Mastigophora

- Zoomastigophora — Phytomastigophora
- Intestinal & Urogenital F. — Blood & Tissue F.

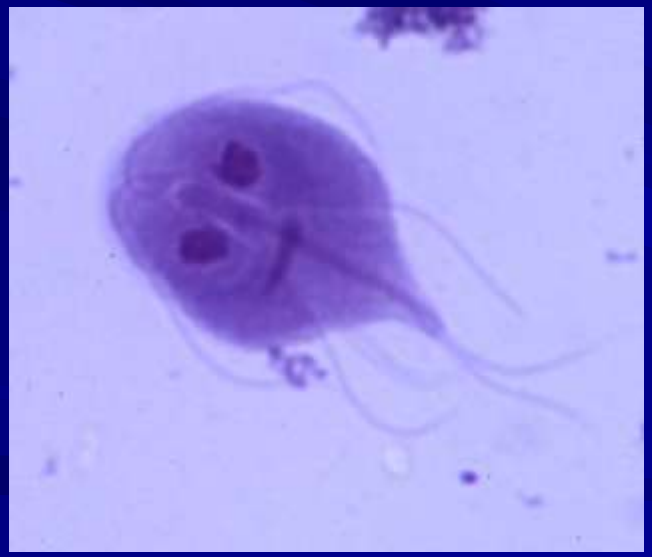
- Pathogen F. : 1-Giardia lamblia
- 2-Trichomonas vaginalis
- 3- Dientamoeba fragilis

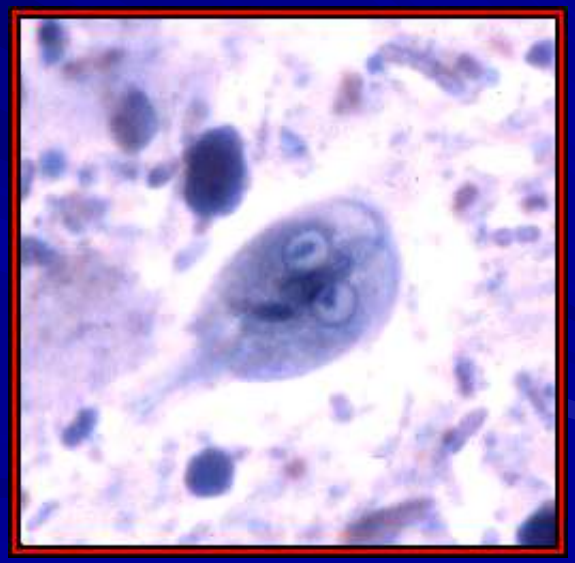
- Non-pathogen F. : T. tenax
- T. hominis
- Chilomastix mesnili
- ……..

Giardia Lamblia

History: Leeuwenhoek in 1681

Geographic distribution: cosmopolitan parasite, more common in warm than in cool climates and in children





Giardia Lamblia

History: Leeuwenhoek in 1681

Geographic distribution: cosmopolitan parasite, more common in warm than in cool climates and in children

Morphology: (body length 9 to 21 and width 5 to 15 µm)

-Habitat: upper part of the small intestine, sometimes in the gallbladder and in biliary drainage

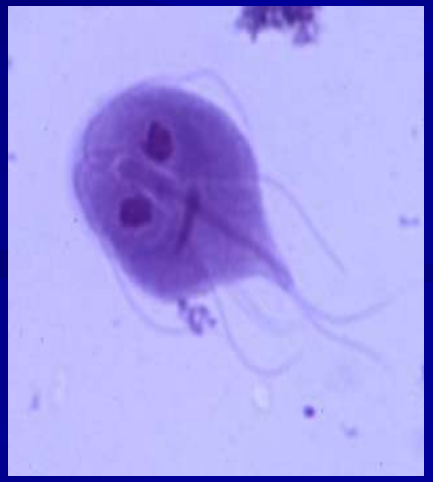
-anterior portion of ventral surface contain sucking disk

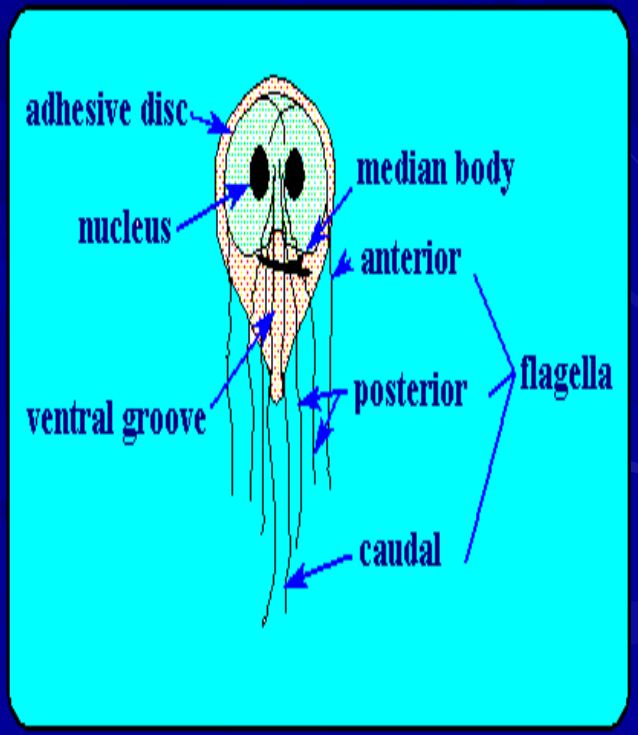
-progressive , “ falling leaf “ motility

-pear-shaped body with attenuated posterior end

-two nuclei and two median bodies

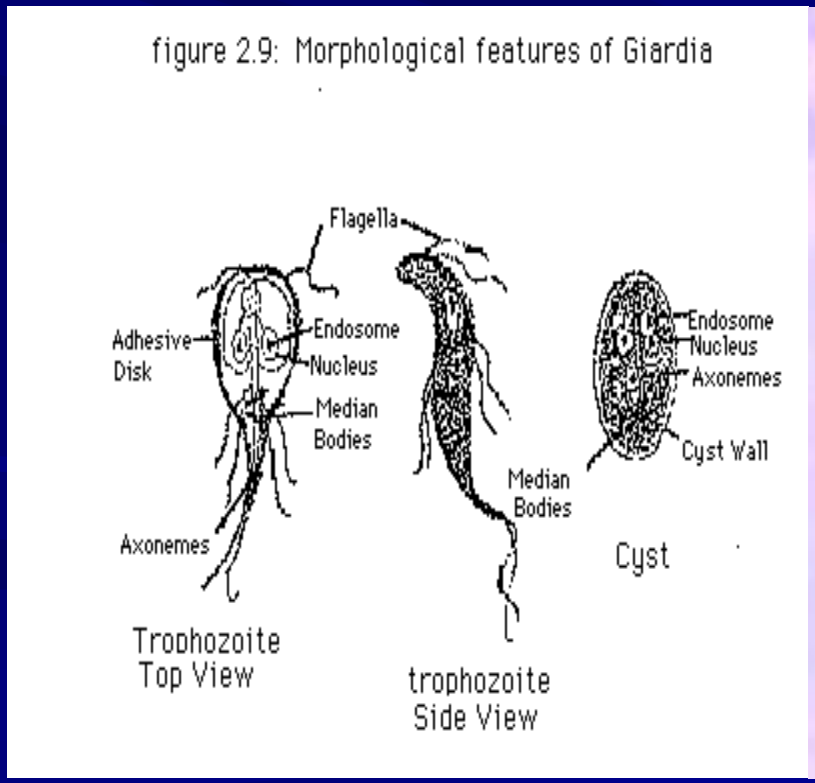
-three pairs flagella

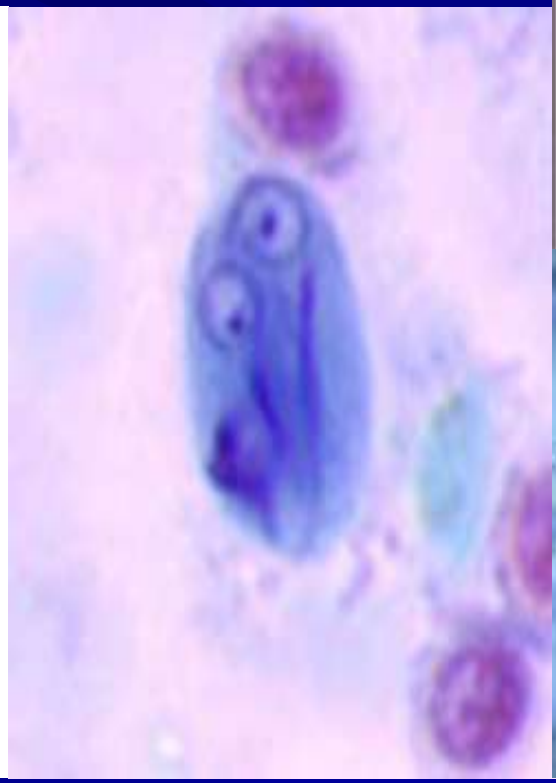


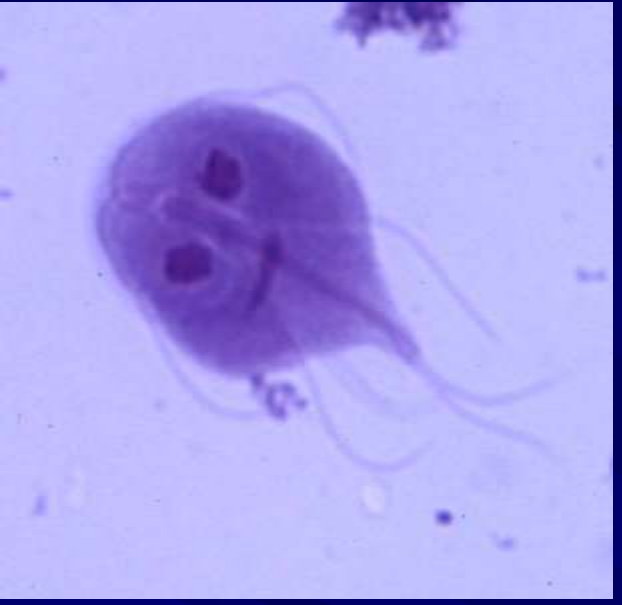


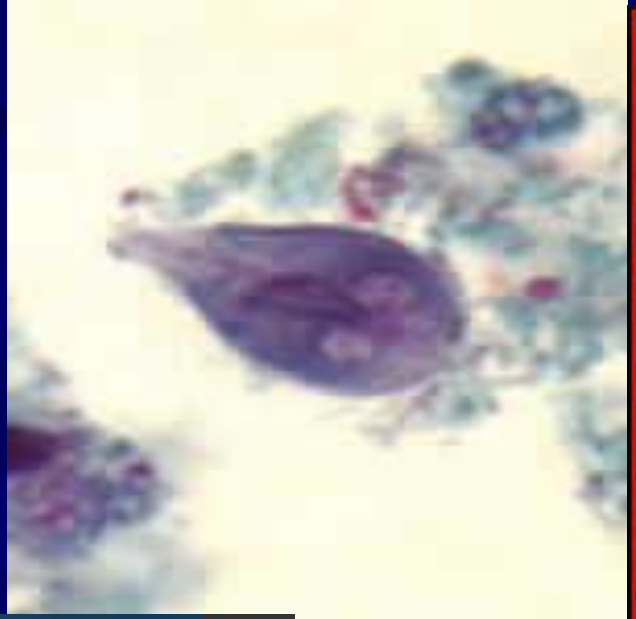
Cyst form of Giaridia

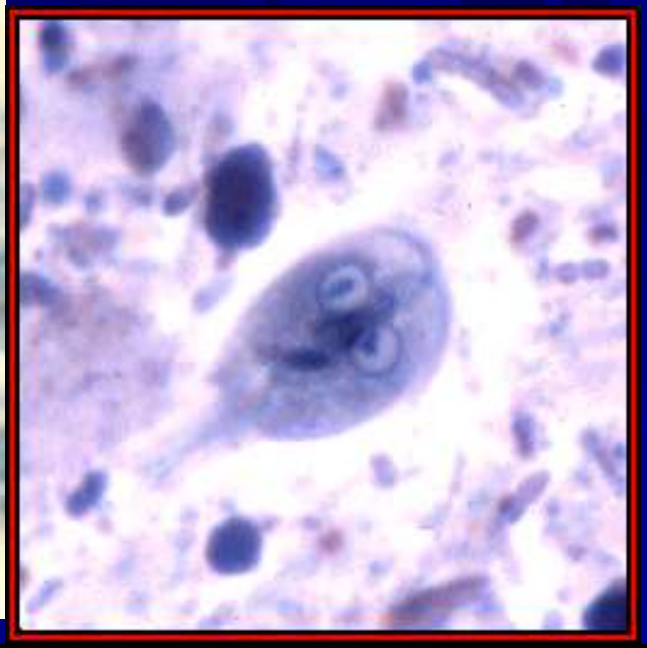
- Cyst:
  - are ovoid and measure 8 to 14 by 7 to 10 µm
  - Four nuclei; four median body,
  - numerous refractile thread in cytoplasm

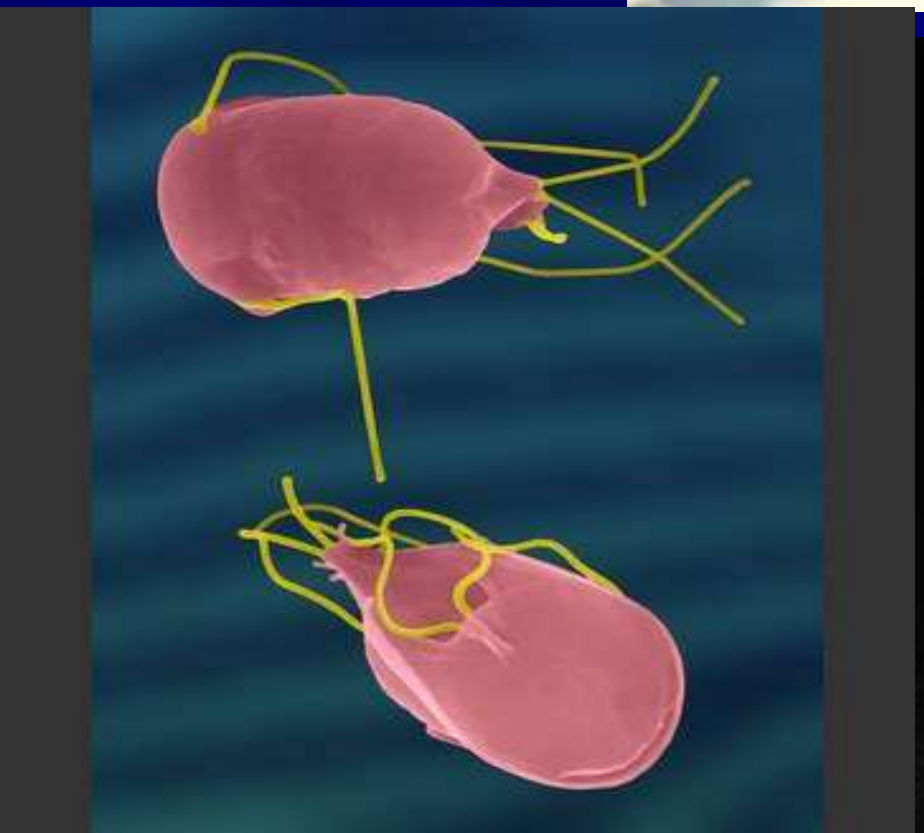


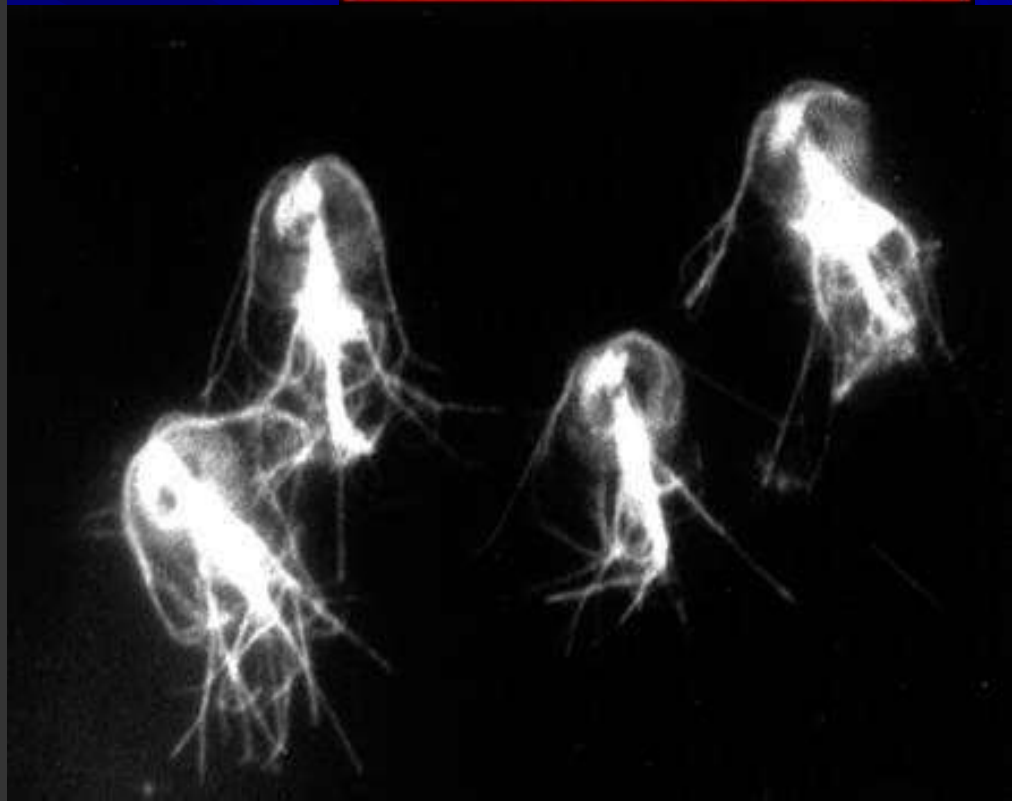


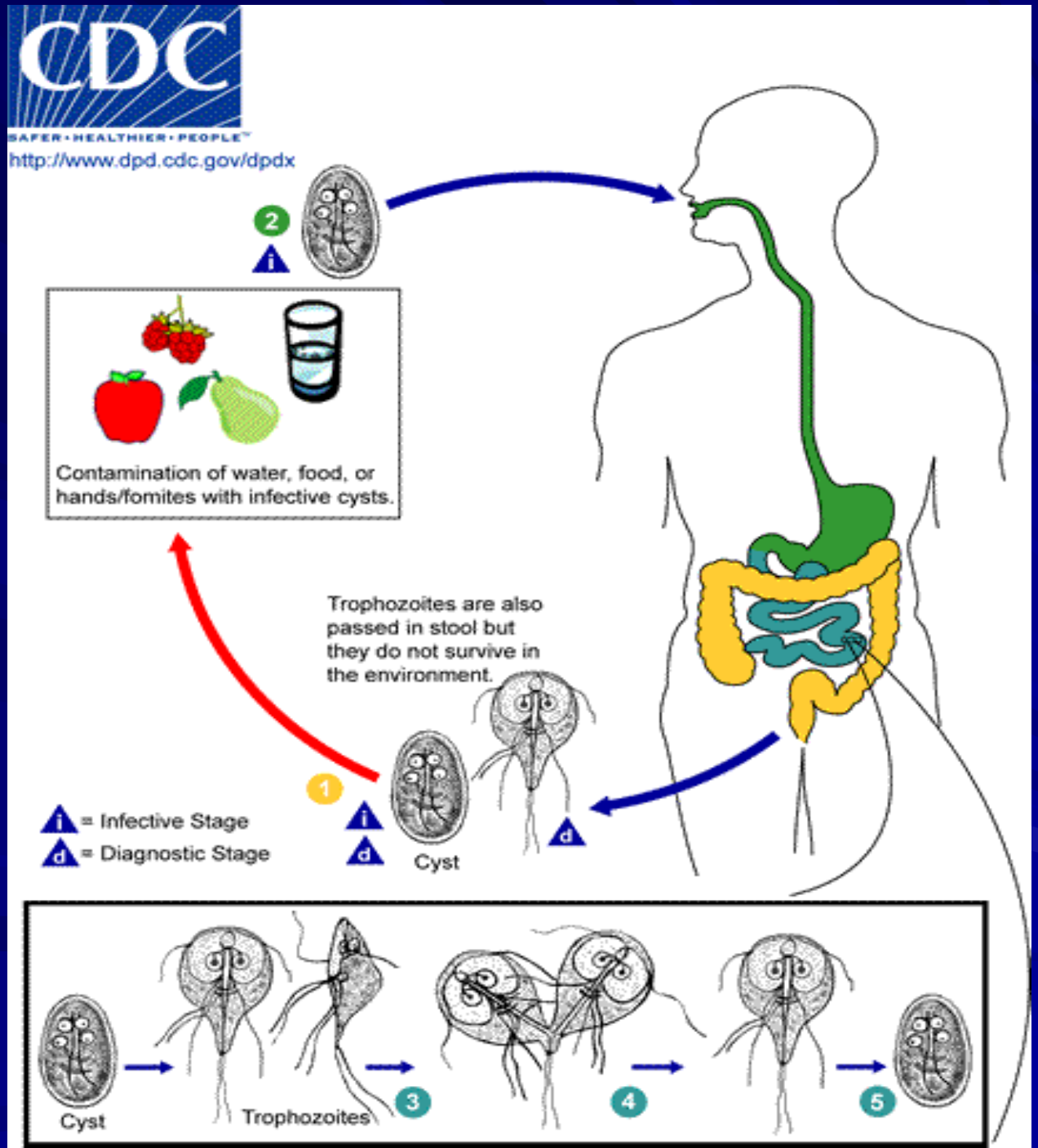








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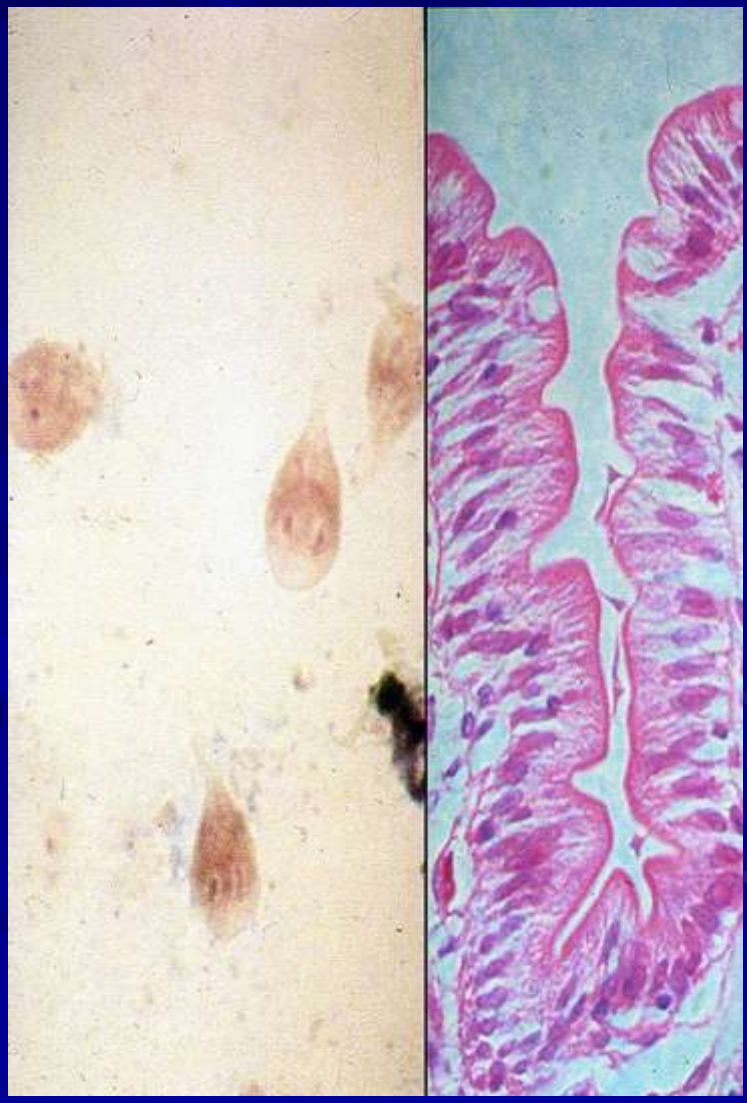
2
i
Contamination of water, food, or hands/fomites with infective cysts.
Trophozoites are also passed in stool but they do not survive in the environment.
1
i
d
Cyst
i = Infective Stage
d = Diagnostic Stage
Cyst
Trophozoites
3
4
5

Pathenogensis

- Predispose factors

to symptomatic giardiasis:

-Achlorhydia
-Hypogammaglobulinemia
-Deficiency in secretory IgA
in the small bowel
-Blood group A in Children
-Bacterial colonization of the jujenum
-Role of sucking disk
-Lactose intolerance
-Capability of normal human milk
to kill trophozoite of giardia in vitro



- **Clinical Features:**

  The spectrum varies from asymptomatic carriage to severe diarrhea and malabsorption.

- Acute giardiasis develops after an incubation period of 1 to 14 days (average of 7 days) and usually lasts 1 to 3 weeks.

- Symptoms include diarrhea, abdominal pain, bloating, nausea, and vomiting.

- In chronic giardiasis the symptoms are recurrent and malabsorption and debilitation may occur.

- **Laboratory Diagnosis:**

- Giardiasis is diagnosed by the identification of cysts or trophozoites in the feces, using direct mounts as well as concentration procedures. Repeated samplings may be necessary.

- In addition, samples of duodenal fluid (e.g., Enterotest) or duodenal biopsy may demonstrate trophozoites.

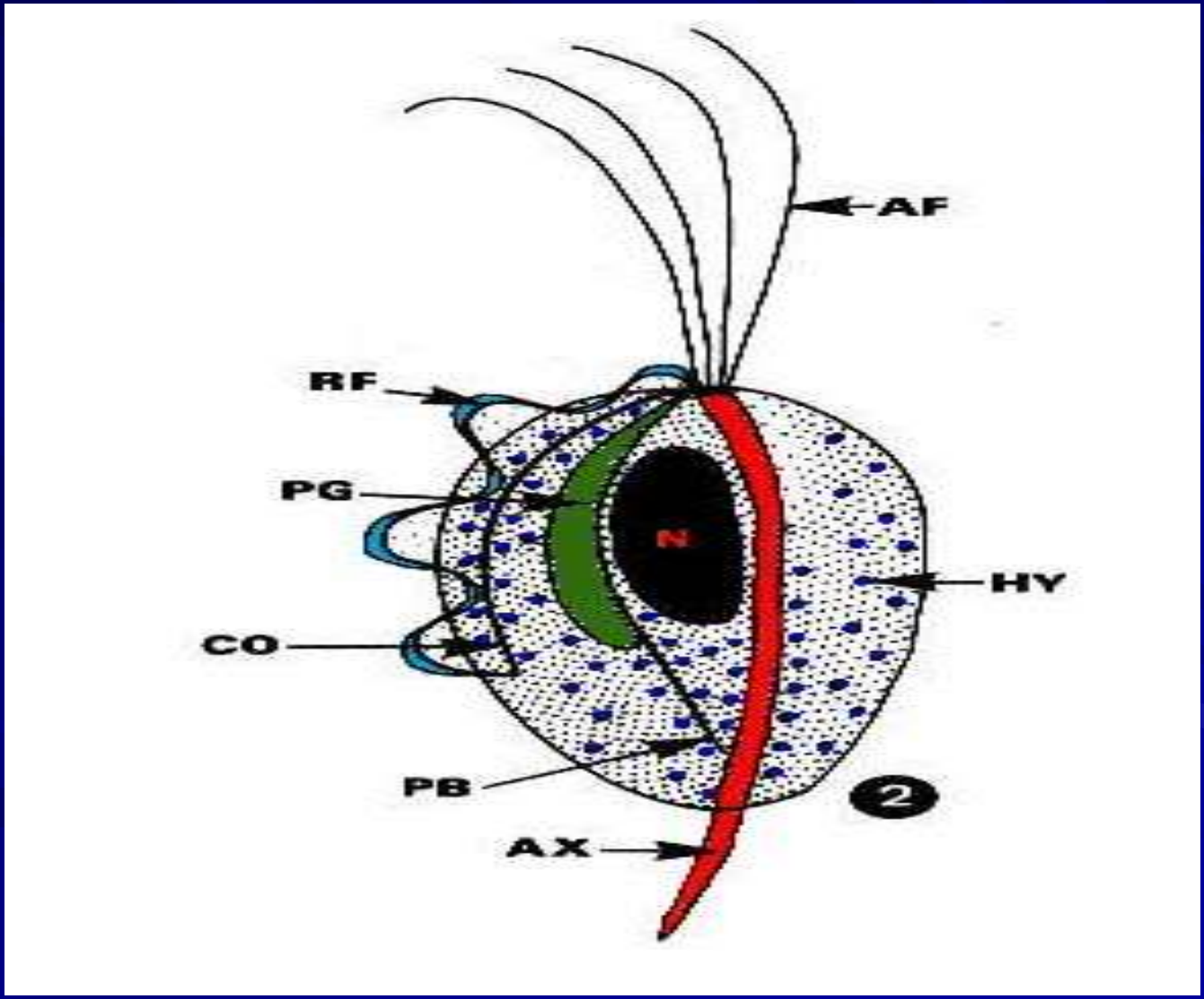
- Alternate methods for detection include antigen detection tests by enzyme immunoassays, and detection of parasites by immunofluorescence. Both methods are available in commercial kits.

- **Treatment:**

- Several prescription drugs are available to treat giardiasis including metronidazole and tinidazole.

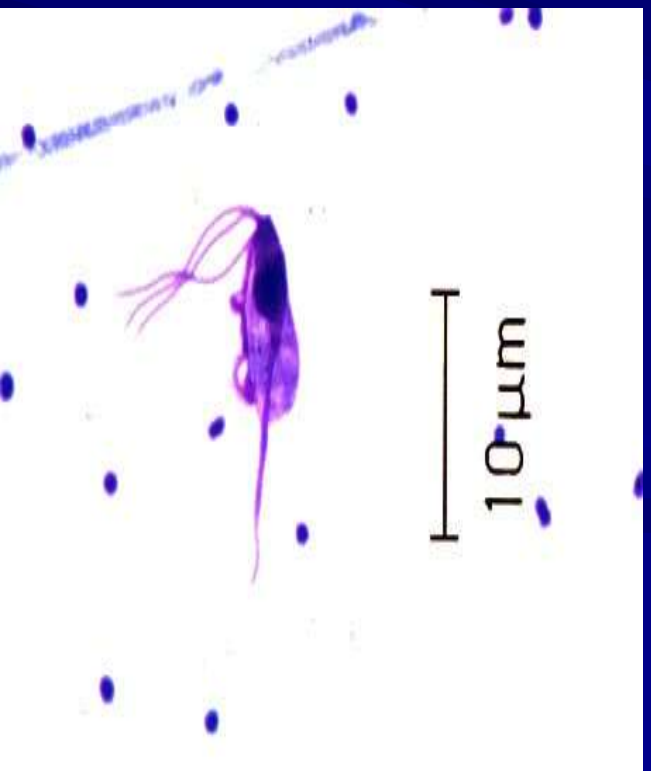
- Nitazoxanide has provided some encouraging results in the management of giardiasis in children.

Morphology of Trichomonas Spp.



Trichomonas tenax (T. buccalis)

- It is a small organism(6 to 1o µm)
- Occure most frequently I pyorrheal pockets and tonsillar crypts



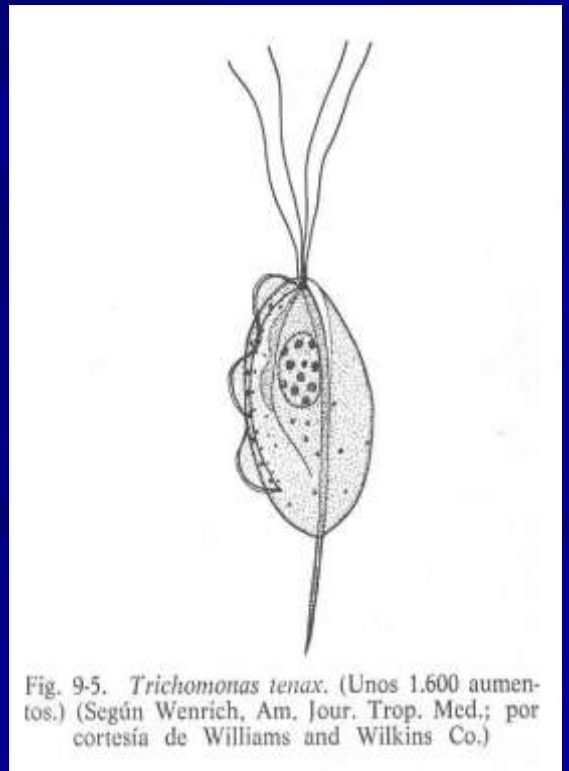
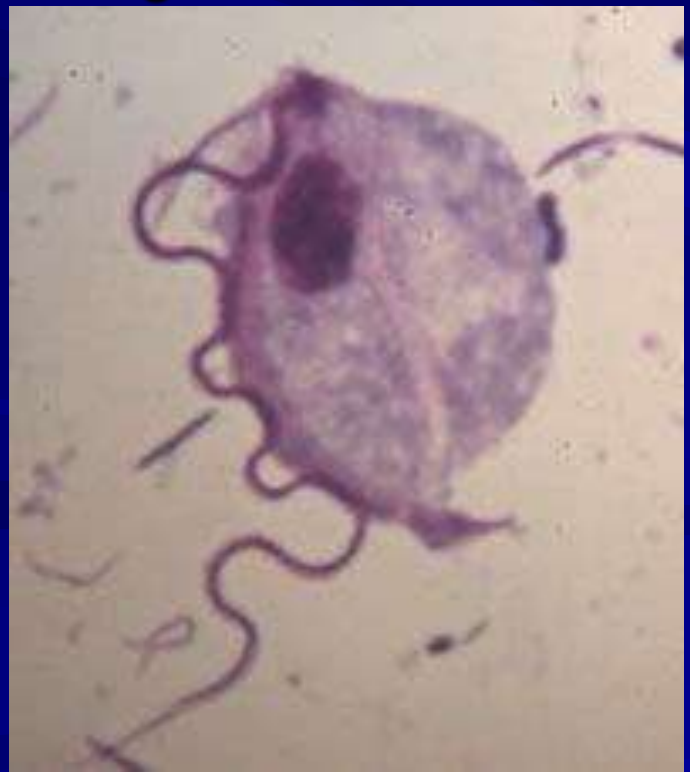
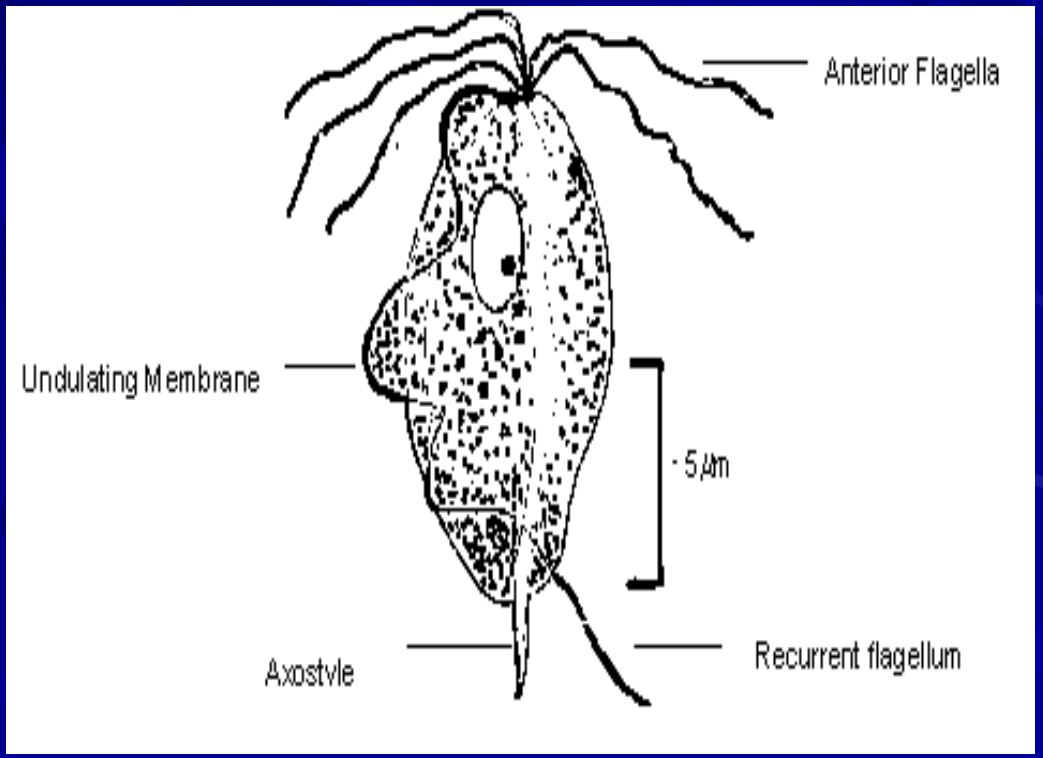


Fig. 9-5. *Trichomonas tenax*. (Unos 1.600 aumentos.) (Según Wenrich, Am. Jour. Trop. Med.; por cortesía de Williams and Wilkins Co.)

Trichomonas hominis

- Trophozoite size: 7 to 15 µm long
- Recurrent flagellum parallels the body , running to the posterior end, projects behind the body as a free flagellum






Trichomonas vaginalis
trophozoite
(by P.W. Pappas and S.M. Wardrop)

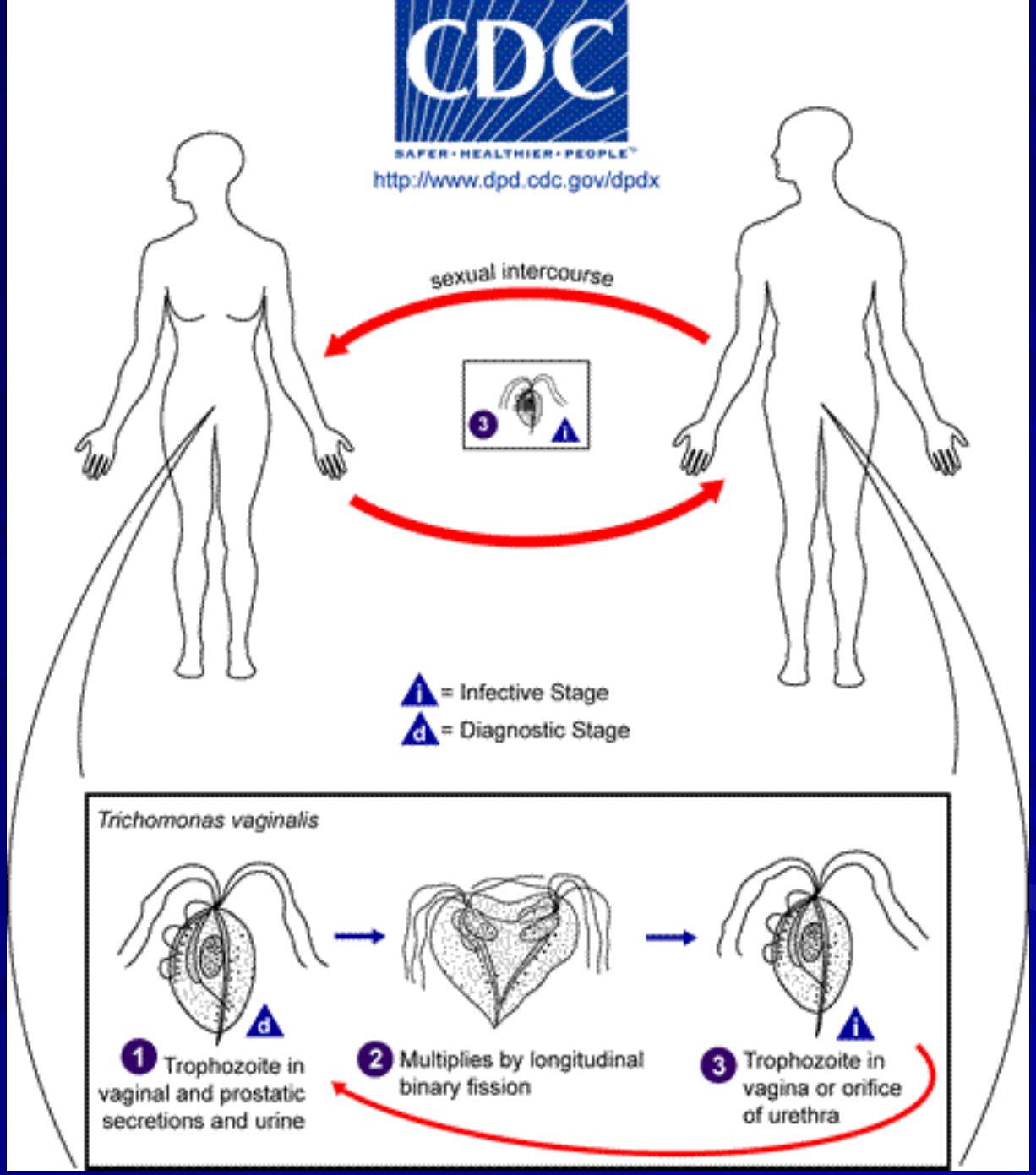
Trichomoniasis

- **Causal Agent:**

- *Trichomonas vaginalis*, a flagellate, is the most common pathogenic protozoan of humans in industrialized countries.

Geographic Distribution

- Worldwide. Higher prevalence among persons with multiple sexual partners or other venereal diseases.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sexual intercourse
3
i
i = Infective Stage
d = Diagnostic Stage
Trichomonas vaginalis
d
1 Trophozoite in vaginal and prostatic secretions and urine
2 Multiplies by longitudinal binary fission
i
3 Trophozoite in vagina or orifice of urethra

Predispose factors:

- Ph changes
- Bacterial flora change
- Physiological changes

Pathogenesis:

-At least four surface protein contribute in host cell adherence.

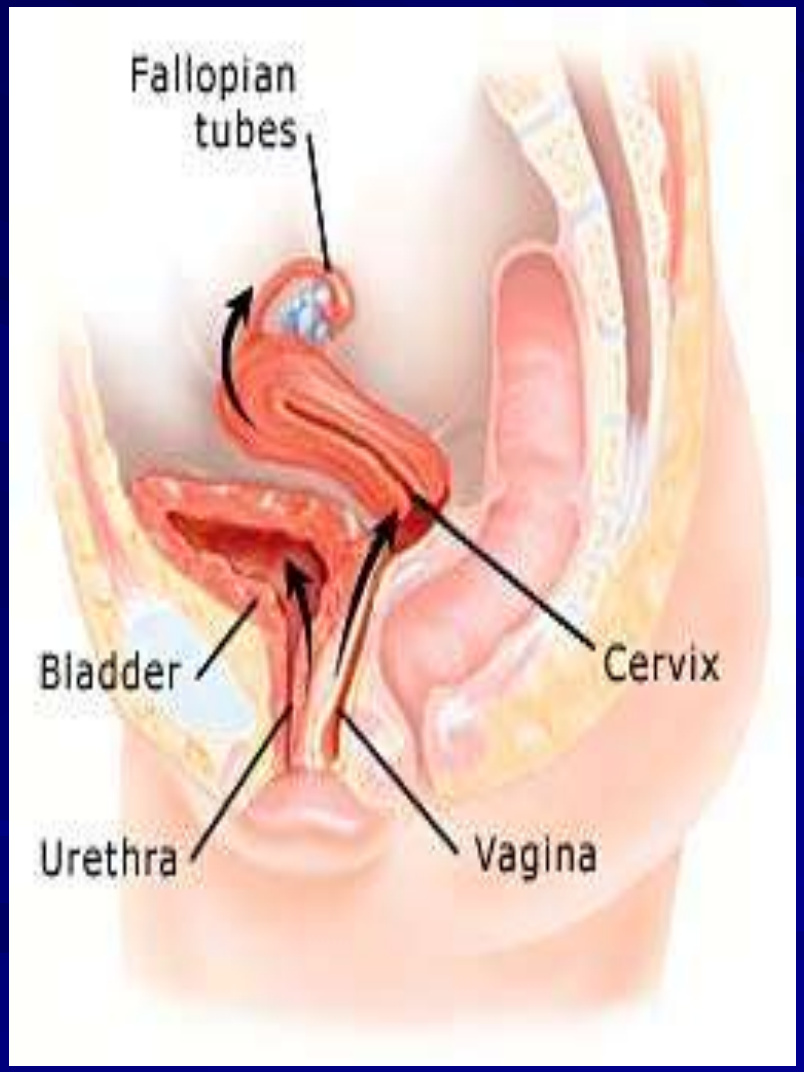
-Contact- dependent cytopathic effect

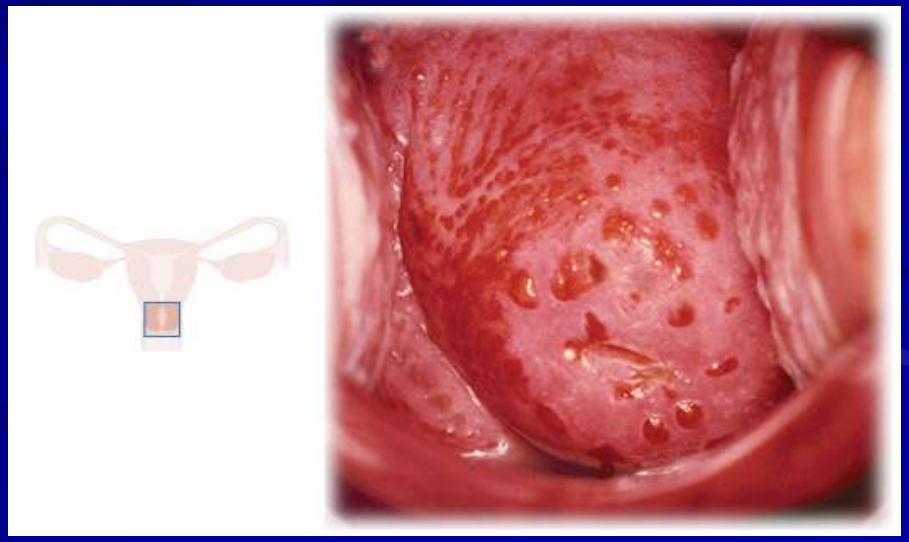
(kill target cells by direct contact without phagocytosis)

-Produce a cell-detaching factor

Clinical Features:

- *Trichomonas vaginalis* infection in women is frequently symptomatic.
- Vaginitis with a purulent discharge is the prominent symptom, and can be accompanied by vulvar and cervical lesions, abdominal pain, dysuria and dyspareunia.
- The incubation period is 5 to 28 days. In men, the infection is frequently asymptomatic; occasionally, urethritis, epididymitis, and prostatitis can occur.


Fallopian tubes
Bladder
Cervix
Urethra
Vagina



Laboratory Diagnosis:

- Microscopic examination of wet mounts may establish the diagnosis by detecting actively motile rganisms. This is the most practical and rapid method of diagnosis (allowing immediate treatment), but it is relatively insensitive.

- Direct immunofluorescent antibody staining is more sensitive than wet mounts, but technically more complex.

- Culture of the parasite is the most sensitive method, but results are not available for 3 to 7 days.

- In women, examination should be performed on vaginal and urethral secretions.

- In men, anterior urethral or prostatic secretions should be examined.

Treatment

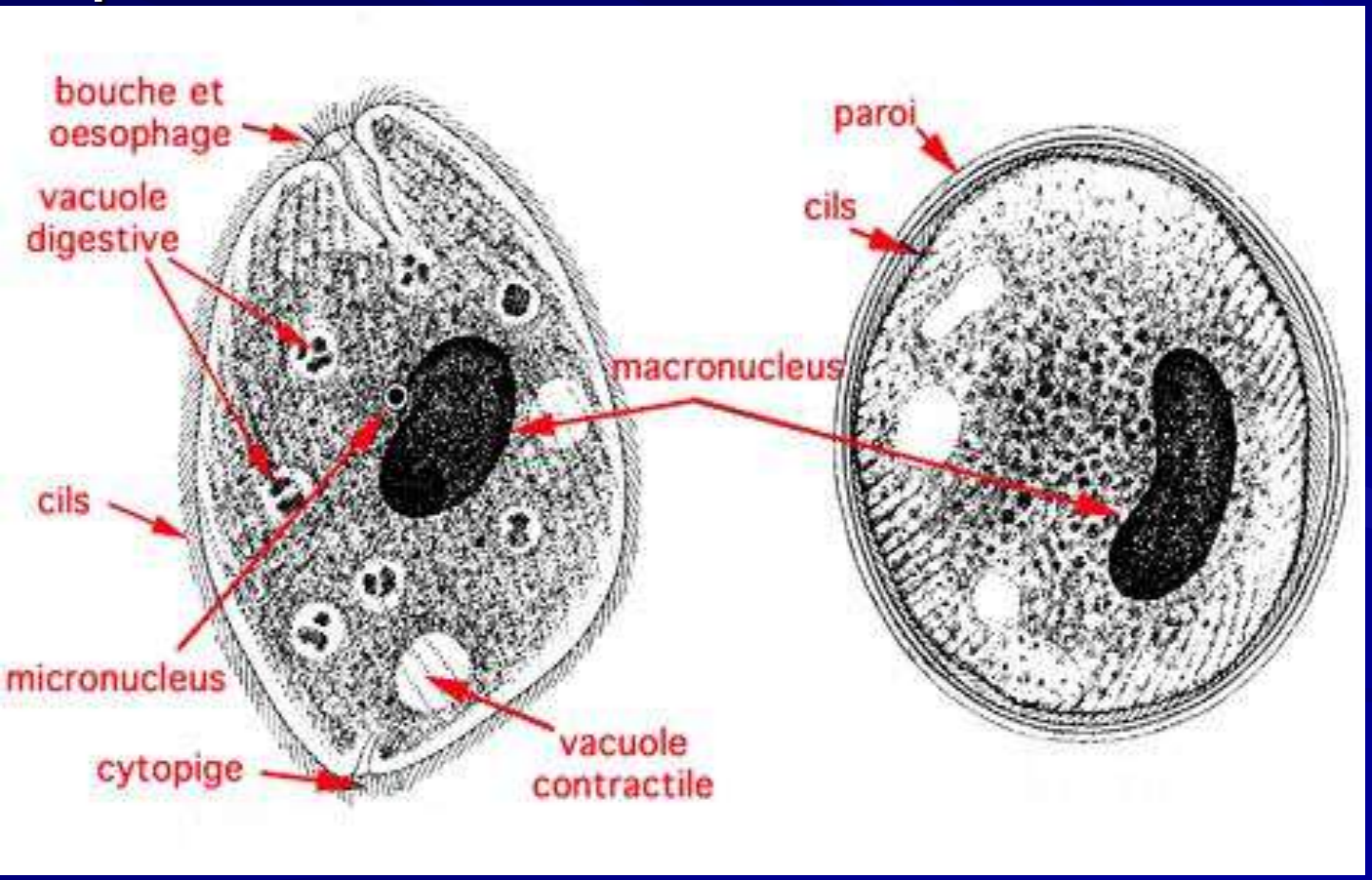
Treatment should be implemented under medical supervision, and should include all sexual partners of the infected persons.

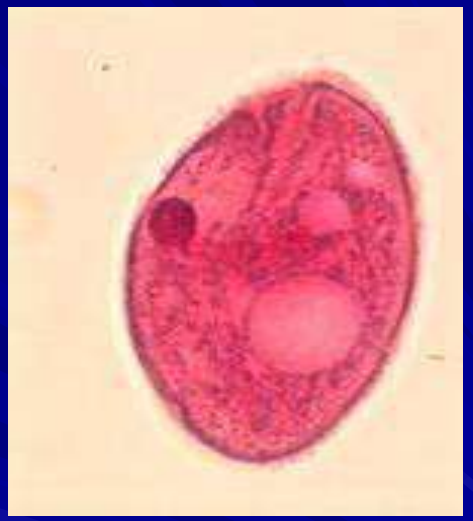
- The drugs of choice for treatment are metronidazole and tinidazole; therapy is usually highly successful. Strains of *Trichomonas vaginalis* resistant to both drugs have been reported.

Balantidium coli

Causal Agent:

Balantidium coli, a large ciliated protozoan parasite

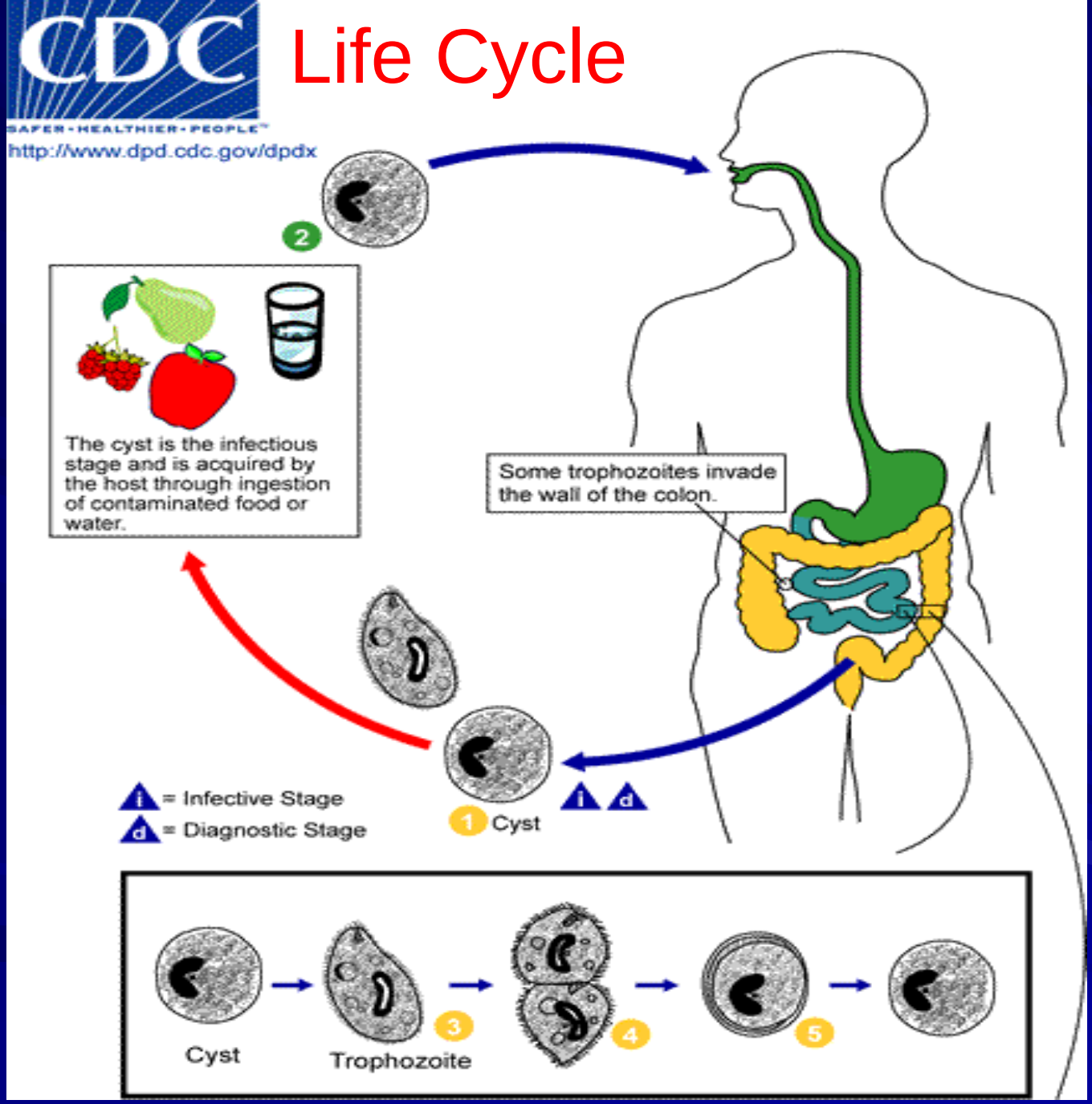




Geographic Distribution

Worldwide. Because pigs are an animal reservoir, human infections occur more frequently in areas where pigs are raised. Other potential animal reservoirs include rodents and nonhuman primates.

Life Cycle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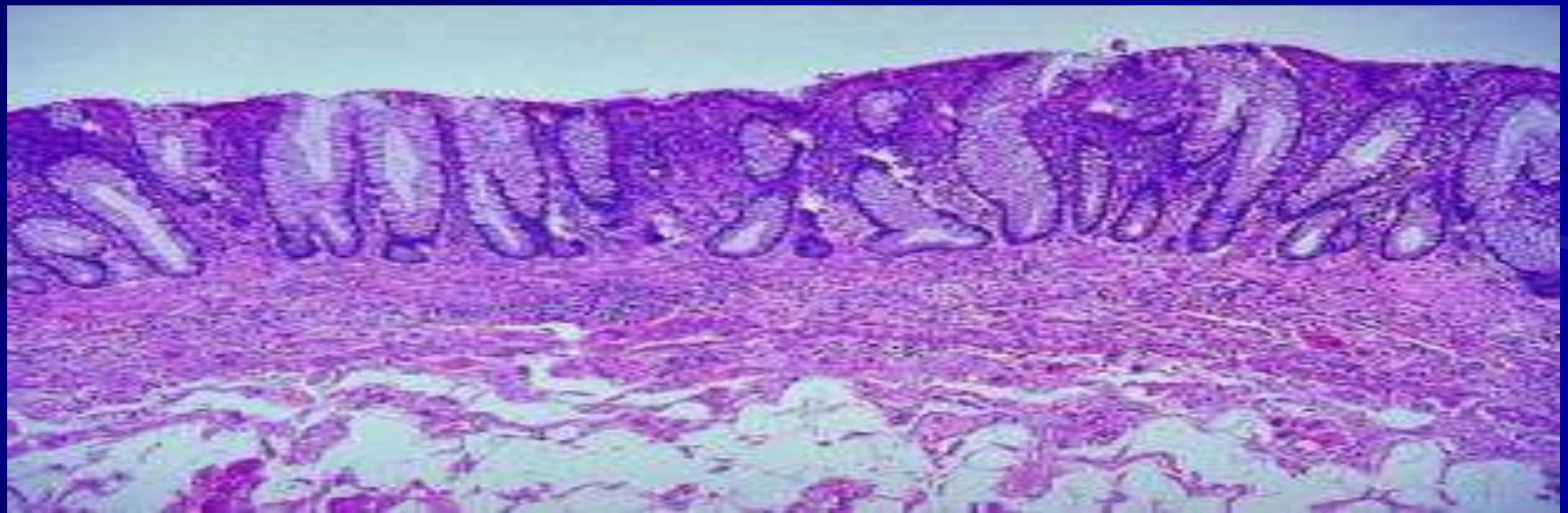
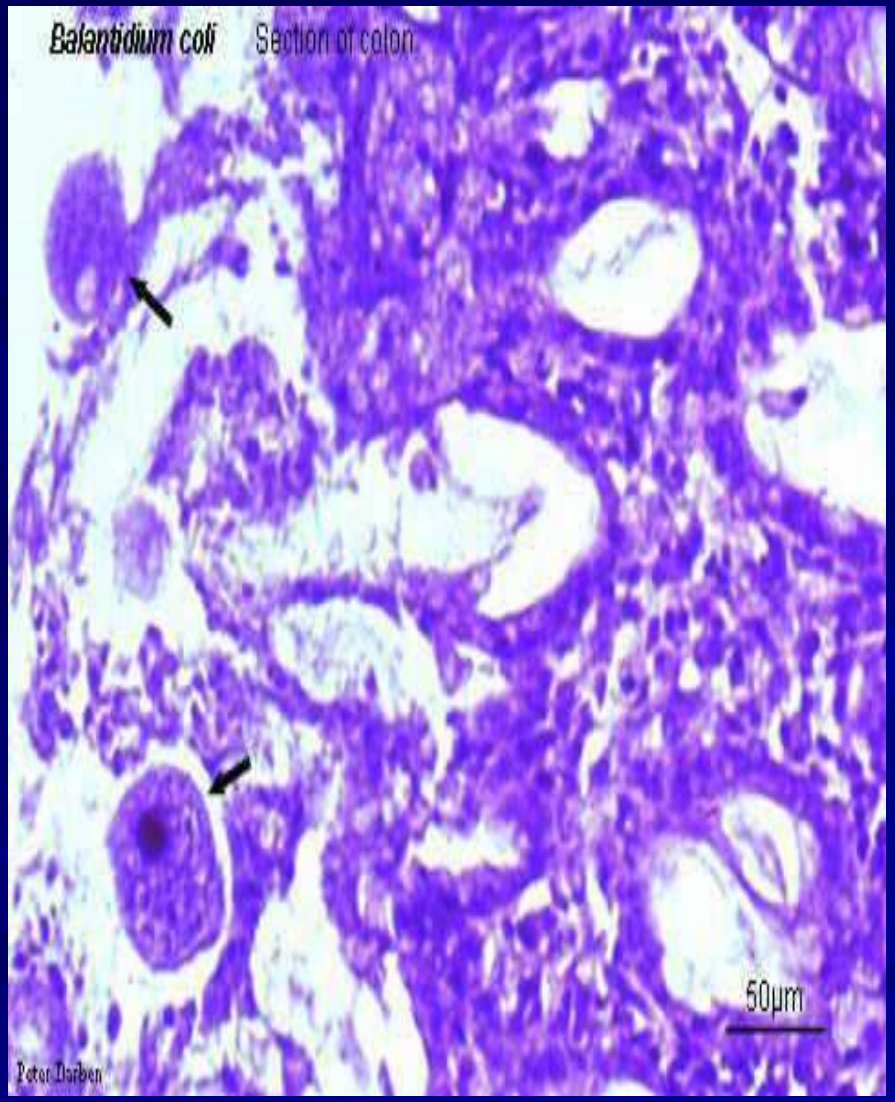
2
The cyst is the infectious stage and is acquired by the host through ingestion of contaminated food or water.
Some trophozoites invade the wall of the colon.
i = Infective Stage
d = Diagnostic Stage
1 Cyst
i d
Cyst
3
Trophozoite
4
5

Clinical Features

Most cases are asymptomatic. Clinical manifestations, when present, include persistent diarrhea, occasionally dysentery, abdominal pain, and weight loss. Symptoms can be severe in debilitated persons




Balantidium coli
Section of colon
50µm
Peter Darben


Balantidium coli
Trophozoite
Cyst
50µm
Peter Darben

Laboratory Diagnosis

Diagnosis is based on detection of trophozoites in stool specimens or in tissue collected during endoscopy. Cysts are less frequently encountered.

Balantidium coli is passed intermittently and once outside the colon is rapidly destroyed. Thus stool specimens should be collected repeatedly, and immediately examined or preserved to enhance detection of the parasite

Treatment

The drug of choice is tetracycline*, with metronidazole* and iodoquinol* as alternatives.

- Tetracycline is contraindicated in pregnancy and in children less than 8 years old.