Ciliophora

Class : Ciliates

Genus : *Balantidium coli*

Balantidium coli (Intestinal species)

Ciliates represent a phylum of protozoa characterized, in at least one stage of development, by simple or compound ciliary organelles on the surface of their membranes that are used for locomotion. *Balantidium coli* considered as the large protozoan parasite known to humans . It causes the disease [Balantidiasis](#) .It is the only member of the ciliate phylum known to be [pathogenic](#) (parasitize) to humans . The life cycle of this parasite consist of two stages :

A– Trophozoite stage : The typical characteristics of this stage are :

1 – Ovoid to sac-shaped tapers at the anterior end .

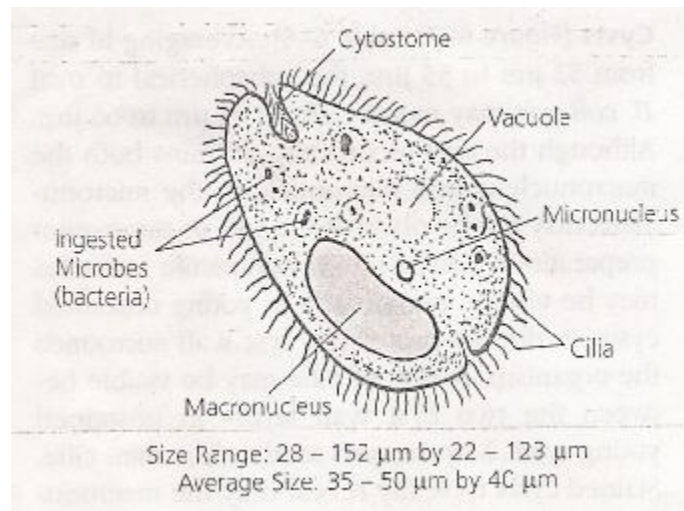
2 – Cytoplasm is granular and have two nuclei :

- Micronucleus (small spherical-shaped)
- Macronucleus (kidney-shaped)

3 – Having one to two contractile vacuoles in the granular cytoplasm and food vacuoles (ingested microbes " bacteria ") .

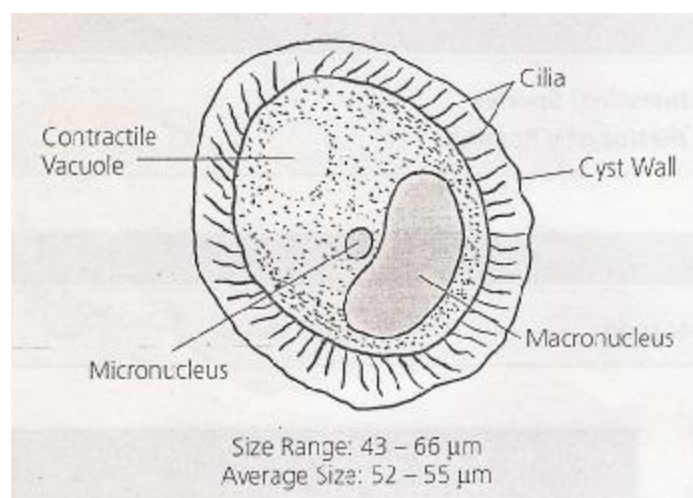
4 – There is cytosome in the anterior end (mouth like structure) .

5 – A large of cilia surrounded the organism and one protective wall surrounded the organism .



B- Cyst stage : The typical characteristics of this stage are :

- 1 – Subspherical to oval-shaped .
- 2 – Cytoplasm is granular and have two nuclei :
 - Micronucleus (small spherical-shaped)
 - Macronucleus (kidney-shaped)
- 3 – Having one to two contractile vacuoles in young cyst but does not have food vacuoles .
- 4 – Doesn't have cytosome .
- 5 – Double – protective cyst wall surrounded the organism and arrow of cilia visible in between the two cyst wall layers of cyst .



Clinical symptoms

*Asymptomatic / Carrier State .

*Blantidiasis : *Balantidium coli* may be resemble amebic dysentery . In this case abscesses and ulcer may form in the mucosa and sub mucosa of the large intestine followed by secondary bacterial infection . Acute infections are characterized by up to 15 liquid stools per day containing pus , mucus and blood . Patients who suffer from chronic infection may develop a tender colon , anemia , chachexia and occasional diarrhea .

Laboratory Diagnosis

By examining stool specimens for the presence of trophozoites and cysts.

Notes :

- *B.coli* has been known to invade areas other than the intestine such as the liver , lungs , pleura , mesenteric nodes and urogenital tract . However , the incidence of such extra intestinal infections is very rare .
- The *B. coli* trophozoite is often referred to as resembling a sac in its shape . As of this shape , the organism was named Balantidium , which means " little bag " .