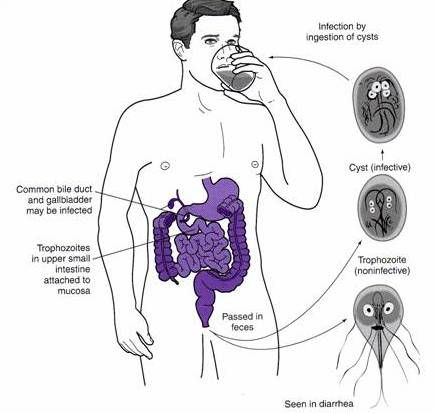
**Giardia lamblia**

**Trophozoite**:pear-shaped with two nuclei (large central karyosome),four pairs of flagella, two axonemes, and a suction disc to attaches with intestinal wall.

**oval** **cyst**: thick-walled with four nucleus and several internal fibera? Each cyst gives rise to two trophozoites during excystation in the intestinal tract.

**Transmission** : is by ingestion of the infective cyst.



**Clinical features :***Clinical disease***:** Giardiasis

Symptomatic giardiasis ranges from mild diarrhea to severe malabsorption syndrome. the onset of the disease is sudden and consists of foul smelling, watery diarrhea, abdominal cramps, flatulence, and streatorrhoea. Blood & pus are rarely present in stool specimens, a feature consistent with the absence of tissue destruction.

**Laboratory diagnosis**

Examination of diarrhoeal stool- trophozoite or cyst, or both . duodenal aspiration, string test (entero-test), or biopsy of the upper small intestine can be examined. several immunologic tests can be implemented for the detection of parasitic antigens.

**Treatment**

For asymptomatic carriers and diseased patients the drug of choice is metronidazole.

**Trichomonas vaginalis**

pear-shaped organism with a central nucleus and four anterior flagella; and undulating membrane extends about two-thirds of its length. It exists only as a trophozoite form.

**Transmission** is by sexual intercourse

**Clinical features :***Clinical disease* trichomoniasis.

Most infected women at the acute stage are asymptomatic , watery vaginal discharge. In symptomatic cases vaginitis occurs with more extensive inflammation, along with erosion of epithelial lining, and painful urination, and results in symptomatic vaginal discharge and dysuria.

**Laboratory diagnosis**

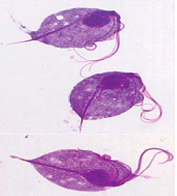
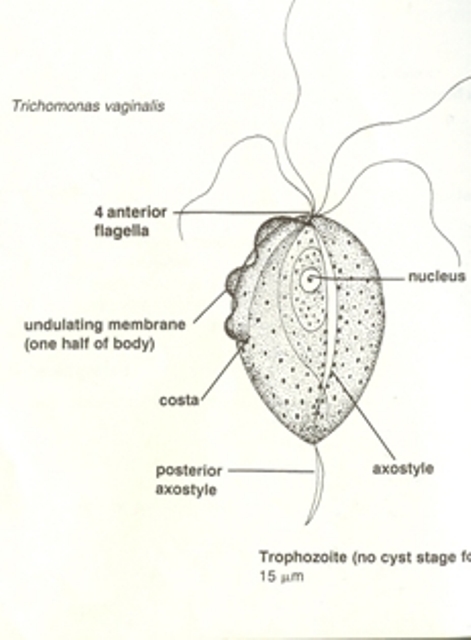
• In females, *T.vaginalis* may be found in urine sediment, wet preparations of vaginal

secretions or vaginal scrapings.

• In males it may be found in urine, wet preparations of prostatic secretions or following massage of the prostate gland.

**Treatment**

Metronidazole is the drug of choice. If resistant cases occur, re-treatment with higher doses is required.



**Trypanosomiasis**

*Trypanosoma brucei complex* – African trypanosomiasis (sleeping sickness)

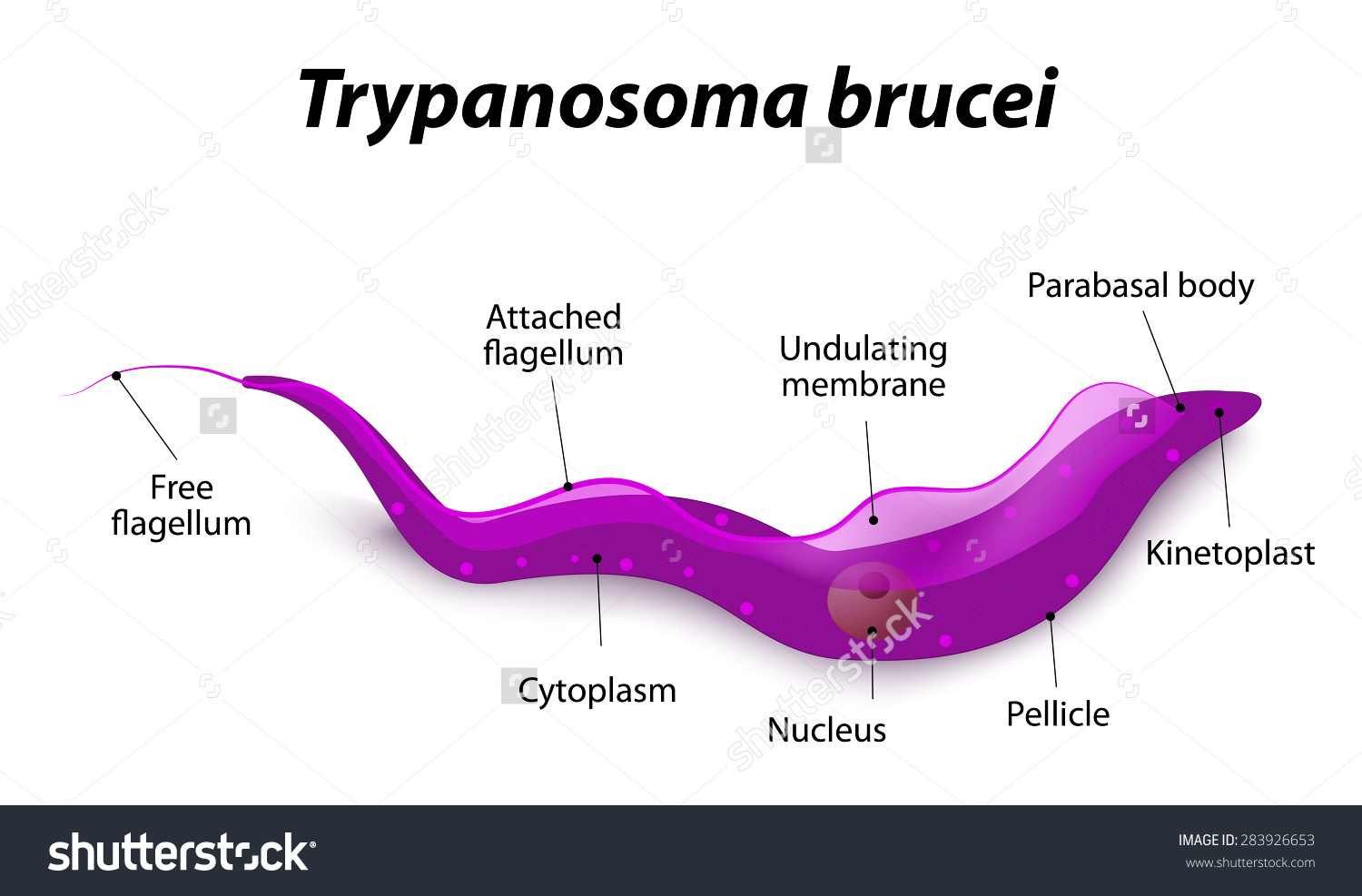
*T,b.gambiense* & *T.b. rhodesiene* The vector for both is the tsetse fly.

*Trypanosoma cruzi* – American trypanosomiasis (Chagas’ disease) The vector is the Reduviid bug

**morphology**

These species may have amastigote, promastigote, epimastigote, and trypomastigote stages in their life cycle. Typical trypanosome structure is an elongated spindle-shaped body that

more or less tapers at both ends, a centrally nucleus, a kinetoplast posterior to nucleus, an undulating membrane arising from the kinetoplast and proceeding forward along the margin of the cell membrane and a single free flagellum at the anterior end.



**Laboratory**

Examination of thin and thick films blood, and in aspiration from lymph nodes and concentrated spinal fluid. Methods for concentrating parasites in blood may be including

centrifugation of heparinized samples and an ion–exchange chromatography. Biopsy of lymph nodes, liver, spleen, or bone marrow may demonstrate organisms in amastigote stage.

**Treatment**

The drug of choice is benzimidazole.

