

CASE REPORT

# Male Urethritis Caused by *Trichomonas vaginalis*

## Uretrite Masculina Causada por *Trichomonas vaginalis*

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**ABSTRACT** – Trichomoniasis is one of the most common sexually transmitted infections worldwide. In women, *Trichomonas vaginalis* infection may present with vaginitis, cervicitis, or pelvic inflammatory disease, while in men it is mainly asymptomatic or causes mild and transient symptoms of urethritis, epididymitis, or prostatitis. In the past, little importance had been given to the impact of *T. vaginalis* infection on men's health, since it was believed to be a self-limited condition without sequelae. However, there is growing evidence it is associated with more serious disorders in both men and women and efforts to diagnose and treat this parasitic infection have increased. Recent advances in testing for sexually transmitted diseases using multiplex molecular assays have increased diagnostic opportunities for *T. vaginalis* infection, especially in men, as detection of the parasite by traditional methods is much more challenging.

We describe an unusual case of male urethritis caused by *T. vaginalis* observed in our consultation of Sexually Transmitted Infections.

**KEYWORDS** – Sexually Transmitted Diseases; *Trichomonas* Infections; *Trichomonas vaginalis*; Urethritis.

**RESUMO** – A tricomoníase é uma das infeções sexualmente transmissíveis mais comuns em todo o mundo. Nas mulheres, a infeção por *Trichomonas vaginalis* pode causar vaginite, cervicite e doença inflamatória pélvica, mas nos homens é habitualmente assintomática ou causa apenas sintomas ligeiros e transitórios de uretrite, epididimite ou prostatite. No passado, pouca importância foi dada ao impacto da infeção por *T. vaginalis* na saúde masculina, uma vez que se acreditava tratar-se de uma condição autolimitada sem sequelas. Contudo, a evidência crescente de que está associada a doenças mais graves, tanto no homem, como na mulher, aumentou os esforços para o diagnóstico e tratamento desta infeção parasitária. Avanços recentes no despiste de doenças sexualmente transmissíveis usando testes moleculares com painéis múltiplos aumentaram as oportunidades de diagnóstico da infeção por *T. vaginalis*, especialmente em homens. Nestes, a deteção do parasita por métodos tradicionais é mais difícil. Descrevemos um caso de uretrite masculina causada por *T. vaginalis* observado na nossa consulta de Infeções Sexualmente Transmitidas.

**PALAVRAS-CHAVE** – Doenças Sexualmente Transmitidas; Infeções por *Trichomonas*; *Trichomonas vaginalis*; Uretrite.

## INTRODUCTION

*Trichomonas vaginalis* is a flagellated protozoan parasite of the human genital tract, which is responsible for one of the most common sexually transmitted infections (STI), trichomoniasis. According to the World Health Organization (WHO), it was estimated that in 2016 there were 156 million new cases in women and men aged 15-49 years, worldwide.<sup>1</sup> However, the exact prevalence of trichomoniasis is probably underestimated.

Clinically, *T. vaginalis* infection of the female genital tract includes vaginitis, cervicitis, and pelvic inflammatory disease. In men, it is asymptomatic in up to 75% of cases, but transient and mild urethritis, epididymitis, or prostatitis can occur.<sup>2</sup>

Apart from the generally mild nature of trichomoniasis, growing evidence shows that *T. vaginalis* infection is associated with more serious conditions, such as prostate<sup>3,4</sup> and cervical cancer,<sup>5</sup> adverse pregnancy outcomes,<sup>6</sup> and infertility.<sup>7</sup> Furthermore, several studies support an epidemiological linkage between human immunodeficiency virus (HIV) and *T. vaginalis*, suggesting that *T. vaginalis* infection represents a significant risk factor in the sexual transmission of HIV, increasing the likelihood of its acquisition by 50%.<sup>8</sup> Consequently,

growing attention to the diagnosis and treatment of patients infected with *T. vaginalis* has emerged in recent years.

Although screening for *T. vaginalis* is not yet routinely recommended, new advances in testing for STIs have also increased diagnostic opportunities for this infection.

Herein, we describe the case of a man with urethritis caused by *T. vaginalis*.

## Case Reports

A healthy 31-year-old heterosexual man with a history of genital warts was observed at our sexually transmitted diseases (STD) outpatient clinic due to sporadic whitish urethral discharge for 2 years, without dysuria or pruritus. He denied sexual partners in the previous 6 months. During this period, he was treated with several antibiotics by different medical specialties, such as azithromycin and cephalosporins, without improvement.

Clinical examination was normal.

Thus, urine screening multiplex real-time polymerase chain reaction assay (AllplexTM STI Essential Assay) that simultaneously detect 7 different pathogens (*Chlamydia trachomatis*, *Mycoplasma genitalium*, *Mycoplasma hominis*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis*,

*Ureaplasma parvum*, *Ureaplasma urealyticum*) was performed and *T. vaginalis* was detected.

Screening for other STIs, including syphilis, HIV, hepatitis B virus, and hepatitis C virus infections, was negative.

The patient was treated with metronidazole 500 mg orally twice a day for 7 days with complete resolution of the urethral discharge.

The patient was advised to avoid sexual contacts until treatment completion and symptoms resolution.

## DISCUSSION

*Trichomonas vaginalis* has been increasingly recognized as a pathogen of the male genitourinary tract. According to the literature, this parasite is responsible for 1%-20% of nongonococcal urethritis.<sup>9</sup> However, its exact prevalence is probably higher than documented due to several reasons.

First of all, trichomoniasis is not a notifiable STI in many countries, such as Portugal. The most recent WHO assessment from data collected in 2016 revealed an incidence of 156 million cases worldwide. It corresponds to more numerous new infections by *T. vaginalis* than the well-documented STIs, such as *Chlamydia trachomatis* infection and gonorrhoea, which have an estimated global incidence of 127.2 million and 86.9 million, respectively. Moreover, the prevalence and incidence of trichomoniasis are geographically variable, with the highest prevalence found in Africa (11.7% of females, 1.2% of males), and in the Americas (7.7% of females, 1.3% of males).<sup>1</sup>

Secondly, *T. vaginalis* infection may be asymptomatic for a long period among men and women. Therefore, the absence of recent sexual history should not be used to rule out *T. vaginalis* infection as a possible diagnosis.<sup>2</sup> Nevertheless, comprehensive guidelines for *T. vaginalis* testing are lacking. At most, its screening has been suggested only in populations where the prevalence of infection is considered high (>2% in symptomatic women).<sup>9</sup>

Thirdly, different from females, who frequently present vaginitis, cervicitis, including the typical inflamed and speckled "strawberry cervix", and pelvic inflammatory disease, men are mostly asymptomatic or exhibit transient symptoms of mild urethritis, epididymitis, or prostatitis. This might explain why the estimated prevalence of *T. vaginalis* infection in men is 10 times lower than in women.<sup>2</sup> Until recently, little importance had been given to the impact of *T. vaginalis* infection in men, since it was believed that it had no serious consequences for their health. However, the recent observation that *T. vaginalis* seropositivity is associated with the development of prostate cancer<sup>3</sup> has raised concern. Furthermore, it has been demonstrated that *T. vaginalis* enhances the transmission of sexually transmitted microorganisms, such as HIV, which makes the control of this parasite a critical issue in both men and women.<sup>8</sup>

Lastly, another aspect that has possibly contributed to the under-recognition of *T. vaginalis* infection is the low sensitivity of the diagnostic tests traditionally used. The wet-mount microscopy is a simple, fast, and cost-effective method, with a sensitivity of around 60%.<sup>2,10</sup> Characteristically, it requires a short time between the sample acquisition and observation (10 minutes),<sup>11</sup> due to the reduction of the parasite's motility with time, essential for its identification. However, it is highly operator-dependent and is unlikely to detect low-level infections, in which the organism load in the sample is below 104 cells/mL.<sup>12</sup> This limitation is especially relevant for male *T. vaginalis* infection, as male urethral and urinary specimens generally present a low organism burden.<sup>2</sup> Therefore, culture has been the gold standard

in the diagnosis of *T. vaginalis* infection. However, despite having a slightly higher diagnostic sensitivity than wet-mount microscopy, the one-week incubation required to obtain results is a major inconvenience of this method.<sup>2,10,12</sup> The advent of highly sensitive and specific molecular diagnostic tests has provided new critical tools for the diagnosis of STIs, including trichomoniasis. There are currently six molecular tests approved by FDA for diagnosing trichomoniasis in women, but only one is validated for the diagnosis of trichomoniasis in men.<sup>13</sup>

At present, the Centers for Disease Control and Prevention (CDC) and International Union against Sexually Transmitted Infections (IUSTI) guidelines recommend molecular detection methods to diagnose trichomoniasis, including several validated nucleic acid amplification tests (NAATs).<sup>9,11,15</sup>

Accurate diagnosis of trichomoniasis is of most importance for the subsequent treatment of *T. vaginalis* infection, as antibiotics given for general urethritis treatment such as azithromycin or doxycycline are not effective for trichomoniasis. According to the CDC and IUSTI guidelines, the recommended treatment for *T. vaginalis* infection is an oral nitroimidazole (metronidazole or tinidazole). Possible treatment schemes are a single 2 g dose of metronidazole, a single 2 g dose of tinidazole, or 500 mg of metronidazole twice daily for 7 days.<sup>11,15</sup> Metronidazole gel is not recommended.<sup>11</sup> Some degree of resistance to nitroimidazoles may occur in a small percentage of cases (less than 10% for metronidazole), being overcome with higher doses and longer courses of these medications. In women, concomitant treatment with intravaginal tinidazole twice daily or intravaginal paromomycin daily for 14 days may be indicated in cases of nitroimidazole resistance.<sup>16</sup> Treatment should be instituted immediately after diagnosis. Concomitant treatment of sexual partners should also be applied. Patients should be advised not to take alcohol for the duration of treatment and at least during the next 48 hours (72 hours for tinidazole).<sup>11</sup> Abstinence of sexual activity until pharmacological treatment completion and symptom resolution should be indicated.<sup>11,15</sup> Considering the high rate of coinfection with other STIs, their screening should be performed. Rescreening for *T. vaginalis* infection is advisable by the CDC for sexually active women at three months post-therapy. However, no data are available on rescreening men.<sup>15</sup> Preventive measures, such as male condom use, should be encouraged.<sup>17</sup>

In conclusion, the relevance of male *T. vaginalis* infection has probably been underappreciated, since it was believed to be a self-limited condition, without serious consequences. However, recent findings have shown that, as in women, trichomoniasis can also affect male health. The association between *T. vaginalis* infection and prostate cancer, HIV infection, and other STIs highlighted the pertinence of its recognition and prompt treatment in the male population. The recent emergence and validation of highly sensitive and specific molecular diagnostic tests have allowed a greater opportunity for the detection of this parasite, especially in men, as diagnosis through traditional methods is much more challenging.

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