

Chronic trichomoniasis in a 95-year-old man with history of benign prostatic hyperplasia: an unusual case report

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Introduction

Trichomonas vaginalis (*T. vaginalis*) is a common protozoan parasite that causes sexually transmitted infections (STIs) worldwide. It is estimated that there are approximately 156 million new cases reported each year worldwide, affecting both men and women (1). Many patients with *T. vaginalis* infection experience dysuria and urethral discharge. In males, infections are often asymptomatic but can occasionally lead to mild prostatitis or urethritis (2). *T. vaginalis* should be considered in sexually active males who have urethral symptoms or inflammation but no evidence of discharge during physical examination (3). While non-sexual transmission of *T. vaginalis* is rare, sexual activity is believed to be the primary mode of transmission (4). This extracellular parasite uses epithelial cells for adhesion to infiltrate the human host, with the urogenital tract being the typical host tissue (5). In this case report, we present the case of a 95-year-old man with a *T. vaginalis* infection that does not affect the expected urogenital tract.

Case History/examination

In August 2023, a 95-year-old man presented to the emergency room at Razi Hospital in northern Iran with complaints of asymmetric leg pain and swelling in both legs, particularly in his left foot. The swelling began two weeks ago and worsened over the past two days. He denied having a fever, difficulty breathing, rapid heartbeat, chest or abdominal pain, or weight loss. In addition to the foot swelling, he mentioned experiencing mild dysuria for an extended period without being able to specify when it started. His medical history included hypertension, ischemic heart disease, benign prostatic hyperplasia (BPH) a previous hospitalization three years ago for COVID-19, cataract surgery, and surgical removal of a basal cell carcinoma (BCC) on his forehead. He also reported having multiple sexual partners over the past two decades. The entire leg exhibited swelling, with the calf showing more than 3 cm of swelling compared to the other leg. Localized tenderness was noted along the deep venous system, and pitting edema was observed in the left leg.

Methods (Differential diagnosis, investigations and treatment)

In light of the sudden leg swelling, we considered a differential diagnosis of cellulitis, lymphoedema, chronic venous insufficiency, hematoma, deep vein thrombosis (DVT), and a ruptured Baker cyst. Due to the suspicion of DVT as a primary diagnosis, we evaluated the patient's D-Dimer level along with other routine tests. The assessment revealed an elevated D-Dimer level (4840.94 ng/ml), and we initiated subcutaneous intravenous heparin therapy at a dosage of 5000 units. To confirm the diagnosis of DVT, Doppler vascular ultrasound of the left leg was conducted, which indicated normal venous diameter and no signs of DVT or thrombosis. Based on the ultrasound results, the next step for a definitive diagnosis is a magnetic resonance imaging (MRI). Subsequently, an MRI of the left leg and sole was performed for further evaluation.

The radiologist's report indicated edema in the second metatarsal with inflammatory aspects, suggesting early stages of osteomyelitis. This finding led to the ruling out of the diagnosis of DVT.

In response to the patient's complaint of dysuria, a urinalysis was performed, revealing elevated levels of white blood cells (25-30 WBC/hpf), red blood cells (3-5 RBC/hpf), epithelial cells (2-3/hpf), mucus, and bacteria, along with a positive test for *T. vaginalis* (**Figure 1**). The absence of glucosuria or urinary casts was noted. The patient was administered a single dose of 2 grams of metronidazole and underwent a recheck of urinalysis (U/A) and urine culture (U/C).

Conclusion and Results (Outcome and follow-up)

The follow-up urine culture showed no bacterial growth after 24 hours, but the urinalysis continued to indicate the presence of *T. vaginalis*. The patient's urinary symptoms subsided following the trial treatment with metronidazole. A week later and again a month later, further urinalyses were conducted, both of which yielded negative results for *T. vaginalis*.

Discussion

While *T. vaginalis* is indeed recognized as the most common non-viral sexually transmitted infection (STI) among women globally, it tends to present as benign and self-limiting in men (6). A study showed that the prevalence of *T. vaginalis* in men aged 30 years or older with urethral discharge attending STD clinics (12%) was comparable to that of *Neisseria gonorrhoeae* (12%) or *Chlamydia trachomatis* (14%) (7). This infection predominantly affects women, and in men, the majority quickly overcome the infection, suggesting a potential link to differing urogenital microenvironments. It is well-documented that *T. vaginalis* can increase the risk of acquiring human immunodeficiency virus (HIV), cervical cancer, and preterm birth. However, there is limited understanding of the clinical complications of this infection in men (8). In men, *T. vaginalis* can induce urethritis, prostatitis, reduced fertility, and heightened risk of human immunodeficiency virus acquisition (6). Although most men experience mild symptoms, *T. vaginalis* has the potential to cause severe complications in this population.

It's important to note that *T. vaginalis* has the potential to ascend the urethra and affect the prostate, potentially leading to prostatitis if left untreated. In our case, it seems likely that chronic trichomoniasis from multiple infected sexual partners over the past 20 years may have contributed to this situation. Several studies have indeed established a connection between chronic *T. vaginalis* infection and the development of prostate cancer (6). Moreover, a study has indicated that *T. vaginalis* may play a role in the progression of prostatitis and BPH by creating an inflammatory microenvironment (9). To mitigate the negative effects of this infection in both men and women, it is vital to diagnose and treat *T. vaginalis* in men, especially as up to 72% of male sexual partners of infected women may also be affected (6). The Centers for Disease Control and Prevention (CDC) recommends treating men who have been diagnosed with trichomoniasis or who have been sexually exposed to this infection to prevent spreading it to other female sexual partners. Seeking prompt medical attention and adhering to the recommended treatment guidelines can help mitigate the potential complications associated with *T. vaginalis* infection in both men and their sexual partners.

The preferred treatment for *T. vaginalis* has traditionally been metronidazole (MTZ) at a dose of 2 g or oral tinidazole. As an alternative, a multi-dose oral MTZ regimen of 500 mg twice daily for 7 days may be used (6). A randomized controlled trial involving HIV-uninfected women showed that the multi-dose metronidazole regimen significantly decreased the proportion of women with trichomonas infection at the 1-month test of cure compared to single-dose therapy (2 g). Men have been found to benefit the most from the 2-g single-dose oral metronidazole regimen (8). Studies conducted in the United States have indicated that the average age of women and men infected with *T. vaginalis* was significantly higher than those infected with other STIs. Additionally, the average age of *T. vaginalis* infected men was nearly a decade older than that of infected women.

When men experience changes in their reproductive hormone levels, it may lead to an increased risk of *T. vaginalis* infection (10). Research conducted by Lindrose et al. indicated a higher prevalence of *T. vaginalis*

in older age groups compared to young adults (11). Notably, our case report revealed the presence of trichomonas in a 95-year-old man, which is an unexpected finding for this age group. It is important not to overlook the possibility of this infection in elderly patients, as they face an elevated risk of inflammation, cervical cancer, and prostate cancer (11). Future studies could focus on identifying specific subgroups within the elderly population who may be at a higher risk of trichomoniasis or complications related to *T. vaginalis* (11). In elderly individuals who have experienced dysuria and have had multiple sexual partners, it is important to consider the possibility of *T. vaginalis* infection.

While *T. vaginalis* is widely recognized as the most prevalent non-viral sexually transmissible infections (STI) among women worldwide, it may also have significant implications for men. In men, *T. vaginalis* has the potential to induce urethritis, prostatitis, reduced fertility, and an increased susceptibility to acquiring the HIV. Although most men may only experience mild symptoms, it is important to acknowledge that *T. vaginalis* can lead to severe complications. It is worth noting that if not treated, *T. vaginalis* may ascend the urethra and impact the prostate, potentially resulting in prostatitis. Therefore, it is advisable to promptly treat men who have been diagnosed with trichomoniasis or have had sexual contact with an infected individual to prevent further transmission to other female sexual partners. Additionally, clinicians should not overlook the possibility of this infection in elderly men, as they face an elevated risk of inflammation and prostate cancer.

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CONFLICT OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

SSA and ES made significant contributions to the conception and design of the study. SSA and ES wrote the first draft of the manuscript. LD, SSB, SRM, and AN wrote sections of the manuscript. SSA and ES extracted data from the patient's sheets. HN and MF was responsible for collecting data and submitting the manuscript. All authors have made significant contributions to the critical revision of the manuscript, thoroughly reviewing and endorsing the final submitted version.

CONSENT

The patient has provided written informed consent to participate in this study. Furthermore, the patient has also given written consent for the publication of this case report.

DATA AVAILABILITY STATEMENT

The data is accessible through the corresponding author and can be obtained upon request.

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