AL-MA'MOON UNIVERSITY COLLEGE

DEPARTMENT OF MEDICAL LABORATORY TECHNOLOGY

MEDICAL PARASITOLOGY

(((LECTURE 7)))

FOR SECOND YEAR

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Medically important Ciliates

Subphylum Ciliata

Balantidium coli Cause Balantidiasis

The intestinal protozoan *Balantidium coli* is the only member of the ciliate group that is pathogenic for humans. Disease produced by *B. coli* is similar to amebiasis, because the organisms elaborate proteolytic and cytotoxic substances that mediate tissue invasion and intestinal ulceration.

Geographical Distribution: Worldwide.

Habitat: Largest protozoal parasite inhabiting large intestine of man. Also found in pigs and monkeys.

Balantidium coli

Trophozoite

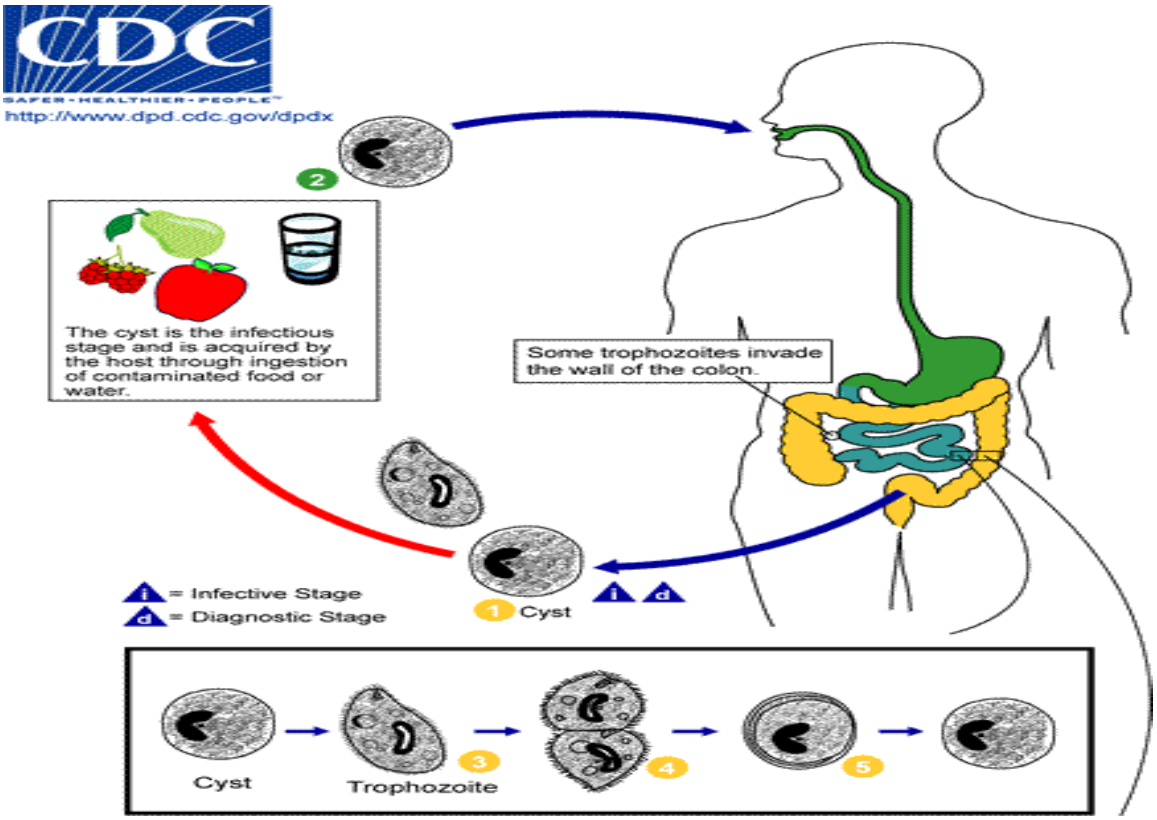
Oval 50 to 200 μ × 40 to 70 μ, Surface is pointed with delicate cilia, Anterior endpointed and has cytostome, Posterior end is round, Cytoplasm contains kidney-shaped large macronucleus and small micronucleus.

Cyst

Oval, Thick, outer wall Cilia absent. Enclosed in a double-layered wall.

Life cycle

The life cycle of *B. coli* is simple, involving ingestion of infectious cysts, excystation, and invasion of trophozoites into the mucosal lining of the large intestine, caecum, and terminal ileum. The trophozoite is covered with rows of hair like cilia that aid in motility. No intermediate host is required. The cysts are passed in the stool. Infection occurs by ingestion of cysts with contaminated food or drinks. In the wall of intestine excystation occurs and trophozoites develop which live and subsequently multiply by binary fission on the mucosa of large intestine.



Cysts are the parasite stage responsible for transmission of balantidiasis. **1**- The host most often acquires the cyst through ingestion of contaminated food or water **.2**- Following ingestion, excystation occurs in the small intestine, and the trophozoites colonize the large intestine **. 3-** The trophozoites reside in the lumen of the large intestine of humans and animals, where they replicate by binary fission, during which conjugation may occur .**4-** Trophozoites undergo encystation to produce infective cysts .**5-** Some trophozoites invade the wall of the colon and multiply. Some return to lumen and disintegrate. Mature cysts are passed with feces **1.**

Pathology

Rarely mucosal damage caused by trophozoites. Action of enzyme hyaluronidase produced by parasite may cause mucosal damage by superficial ulcer which may penetrate to submucosa, so results diarrhea and later frank dysentery develops. Abdominal colic, nausea, and vomiting may occur.

Clinical features

As with other protozoan parasites, asymptomatic carriage of *B. coli* can exist. Symptomatic disease is characterized by abdominal pain, tenderness, tenesmus nausea, anorexia, and watery stools with blood and pus.

Laboratory Diagnosis

Microscopic examination of stool for trophozoite and cysts is performed. The trophozoite is very large, varying in length from 50 to 200µm and in width from 40 to 70µm. The surface is covered with cilia.

Prevention

Balantidium coli infection can be prevented when traveling by following good hygiene practices. Wash your hands with soap and warm water after using the toilet, changing diapers, and before handling food.

Treatment: Tetracycline, metronidazole, and iodoquinol