

*Tikrit University*

*College of Nursing*

*Basic Nursing Sciences*



**Second Year - 2023-2024**

**Microbiology  
(Balantidium coli)**

**by: assistant lecturer**

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## **Balantidium coli**

### **Learning objectives:-**

**At the end of this lab the students should be able to:-**

- 1. Describe the morphology forms of trophozoite and cyst of *Balantidium coli*.**
- 2. Briefly describe the life cycle of *Balantidium coli*.**
- 3. Identify the laboratory diagnosis of *Balantidium coli*.**

### **Introduction**

**Balantidium coli is the largest protozoan parasite in humans and causes a disease called balantidiasis. It belongs to the ciliophora phylum and is the only protozoan ciliate to infect humans x Pigs are its reservoir hosts (natural host), and humans become infected through direct or indirect contact with pigs (incidental host)**

### **Taxonomy**

**Kingdom – Protozoa**

**Phylum - Ciliophora**

**Class - Litostomatea**

**Order - Tricostema**

**Family – Balantidiidae**

**Genus \_ Balantidium coli**

## MORPHOLOGY

:the parasite is observed in two stages only which are

1-trophozoite (the invasive stage)

2 - Cyst (the infec?ve stag)

:A – trophozoite

- **Large Size**
- **ovoidal in shape.**
- **covered by cilia & the anterior end are longer than the posterior end.**
- **the anterior end is pointed and has a mouth call cytosome. the posterior end is rounded and has a cytopyge the internal structures:**

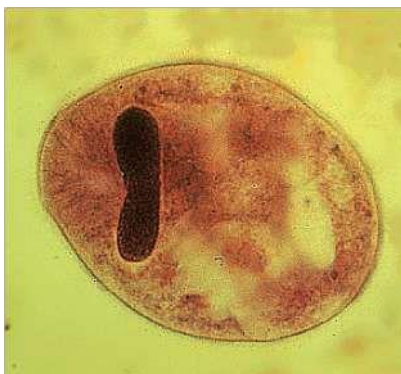
**A - have two nuclei, the macronucleus (the largest one) & micronucleus .(the smallest one)**

**.B - the macronucleus is kidney or bean in shape**

**C - the micronucleus is small spherical shape located in the concavity of .macronucleus**

**.D - have two secretory contrac?le vacuoles**

**E - numerous food vacuoles**



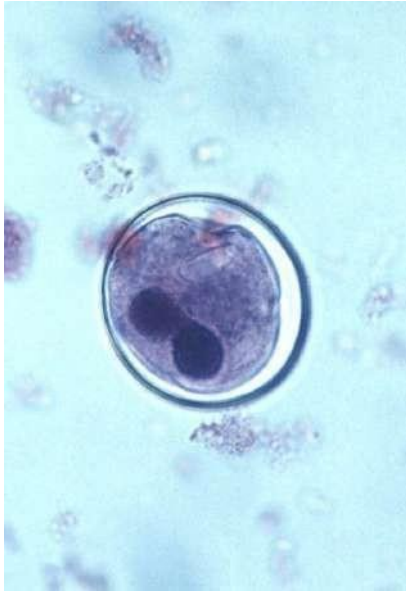
**B – Cyst**

**1-typically spherical in shape measuring 40-60  $\mu\text{m}$**

2- .surrounded by a thick and transparent double layered wall

3-the macronucleus and micronucleus and contractile vacuoles are present in the .cyst the cilia are

4-undetectable -



## LIFE CYCLE

**Balan?dium coli has 2 developmental stages: a trophozoite stage and a cyst stage**

**\*The cyst is the infec?ve stage of Balan?um coli life cycle**

**Once the cyst is ingested via feces - contaminated food or water, it passes \***

**.through the host diges?ve system**

**Excysta?on occurs in the small intes?ne**

**\*Excysta?on produces a trophozoite from the cyst stage \***

**The mo?le trophozoite then resides in the lumen of the large intes?ne, feeding \***

**.on intes?nal bacterial flora and intes?nal nutrients**

**Trophozoites mul?ply by asexual binary fission or sexual Conjugat?on (with the \* .exchange of nuclear material)**

