Trichomonas vaginalis exists only as a trophozoite (no cyst stage); it has four free flagella that arise from a single stalk and a fifth flagellum, which forms an undulating membrane. The organisms vary in size but are usually around 10 μm in length and 7 μm in width. It usually has an oval or pear-like shape, but can assume an amoeboid form when attached to vaginal epithelial cells. The parasite can only exist as a trophozoite and lacks a cystic stage, reproducing by longitudinal binary fission. Growth is optimized at 37°C at pH 6.0 - 6.3, but can survive at up to pH 7.

**Geographic Distribution**
Worldwide. Higher prevalence among persons with multiple sexual partners or other venereal diseases. The parasite is usually spread by having unprotected sex.
Pathology and Pathogenesis

*Trichomonas vaginalis* is sexually transmitted, and most infections are asymptomatic or mild for both women and men.

**In women**, the infection is normally limited to the vulva, vagina, and cervix; it does not usually extend to the uterus.

- Vaginal mucosal surfaces may be tender, inflamed, eroded, and covered with a **greenish to yellow, frothy or creamy discharge, with odor, and erythema**.
- Soreness, inflammation (swelling) and **itching** around the vagina – sometimes the inner thighs also become itchy.
- Pain or discomfort when passing urine or having sex.
- Premature rupture of the placental membranes can occur in pregnant women, resulting in premature birth and low-birth weight.
- Acute infections are characterized by severe pruritus, vaginitis, vulvitis with dysuria and dyspareunia عسر الجماع, and hemorrhagic spots on the mucosa (in 2% of patients) which results in petechiae (**Strawberry cervix**).
- **In females, 50% of cases are asymptomatic**. Infection can persist for long periods of time in the urogenital tract of women. 25 - 50% are asymptomatic for the first 6 months of infection, and organisms can survive indefinitely in the lower urogenital tract if left untreated.

**In men**, Prevalence is lower in men, and infection is often asymptomatic.

- The prostate, seminal vesicles, epididymis, and urethra maybe infected. **About 10% of infected males have urethral discharge.** Symptoms include:
  - Pain during urination or ejaculation
  - Needing to urinate more frequently than usual
  - Thin white discharge from the penis
  - Soreness, swelling and redness around the head of the penis (**balanitis**)
  - Complications are rare, but can potentially lead to **genitourinary inflammation disease, sterility, scanty, clear to mucopurulent discharge, prostatitis**
  - Spontaneous resolution of infection is common as the oxidative nature of the male genital tract is speculated to be inhibitory to pathogenic factors of infection, which usually remains for 10 days or less.
  - The incubation period is from around 5 to 28 days.

**Infectious dose**: Urogenital inoculation with 10,000 to 120,000 organisms has resulted in transmission, although epidemiological examinations have shown that the **infective dose in women is low and the infection rate is high.**
**Mode of transmission:** Commonly spread through sexual contact with vaginal or urethral discharges of infected persons. Non-sexual transmission is rare but has been observed in cases involving contaminated douche nozzles, moist wash-clothes, specula, or toilet seats.

Transmission to newborn infants from infected mothers is possible and is observed in about 2 - 17% of cases, and can result in urinary tract or vaginal infections.

**Reservoir**
- Humans, typically females
- The organism grows best at 37°C
- Live *T. vaginalis* have been found in swimming pool water, in urine, and semen after up to 6 - 24 hours, and up to 30 - 45 minutes when exposed to air.
- *T. vaginalis* is able to survive through the cryopreservation process of human semen, making infection via artificial insemination possible
- Mechanical protection (condoms) should be used during intercourse until the infection is eradicated in both partners

**Laboratory Diagnosis**
- Direct microscopic observation, *Trichomoniasis* can be easily determined through visualization of motile trichomonads in a saline preparation of the vaginal fluid.
- Cell culture
• PCR assay
• Nucleic acid probe test, and in situ hybridization
• Culture of *T. vaginalis* is possible, but requires the use of specialized media
• Rapid antigen tests are also available

**Immunization**

• No vaccinations are currently available.
• Since many males are asymptomatic and may be carriers, it is important to concurrently treat male partners of infected women to prevent re-infection.

**Frothy discharge from Endocervix infected with* T. vaginalis***

**Strawberry cervix**