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## Trichomoniasis

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## Introduction

*Trichomonas vaginalis* is among the most common causes of protozoal infections in the United States, and it is also a common cause of symptomatic vaginitis in women. It is a motile organism that lives in the lower genitourinary tract of females and the prostate and urethra of men. Often, men inhabited by *T. vaginalis* are asymptomatic. When considering other non-viral sexually transmitted infections (STI), *Trichomonas vaginalis* is the most prevalent in the United States. of concern is that trichomoniasis increases the risk of transmission of HIV in both women and men. In addition, the infection is also associated with adverse outcomes during pregnancy. The disorder is underdiagnosed and self-treatment of the infection by patients is also common. In many cases, clinicians often do not test the sexual partner and thus, the cycle of transmission continues. The drug of choice is oral metronidazole but if this fails, one may use other nitroimidazoles.

## Etiology

Trichomoniasis is an infection that is sexually transmitted and is acquired by direct sexual contact. It can live for a few hours in moist environments, but virtually all cases are due to venereal transmission of the organism. Risk factors include:

- History of STDs
- New sex partner or multiple partners
- Contact with an infected partner
- Abusing IV drugs
- Not using any type of barrier contraception

## Epidemiology

Trichomoniasis occurs more frequently in people with multiple sexual partners who also have other sexually transmitted infections. In one study with 4057 participants, *T. vaginalis* infection was found in 0.5% of males and 1.8% of females in the study population. They found prevalence among African American study participants to be higher, with 4.2% and 8.9% infection rates noted in African American males and females, respectively.[1]

According to another article, the estimated infection rate of *Trichomoniasis vaginalis* is 3.2%. *T. vaginalis* infection rates in the United States are higher than combining *Neisseria gonorrhoeae* and *Chlamydia trachomatis* infection rates. Trichomoniasis is most prevalent amongst women ages 40 to 49, which is starkly different from the rate of chlamydia infections, which peaks in the 19 to 24-year-old age group.[2]

## Pathophysiology

*Trichomonas* is a motile organism with a size comparable to a white blood cell. It has at least 4 flagella that provide undulating motility. The organism resides in the lumen of the urogenital tract. The organism releases cytotoxic proteins that destroy the epithelial lining. During an infection, the vaginal pH usually increases.

In women, *T. vaginalis* has an incubation period of five to twenty-eight days. Women with trichomoniasis often complain of a foul-smelling yellow or green vaginal discharge, dyspareunia, urinary frequency, dysuria, and/or vulvar pruritus or erythema. In men, it often does not cause symptoms. If a male is symptomatic, the most common symptom is urethritis. Less commonly, men may also develop prostatitis and epididymitis.

## History and Physical

Women will often present with a chief complaint similar to other sexually transmitted infections, including vaginal discharge, painful intercourse, urinary tract infection symptoms, vaginal itching, or pelvic pain. Men may be asymptomatic, or on occasion, they may present with symptoms including penile discharge, testicular pain, dysuria, urinary frequency, or cloudy urine. Trichomoniasis can cause urethritis in men and occasionally epididymitis or prostatitis.

Critical questions to ask when gathering a history include past treatment for STIs, condom use with intercourse, and presence of foul-smelling discharge.

A physical exam will often include a pelvic exam for women and a urethral swab for men. [3]

A vaginal discharge is common in women; the discharge is thin, frothy and has an abnormal odor. The genitals are often red and edematous. A strawberry cervix is seen in about 40% of patients. Palpation of the pelvis may reveal mild tenderness.

## Evaluation

The most common diagnostic testing performed is wet prep microscopy. Trichomonads are motile organisms with a single flagellum and can be seen moving in the preparation when viewed with a microscope. This test has been shown to be only 40%- 60% sensitive but is typically the most common testing method used due to convenience and low cost. [4]

Nucleic acid amplification tests (NAATs) are gaining favor when testing for *Trichomonas vaginalis*. They have become the gold standard when testing for gonorrhea and chlamydia. Many of the NAATs available have been shown to have greater than 90% sensitivity and specificity when testing for *Trichomonas vaginalis*. [2]

Before NAATs and other point-of-care options were developed, the gold standard was a culture when testing for *Trichomonas vaginalis* with a negative wet prep and a symptomatic patient.

The vaginal pH is usually more than 4.5 in the presence of trichomoniasis, but this is not a specific finding. The whiff test is done by adding drops of potassium hydroxide to a sample of vaginal discharge. This generates a fishy smell.

## Treatment / Management

According to the 2015 CDC STD treatment guidelines, there are three recommended strategies for the treatment of trichomoniasis. These include a single 2-gram dose of metronidazole, a single 2-gram dose of tinidazole, or a seven-day course of 500 mg metronidazole twice daily.

In patients with known HIV infection, the recommended treatment regimen is a seven-day course of 500mg metronidazole twice daily.

According to a study, the percent of women positive for trichomoniasis on their test of cure was 19% when given a single dose of metronidazole vs. 11% when patients completed a seven-day course of metronidazole. [5]

If left untreated, trichomoniasis may remain subclinical or may resolve with host-immunity. [2]

Pregnant women must be treated otherwise it can result in adverse outcomes. The drug of choice is metronidazole. Women should stop breastfeeding during treatment.

The CDC also recommends performing a test of cure for all women treated for trichomoniasis within three months of treatment. Nucleic acid amplification testing (NAAT) can be completed as soon as two weeks following treatment. NAAT is the recommended method for a test of cure due to the sensitivity of the test.

Many states allow expedited partner therapy (EPT). EPT laws typically enable providers to prescribe treatment to a

third party sexual partner without performing a medical examination or establishing a provider/patient relationship with the third party sexual partner of a patient diagnosed with trichomoniasis or other STIs. A list of states and the laws surrounding EPT can be found on the CDC website.

The CDC does not recommend for or against treating for chlamydia and gonorrhea when treating for trichomonas. This is a provider and patient-specific decision. Things to consider when deciding on treatment for chlamydia and gonorrhea is the patient's reliability for follow-up and the risks and benefits of treatment.[6]

When metronidazole fails, the other drug is tinidazole. Patients should be advised not to consume alcohol when these drugs are prescribed. Topical medications have high failure rates and should not be used.

## Differential Diagnosis

A provider should always consider other STIs when a patient presents with complaints concerning for trichomoniasis or coinfection when a patient is diagnosed with trichomoniasis. If a female patient presents with complaints and concerns of an STI, the practitioner should always consider pelvic inflammatory disease (PID) in their differential diagnosis. PID has significant morbidity implications, including reduced fertility. *Trichomonas* is not known to cause pelvic inflammatory disease, so if concerned for PID, there is a different treatment regimen.[7]

## Prognosis

Patients who are treated with metronidazole have a 90-95% cure rate. The cure rates are even higher when the sexual partner is treated. Unfortunately, recurrent infections are common in sexually active individuals. Trichomoniasis is strongly associated with the presence of other STDs including HIV, gonorrhea, HPV, herpes, and chlamydia. Pregnant women are at risk for preterm delivery, low birth weight infant and premature rupture of membranes. There is also a high risk of developing pelvic inflammatory disease.

## Complications

Trichomoniasis causes significant morbidity if infections are not treated during pregnancy, including preterm delivery, low birth weight infants, and premature rupture of membranes.

Research reveals that trichomoniasis increases the risk of HIV and other STDs. In men, complications may include epididymitis, prostatitis and infertility.

## Consultations

When a patient has a known allergy to nitroimidazoles, there is a desensitization protocol that may be used, though it is recommended to consult with a specialist before employing this regimen.

Specialists should also be consulted when concerns exist for resistant *Trichomoniasis vaginalis*. [8]

## Deterrence and Patient Education

When prescribing metronidazole or tinidazole, it is important to discuss alcohol abstinence with patients. These medications cause a disulfiram-like reaction when patients use alcohol while on these antibiotics. The recommendation is twenty-four hours of alcohol abstinence following metronidazole and seventy-two hours of alcohol abstinence following tinidazole.

If you diagnose a patient with trichomoniasis, educate the patient regarding safe sexual practices. Encourage the patient to inform their sexual partner(s) about the diagnosis so the partner(s) may pursue treatment. The patient should also refrain from sexual intercourse until both the patient and the partner(s) are treated, and symptoms have resolved. [9] [10]

## Pearls and Other Issues

There are no recommended screening practices in the United States. Some suggest performing *T. vaginalis* screening in specific populations, including populations at high risk for HIV infection, patients attending STI clinics, men with urethritis, sexual partners of an infected patient, women living in endemic areas, and women living in correctional facilities. *Trichomonas* infection has been shown to increase the risk of acquisition and transmission of HIV.[2]

## Enhancing Healthcare Team Outcomes

Patients with trichomoniasis are best managed by an interprofessional team. While most patients are initially seen by the nurse practitioner or primary care provider, the role of the infectious disease expert and obstetrician are invaluable.

If a diagnosis of trichomoniasis is made in urgent care or emergency department, you should notify the patient's primary care physician or obstetrics and gynecology physician. This communication is helpful in care coordination and helps ensure a test of cure is completed. Patients diagnosed with trichomoniasis will also need to be tested for other STIs, including HIV. The patient's primary care provider may complete this testing, or the patient may seek testing at an STI clinic.

When completing a pelvic examination to collect vaginal swabs or completing a bimanual examination to determine if pelvic inflammatory disease is a concern, the recommendation is to have a chaperone, preferably a female. Often, in the emergency department, this will be a female nurse or tech. You should document the chaperone in the patient's health record.

Patient education is vital. The infectious disease nurse should educate the patient on the use of barrier contraception and be compliant with treatment. In addition, the sexual partner must be sought and treated otherwise the cycle of transmission continues. Finally, clinicians should rescreen sexually active women after 12 weeks to ensure complete cure.

Open communication between the team members is vital to ensure that the patient receives the standard of care treatment and complete cure.

## Continuing Education / Review Questions

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