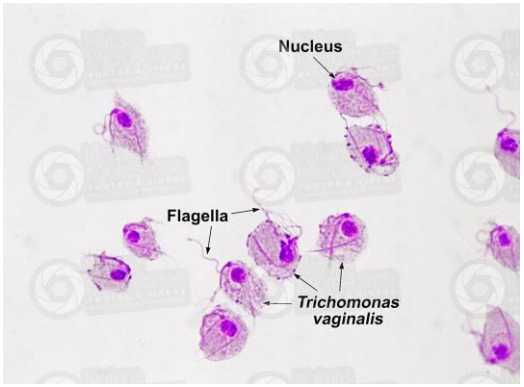
Universiti Islam Antarabangsa Sultan Abdul Halim Mu'adzam Shah

جَامِعَةُ السُّلْطَانِ عَبْدُ الْحَلِيمِ مُعَظَّمُ شَاهِ الْإِسْلَامِيَّةُ الْعَالَمِيَّةُ

Sultan Abdul Halim Mu'adzam Shah International Islamic University



Trichomonas vaginalis

Topic Learning Outcomes

At the end of the lecture, students will be able to:

1. Describe the epidemiology of trichomoniasis in the world.
2. Describe the pathogenesis of *T. vaginalis.*
3. Describe the clinical manifestations of trichomoniasis.
4. Identify common methods used in the diagnosis of trichomoniasis.
5. List CDC-recommended treatment regimens for trichomoniasis.
6. Describe patient follow up and partner management for trichomoniasis.
7. Describe appropriate prevention counseling messages for patients with trichomoniasis.

Introduction

- Objectives
- **Introduction**
- Definition
- Distribution
- Morphology
- Hosts
- Life Cycle
- Transmission
- Pathogenesis
- Manifestation
- Diagnosis
- Treatment
- Prevention

- Trichomoniasis is the most common curable STD in young sexually active females with worldwide distribution.
- Can cause acute or chronic vaginitis, acute or chronic urethritis and prostatitis.

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- Vaginitis is usually characterized by:
  - Vaginal discharge
  - Vulvar itching
  - Irritation
  - Odor
- Common types of vaginitis
  - Trichomoniasis (15%-20%)
  - Bacterial vaginosis (40%-45%)
  - Vulvovaginal candidiasis (20%-25%)

Definition

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- Trichomoniasis an infection caused by parasitic trichomonads, chiefly affecting the urinary tract, vagina, or digestive system.
- 3 species of trichomonads found in human.
  - *Pentatrichomonas hominis* (intestine)
  - *Trichomonas tenax* (oral cavity)
  - *Trichomonas vaginalis* (vagina)
- ***T. vaginalis*** is a genital flagellate.
- It is a sexually transmitted infection that in women can cause vaginitis.

Geographical Distribution

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- Worldwide. 173 million cases/yr worldwide. 7-8 million cases/yr in US.
- Common sexually transmitted protozoan.
- Common at the of 16 – 35 (sexually active).
- Concomitant with other pathogenic organisms.

Morphology

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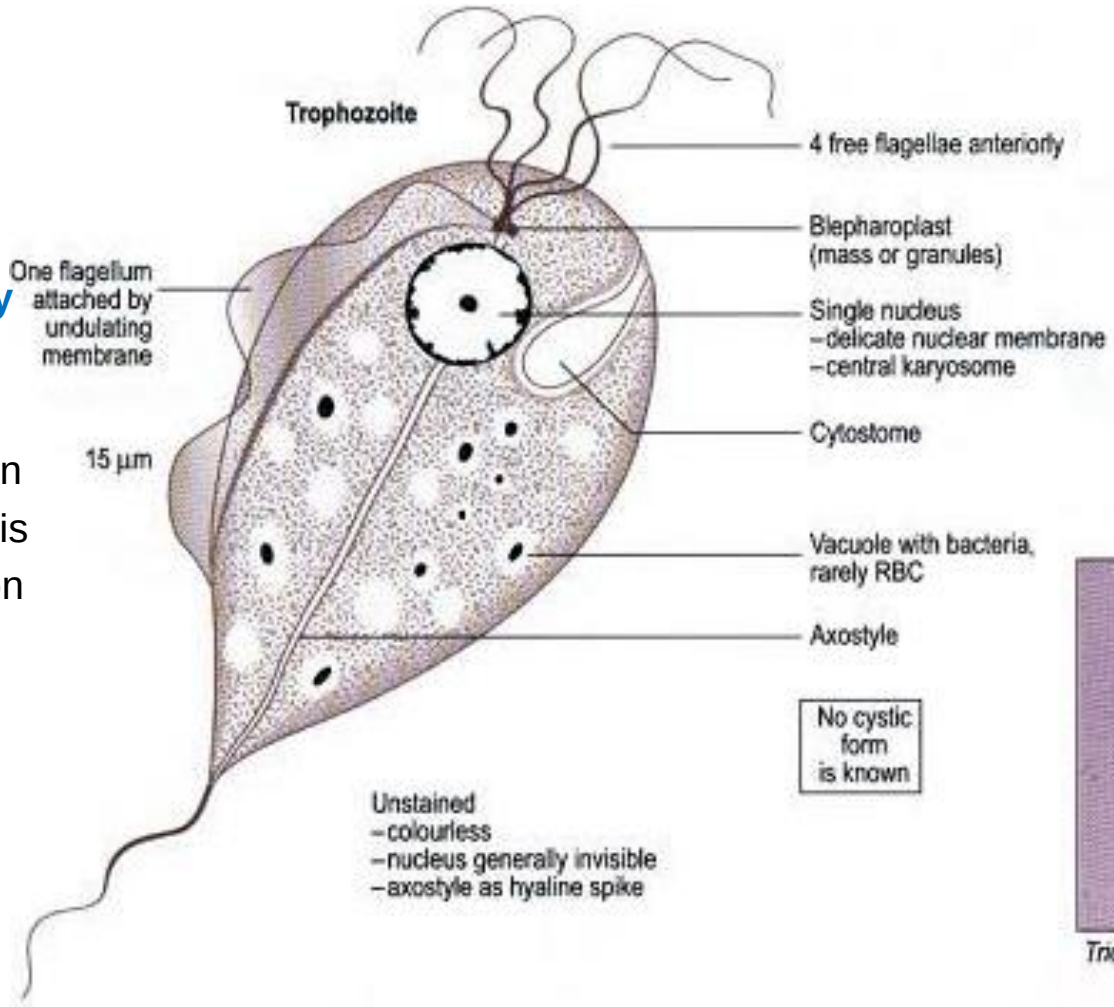

Trichomonas trophozoite

Morphology

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- Size 10-15 x 8 µm
- Pear-shaped
- Single vesicular Nucleus anteriorly & a small antero-lateral cytostome
- Thin axostyle midway crossed by thick parabasal body
- Four anterior free flagella and a lateral marginal flagellum with an undulating membrane that reach to about half of the body length.
- No cyst

Host

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- Humans are the only natural hosts.
- Females - in the vagina and urethra.
- Males - in the urethra and prostate.

Life Cycle

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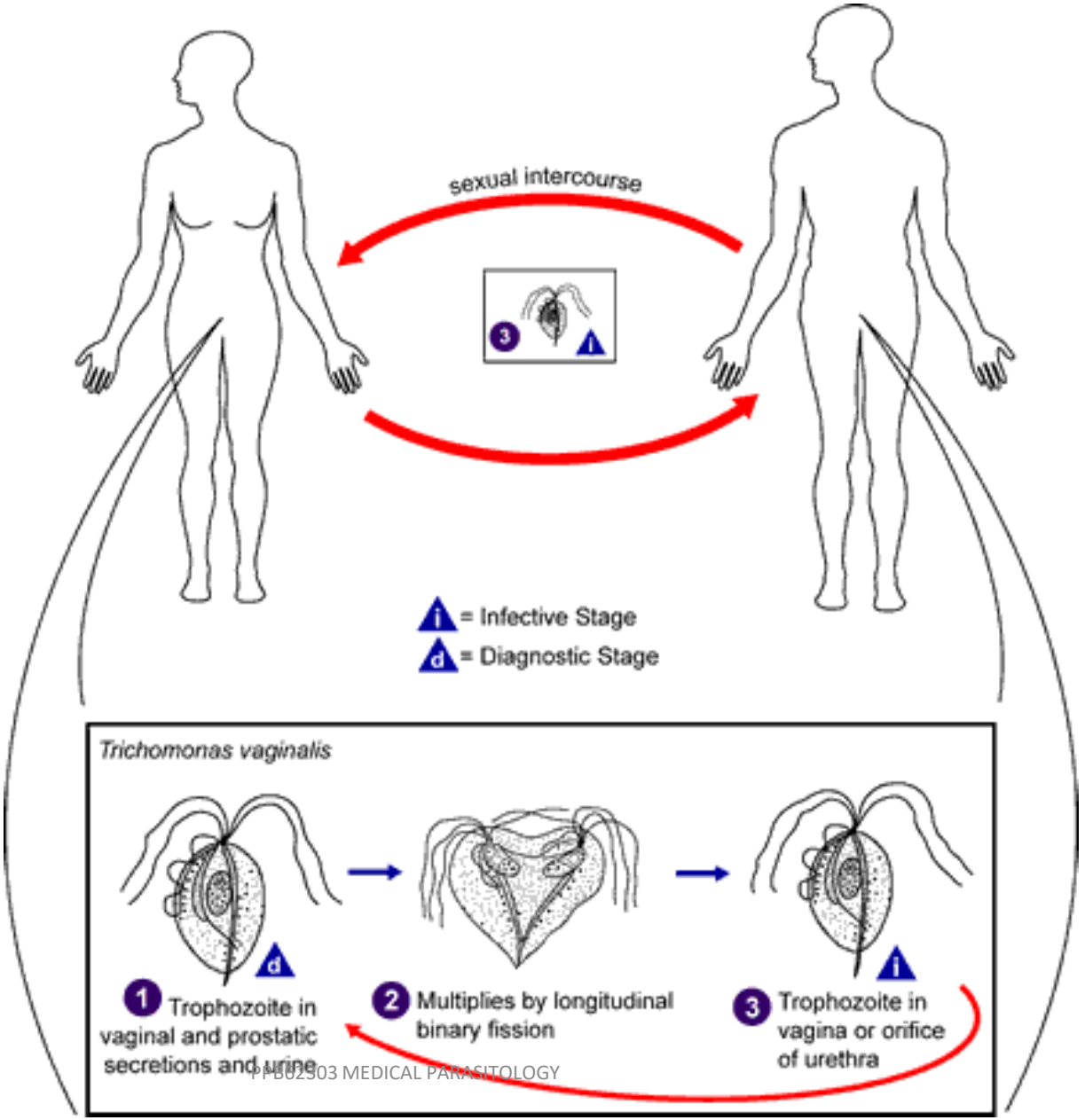

Transmission

- Objectives
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- Almost always sexually transmitted
- *T. vaginalis* may persist for months to years in epithelial crypts and periglandular areas. For this reason, subclinical infection may occur.
- Transmission between female sex partners has been documented
- Infection is possible through contact with infected surfaces like toilet seat, but unusual
- Babies can be infected during birth but shows no symptoms & dismiss on its own.

Pathogenesis Vaginal Environment

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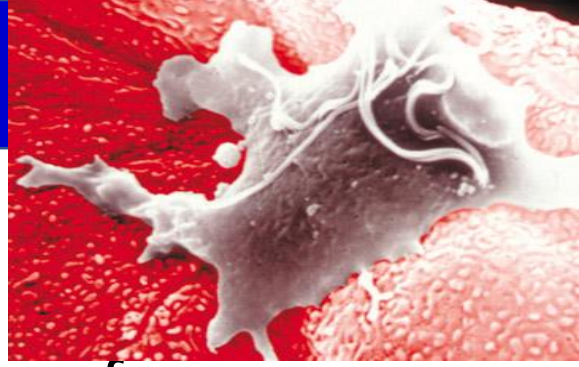
- The vagina is a dynamic ecosystem that contains approximately 10^9 bacterial colony-forming units.
- Normal vaginal discharge is clear to white, odorless, and of high viscosity.
- Normal bacterial flora is dominated by lactobacilli – other potential pathogens present.
- Acidic environment (pH 3.8-4.2) inhibits the overgrowth of bacteria
- Some lactobacilli also produce H_2O_2, a potential microbicide.
- When the pH is elevated to 6, the bacilli are reduced in number and *T. vaginalis* flourish best.

Pathogenesis



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- Trophozoites feed on mucosal surface of vagina and urethra producing sloughing of squamous epithelial cells
  - Releases proteins which destroy the cell and elicits an intense local cellular immune response with inflammation resulting in
    - Punctate mucosal haemorrhages
    - Lymphocyte recruitment
  - Inflammation-related factors
    - Cytokines
    - Implicated in pathology of prostate cancer

Clinical Manifestation

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- Women - asymptomatic or itching, burning, frothy discharge, creamy white in color, full of bacteria, epithelial cells, pus and organisms. Worsens after menses, chronic, symptoms and parasite can be persistent.
- Men - asymptomatic or mild urethritis: rare to detect by wet prep in men due to urine flow.

Diagnosis Physical Examination

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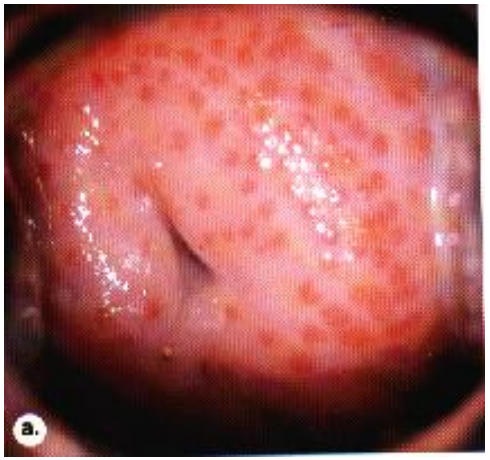
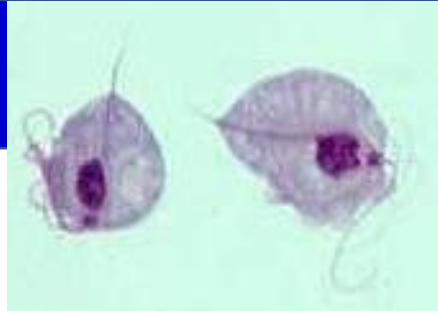
- Abnormal vaginal discharge.
- Red blotches on the vaginal wall or cervix – strawberry cervix



Diagnosis Laboratory



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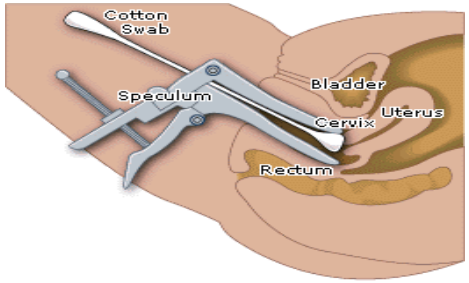
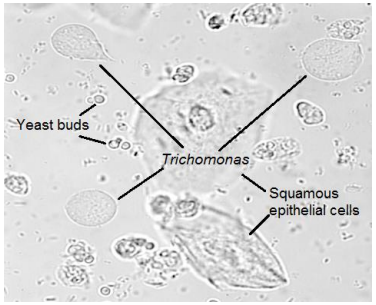
- Microscopic examination of wet film from discharge. Motile organism.





- Culture of discharge
  - Diamond's medium with antifungal and antibacterial additives.
  - InPouch™ TV (Biomed).

Diagnosis Laboratory

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- Detection of *T. vaginalis* antigen in discharge by: Enzyme immunoassay. Direct fluorescent antibody test.
- Detection of DNA of the parasite by Molecular techniques

Treatment

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- Prevention

- Metronidazole is the drug of choice for both male and female.
- Metronidazole 2 g orally in a single dose.
- Metronidazole 500 mg orally twice daily x 7 days.
- In addition to the oral treatment for women, vinegar vaginal douche is recommend.
- In married cases their spouses also should be diagnosed and treated.

Prevention

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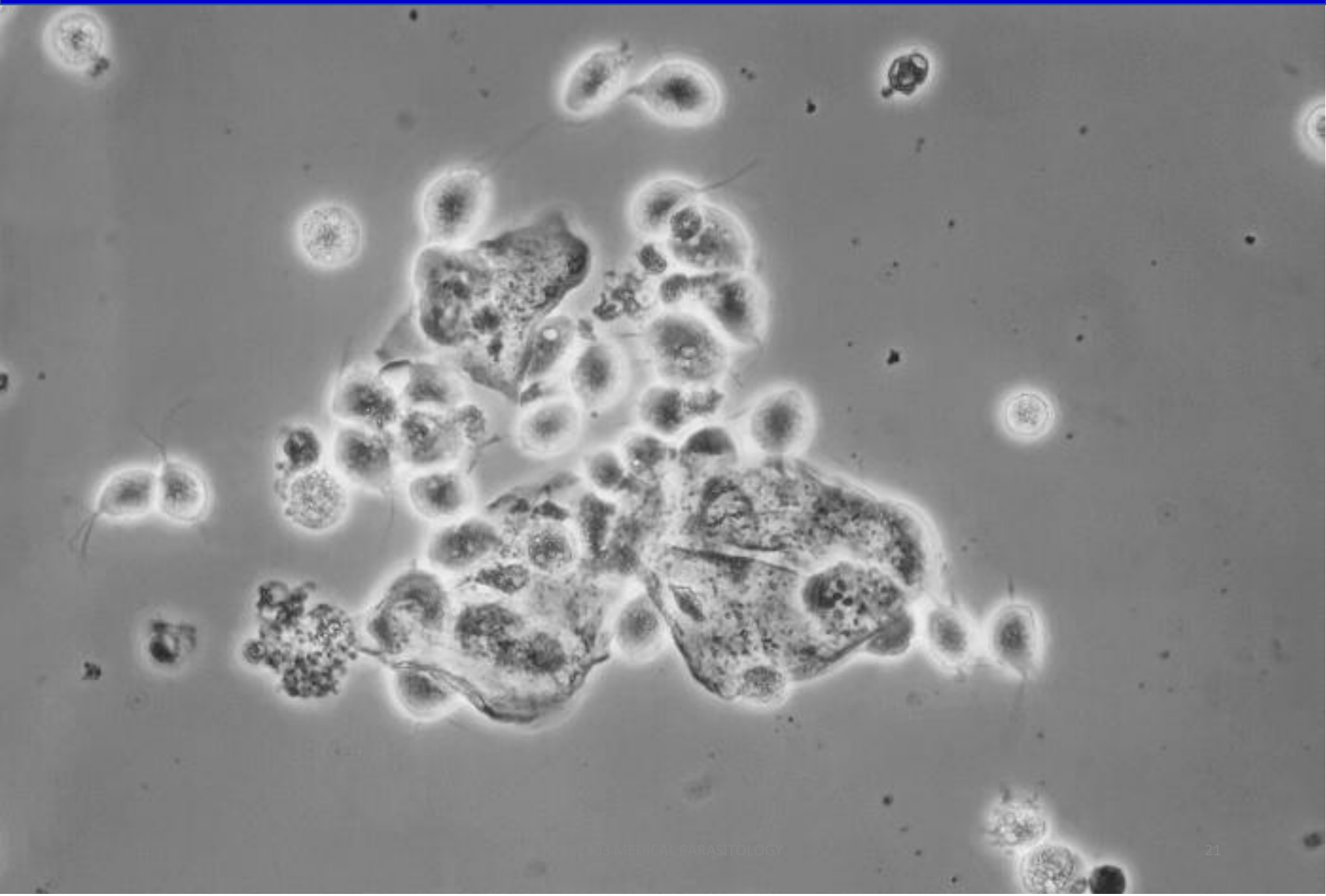
- Sex partners should be treated
- Patients should be instructed to avoid sex until they and their sex partners are cured (when therapy has been completed and patient and partner(s) are asymptomatic)

Identify *T. vaginalis*



Differentiate flagellates

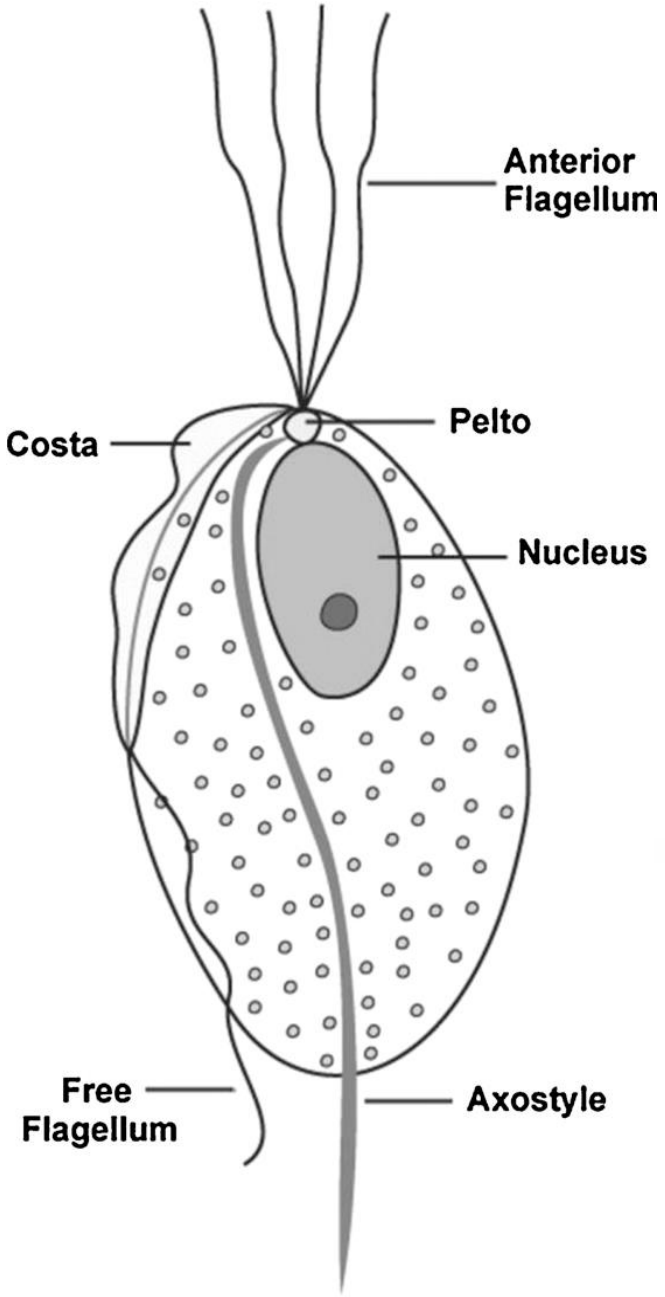
Differentiate flagellates

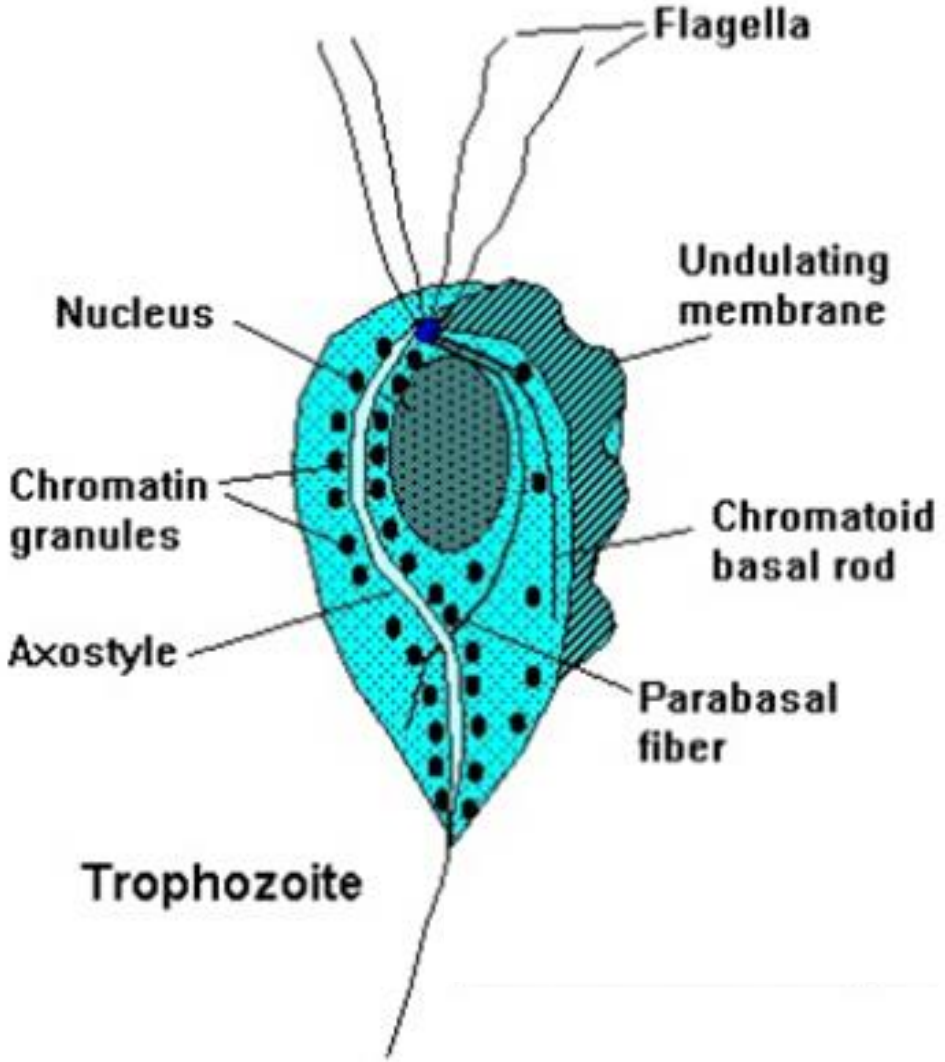
Giardia intestinalis

Trichomonas vaginalis

Trypanosoma gambiense

Leishmania sp.





Trichomonas vaginalis
(Trophozoite stage)