



# **Parasites Affecting The Reproductive System**

**Dr. Ayat Abdelaziz**



## Case Scenario



38 years old female complained of **vaginal itching** and **burning sensation** with profuse and offensive **discharge**. Gynecological examination revealed redness, oedema, and **strawberry-like vaginal mucosa**. Vaginal swab obtained and directed to lab for microscopic examination. It showed pear-shaped,  $17 \times 10 \mu$  organism with a **rapid jerky movement**. The organism has 4 anterior free **flagella** and **undulating membrane**.

**What is the most likely parasitic diagnosis?**



## ➤ Parasitic infections affecting The Reproductive System:

**1.**        *Toxoplasma gondii*

**2.**        *Trichomonas vaginalis*

**3.**        *Schistosoma spp.*

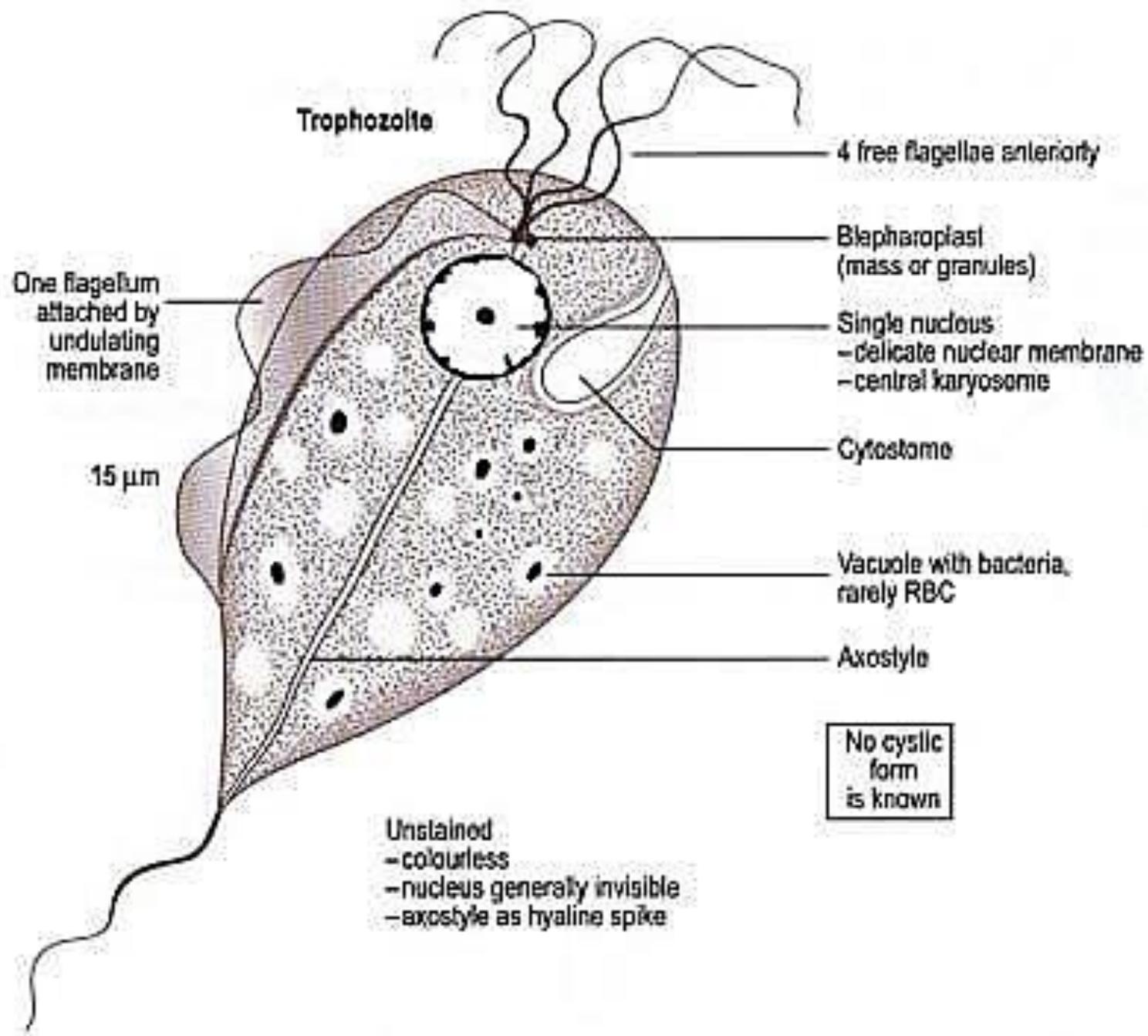
**4.**        *Wuchereria bancrofti*



# Parasitic infections affecting The Reproductive System:

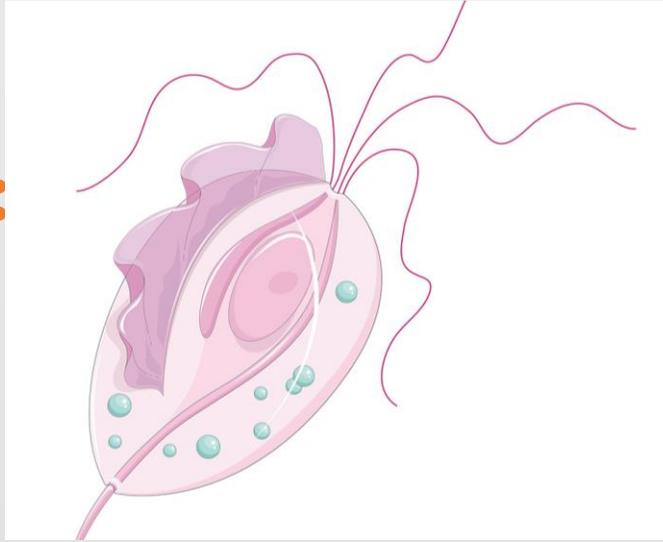
## 1) *Trichomonas vaginalis*







## ➤ *Trichomonas vaginalis* morphological stage:

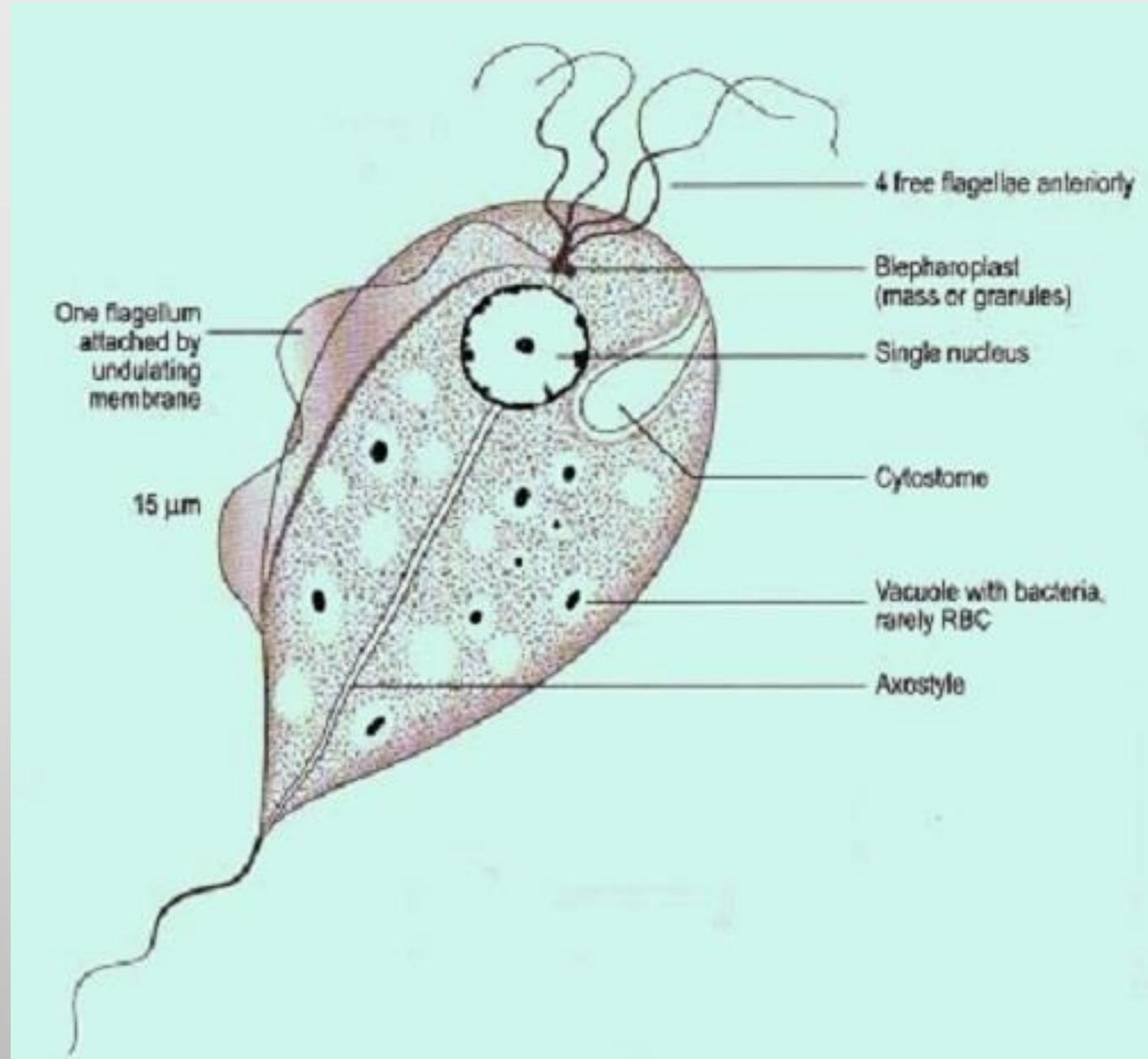


### 1) Trophozoite:

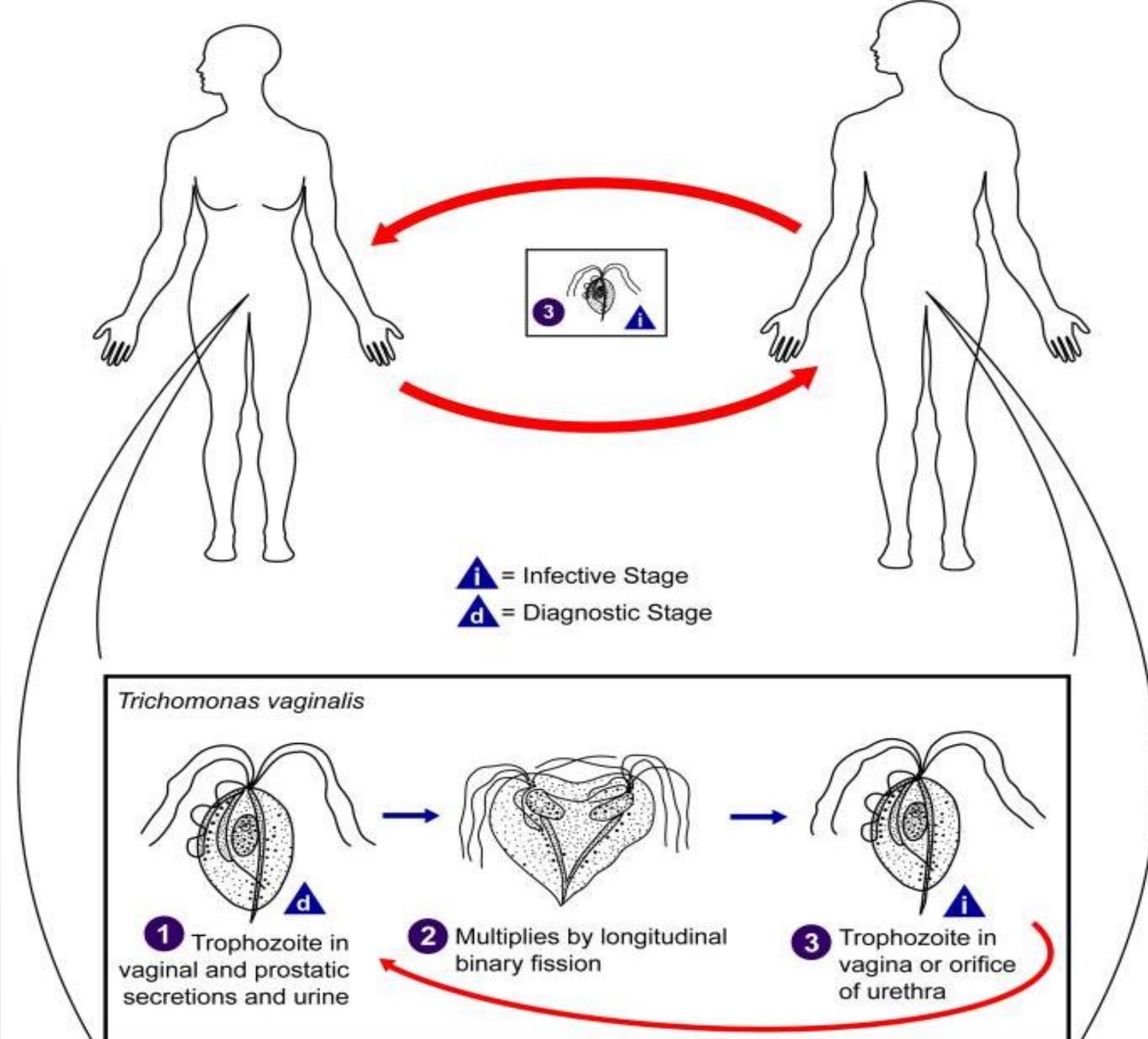
- pear-shaped
- 17x10  $\mu$ ,
- with a rapid jerky movement.
- an antero-lateral cytostome.
- The cytoplasm is granular with a single anterior nucleus

- 4 free flagella anteriorly
- 5<sup>th</sup> flagellum attached to the body by undulating membrane, presents at the anterior 1/3 of body
- 6<sup>th</sup> flagellum passes through the body as axostyle

## 2) Cyst: No cyst stage



# *Trichomonas vaginalis* Life cycle





# *Trichomonas vaginalis* Life cycle:

- **Habitat:**

a. **Females:** Posterior fornix of the vagina, cervix, and urethra.

b. **Males:** Urethra, epididymis, seminal vesicles and prostate.

- **Definitive host:** Man.

- **Infective stage:** Trophozoite

- **Mode of infection:**

1. Sexual transmission or by contaminated toilet seats and towels.

2. From infected mothers to babies during birth.

- **Multiplication:** By longitudinal binary fission.

# **Pathogenesis of *Trichomonas vaginalis***

*Trichomonas vaginalis* causes **trichomoniasis**, trichomonad vaginitis, urethritis, epididymitis, vesiculitis and prostatitis.

## **The parasite can kill target cells by:**

- 1) Direct contact without phagocytosis (dependent cytopathic effect).
- 2) Cell detaching factor: produced by the parasite, and its amount correlates with the severity of the clinical infection.



➤ **Predisposing factors for pathogenicity:**

1. Change of the normal vaginal bacterial flora and pH.
2. Decrease in the secretory IgA.

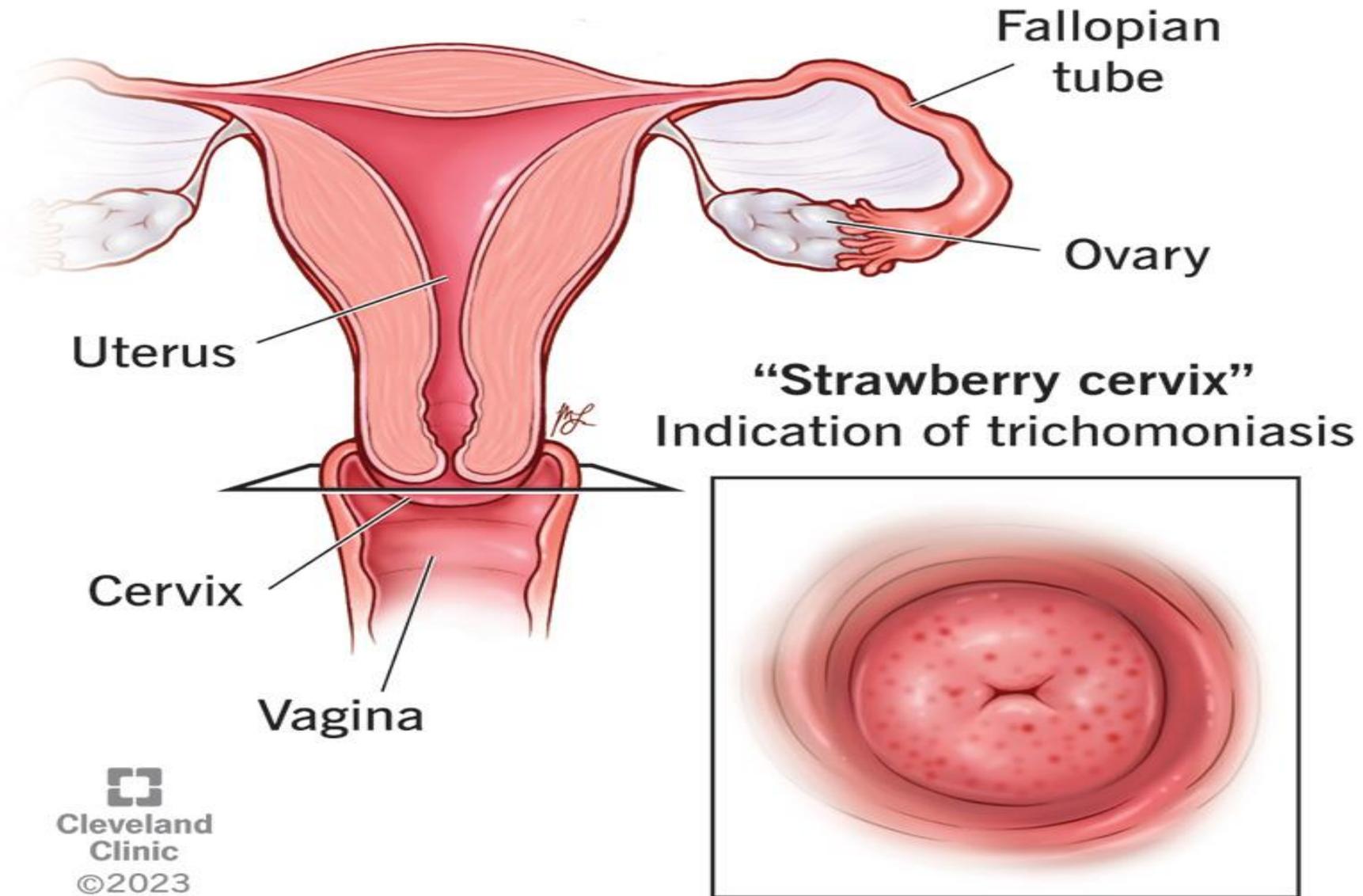
➤ **In male:** urethritis, vesiculitis, epididymitis and prostatitis may occur.



➤ **In female:**

- *The vaginal wall* is red, showing oedema, petechial hemorrhages (strawberry mucosa), mucosal erosion and necrosis.
- *The mucosa* is infiltrated with lymphocytes, plasma cells and polymorphonuclear leucocytes.
- A relationship between trichomoniasis and *cervical carcinoma* is suggested.

# Trichomoniasis



# Clinical picture of *Trichomonas vaginalis*

➤ **Trichomoniasis** may be asymptomatic in infected males (95%) and females (50%).

## 1. Females:

-- **Vaginal** itching and burning with an offensive, frothy, profuse leucorrhoeic **discharge** forming a pool in the posterior fornix.

-- **Dyspareunia** (painful sexual intercourse), frequency of micturition and dysuria, also **cystitis** may occur.

## 2. Males:

**Dysuria**, and prostate may be enlarged and tender.

## 3. Newborn:

Trichomonas **respiratory tract infection** and **conjunctivitis** may affect infants during vaginal delivery of an infected mother.

# Diagnosis of *Trichomonas vaginalis*

**A. Clinical diagnosis.**

**B. Laboratory diagnosis:**

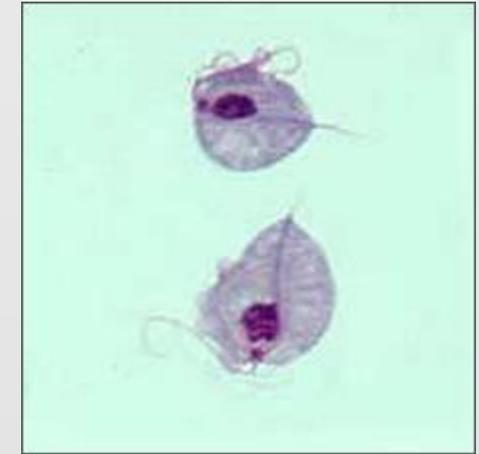
**1. Microscopy:** - In females: vaginal smears

a. Direct wet smear examination for characteristic jerky motility and shape of trichomonad trophozoites.

b. Fixed smears may be stained with Giemsa, Leishman stain.

- In males: Examination of prostatic fluid.

- In both sexes: Urine examination may be beneficial



## Diagnosis of *Trichomonas vaginalis*

2. *Culture*: On modified Diamond's medium.
3. *Immunodiagnosis*: For detection of *T.vaginalis* antigens.
  - a. Direct fluorescent antibody test using labeled monoclonal antibodies.
  - b. ELISA.
4. *Molecular diagnosis*.

## ➤ Treatment :

✓ **Both** partners must be treated at the same time.

1. **Metronidazole** is the most effective drug.

2. Restoration of normal **vaginal acidity** by vaginal douching with lactic acid or vinegar seems beneficial in mild vaginal trichomoniasis.





## ➤ **Prevention and control:**

- 1- Good personal hygiene.
2. Avoidance of sexual contact with infected partners.
3. Treatment of diagnosed cases, and simultaneous treatment of sexual partners

**MCQ 1: female complained of vaginal itching and burning sensation with leucorrhea. Gynecological examination revealed redness, oedema, and strawberry-like vaginal mucosa. Microscopic examination of vaginal discharge showed organism with a rapid jerky movement, with 4 anterior free flagella and undulating membrane.**

**What is the most likely parasitic diagnosis?**

- a) Toxoplasmosis
- b) Trypanosomiasis
- c) Onchocerciasis
- d) Trichomoniasis
- e) Neurocysticercosis

**MCQ 2: What is the characteristic sign for diagnosis of Trichomoniasis?**

- a) Vaginal mucosa erosion
- b) strawberry like vaginal mucosa
- c) Dyspareunia
- d) conjunctivitis with photophobia
- e) prostate enlarged and tender

**MCQ 3: What is the drug of choice for treatment of trichomoniasis?**

a) Metronidazole

b) Ivermectin

c) Chloroquine

d) Amphotericin-B

e) Melarsoprol



# Discussion & Feedback



10 minutes