

Ciliata

The only ciliate protozoan parasite of human is *Balantidium coli*. It is a largest protozoan parasite of human; worldwide in distribution, but the prevalence of the disease is very low. Balantidiasis is a zoonotic disease and the principle reservoir being the pigs, monkeys and rat are also infected.

Morphology and life cycle:-

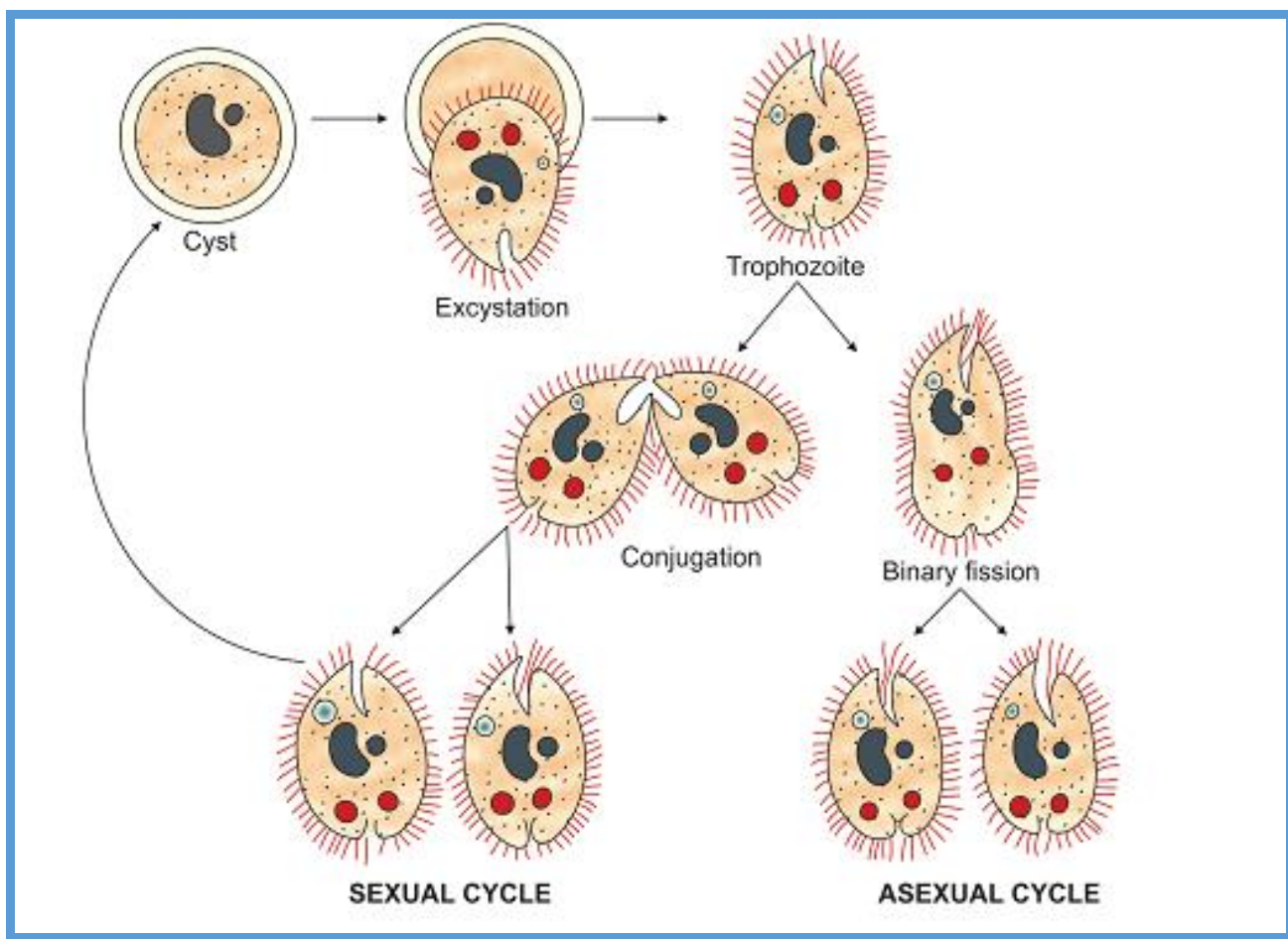
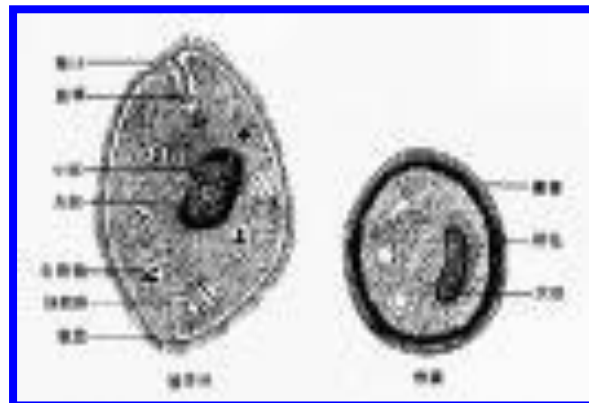
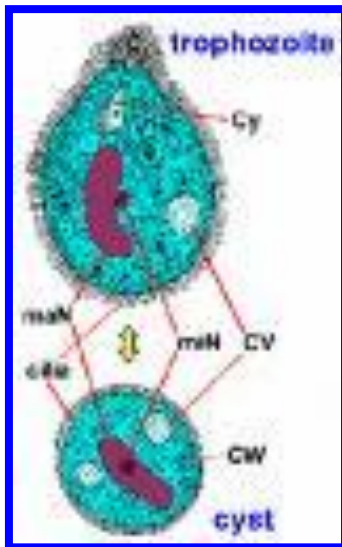
This parasite present in two stages in its life cycle, trophozoite and cyst stages. The troph. Live in the large intestine of human, mainly in the caecal and sigmoidorectal regions, causes a disease called Balantidiasis or Balantidial ciliary dysentery.

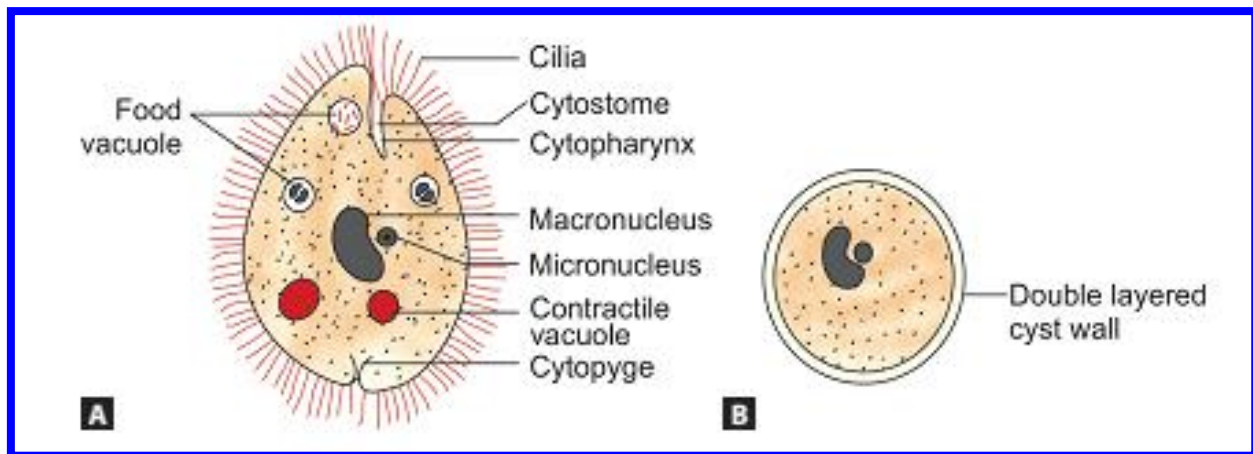
The troph. stage is large, ovoid shape measures about 60-70 μm in length, 40-50 μm in breadth. The outer membrane of the parasite covered by small, hair-like projections, equal-sized named cilia, so this called ciliata. There is a conspicuous feature in the ciliata is the presence two nuclei, macronucleus and micronucleus. The first is large, kidney-shape and responsible for vegetative activities of the organism while the second is small, spherical, and responsible for sexual or reproductive activities and located in the concave side of the macronucleus.

In the troph. Stage there are two contractile vacuoles and a number of food v., in the anterior end of the parasite there is a small groove or depression (peristome) leading to cell mouth (cytostome) and short gullet (cytopharynx), while at the opposite end, posteriorly there is anal pore (cytopyge). The troph. is motile by the vigorous synchronous motion of the cilia.

The cyst stage is round shape measures about 50-60 μm in diameter, the encystation occurs as the troph. Pass down the colon or on the evacuated stool. The cell rounds up and secretes thick cyst wall around it, the cyst is considered the infective stage. Multiplication occur during the troph. Stage by transverse binary fission, so the cyst of *B. coli* unlike the cyst of *E. histolytica* lack to nuclear multiplication.

Conjugation occurs frequently, during which reciprocal exchange of nuclear materials takes place between two trophozoites.





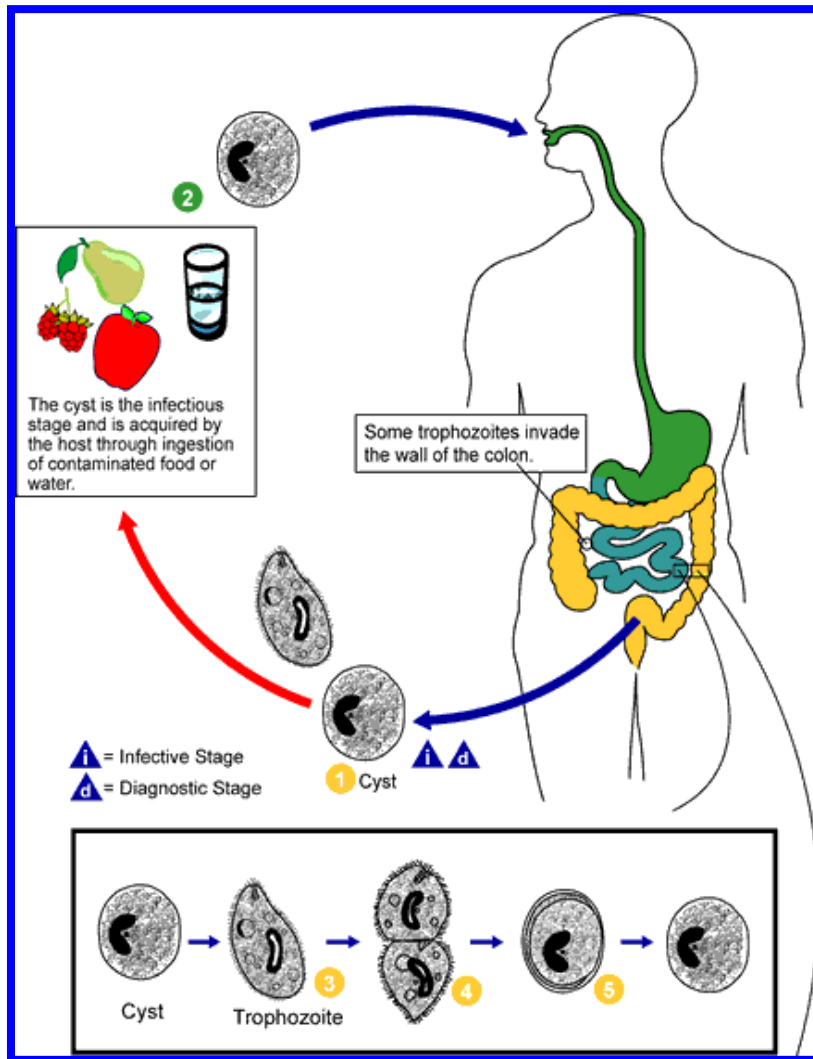
Pathogenecity and symptomatology:-

The infection is acquired by ingestion of contaminated food or drink with the infective cyst stage. Excystation takes place in the small intestine and liberated troph. Reach to the large intestine where they multiply and feed on the cell debris. The severity of disease depends on :-

- 1- The number of parasites.*
- 2- Host immunity.*

Clinical disease results only when the troph. Burrow in the intestinal mucosa, colonize, initiate inflammatory reaction. Due to the mechanical action (rotatory drill like motion) of the parasite assisted by production of cytolytic enzymes which secreted by this troph. ,these two reasons leading to destruction of intestinal wall then to mucosal ulcer and submucosal abscesses.

Clinically balantidiasis is similar to amoebiasis cause diarrhoea, abdominal pain, tenesmus, nausea and vomiting. Occasionally they may cause intestinal perforation with peritonitis and rarely involvement of genital and urinary tract.



Diagnosis:-

The correct diagnosis depends on the recovery the parasite by general stool examination, the trph. Occur in the diarrhoeic stool and cyst in formed stool.

Treatment and prophylaxis:-

- Metronidazole and nitrimidazole have been reported to be useful.
- Tetracyclin 500mg for 10 days is successful.
- Prophylaxis consists of avoidance of contamination of food and drink with the human or animal feces.