

JCHS-IQ-02-2018

**An Unexpected Urine Swimmer**

ANSWER TO JCHS-IQ-02-2018

**Trichomoniasis**

Direct wet mount microscopy of the urine sample demonstrated 2-3 motile trophozoites of *Trichomonas vaginalis* (Figure 2). The organisms appear pear-shaped, 7-23  $\mu\text{m}$  long (average 13  $\mu\text{m}$ ), have one nucleus, with 3-5 anterior flagella (not clearly visible in this image) and one posterior flagellum (arrows). The morphological characteristics are consistent with *T. vaginalis*.



**Figure 2** Direct wet mount microscopy of the urine sample revealed several motile organisms with flagella (black arrows)

With a global estimate of 187 million cases worldwide, trichomoniasis is considered as one of the most common, non-viral-origin, sexually transmitted infections (STI) globally [1, 2]. It was estimated that 276.4 million incidents occur in 2008 and approximately 90% of these infections were among people residing in resource-poor areas [3].

In Malaysia, epidemiological data on trichomoniasis is relatively scarce. According to WHO (2001), the prevalence of trichomoniasis among 1,070 women attending antenatal clinics in Kuala Lumpur was 0.5%, and 1% among 208 sex workers. Nordin et al. [4] studied the prevalence of STD among 130 female drug abusers and found 19.2% prevalence for trichomoniasis. In an observational study of 380 women visiting a family planning (LPPKN) clinic and STD clinic in Kuala Lumpur, the prevalence of trichomoniasis was 0.36% at the LPPKN clinic and absent at the STD clinic [5]. Ajin et al. [6] conducted a study at the Sarawak General Hospital and found *T. vaginalis* in 7.7% (23/300) pap-smear specimens. More recently, Moktar et al. [7] reported zero incidence rate in low risk women attending the Obstetrics and Gynaecology Clinic of Universiti Kebangsaan Malaysia Medical Centre.

*Trichomonas vaginalis* is a flagellated protozoan that ingests bacteria, red blood cells, and epithelial cells of the vagina [2]. Incubation time in the human host is between 4 and 28 days [8]. This protozoal parasite inhabits the lower genital tract of females and the prostate and urethra in males [9]. Human is the only known natural host for *T. vaginalis* and it is transmissible among humans mainly through sexual intimacy [10].

*Trichomonas vaginalis* has only the trophozoites stage (i.e., no cyst stage) in its life cycle. The trophozoite is 7 to 23  $\mu\text{m}$  long (average 13  $\mu\text{m}$ ) and 5 to 15  $\mu\text{m}$  wide [11, 12]. The axostyle is usually conspicuous and the undulating membrane extends halfway of the trophozoite's length. The nuclear chromatin is evenly distributed. There are five flagella in total. Different conditions can alter the shape of the trophozoites. In cultures, the trophozoites tend to be more pear-shaped and oval. However, under unfavourable environment, the trophozoites may appear round-shaped with internalized flagella, representing either the pseudocyst form or a degenerating trophozoite form [12].

Majority of patients of both sexes infected with *T. vaginalis* are asymptomatic. Among those patients who presented with symptoms, the manifestations include vaginal discharge, dysuria, vulvar irritation, and abdominal pain [8, 13, 14].

Trichomoniasis has been associated with pregnancy complications [15]. Studies have shown a positive relationship between *T. vaginalis* and vaginitis, cervicitis, urethritis, bacterial vaginosis, candidiasis, herpes simplex virus (HSV), human immunodeficiency virus (HIV), *Chlamydia*, gonorrhoea, and syphilis [16]. This infection is also associated with malignant cervical neoplasia [17, 18]. Other reported complications include adnexitis, pyosalpinx, endometritis, infertility, low birth weight, and cervical erosion [8]. Strawberry cervix, also known as colpitis macularis, is observed in about 5 % of women [19]. In men, *T. vaginalis* has been reported as the causative agent for epididymitis, prostatitis, and decreased sperm cell motility [20].

Visualization of the motile trichomonas using direct wet mount microscopy of the vaginal discharge is the most used method to diagnose *T. vaginalis*. It is cheap and easy to perform, but insensitive [2]. A diagnosis of trichomoniasis may be overlooked as *T. vaginalis* can alter its shape or the characteristic structures may not be visible [12]. Delayed in transport, storage at 4°C, or freezing, and other abiotic factors that cause the parasite to lyse or loss the motility during sample examination could lead to false-negative results [21]. Broth culture method has better sensitivity than wet mount microscopy but it is more expensive and time consuming [22]. Newer detection techniques using point of care technology and polymerase chain reaction (PCR)-based tests are also available [2, 10].

Treatment of choice for trichomoniasis is metronidazole or tinidazole 2 g single dose. Alternatively, metronidazole 400–500 mg BID 7-day dose is also recommended [2].

## Learning Points

- Very few epidemiological studies on trichomoniasis have been carried out in Malaysia. It is a common parasitic infection yet receives little attention.
- The cases of trichomoniasis are rarely diagnosed in clinics and hospitals in Malaysia, probably due to under-reporting or lack of experience / expertise in diagnosing this parasitic infection.
- Other than vaginal discharge and smears, *T. vaginalis* trophozoites can also be detected in urine.
- Trichomoniasis is associated with bacterial vaginosis, candidiasis, HSV, HIV, HPV, *Chlamydia*, gonorrhea, syphilis and cervical neoplasia.
- A case of incidental detection of asymptomatic trichomoniasis is presented herein. Note that nearly 50% of trichomoniasis cases are asymptomatic.

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