

Full Length Research Paper

# The prevalence of trichomonas vaginalis in Wesley Guide Hospital Ilesha, Nigeria

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The prevalence of *Trichomonas vaginalis* among women in Ilesha over a period of three months were studied. 310 samples from High vaginal, Endocervical and Urethral from female patients were analyzed using Gram staining and direct methods. Out of three hundred and ten samples collected from high vaginal, Endocervical and Urethral of the patients, a total of 25 (8.1%) were positive for *Trichomonas vaginalis* while 285 (91.9%) were negative. Out of the twenty five positive samples, high vaginal swab had the highest prevalence of 13.0 (4.2%), followed by Endocervical swab with 12.0 (3.9%) and Urethral swab had none 0.0 (0.00%). Age group 16-25 years had the highest prevalence of 15.0 (4.48%), followed by age group 26-35years 8.0 (2.6%) and the least is age group 6-15years 8.0 (0.65%). Uneducated had the highest prevalence of *Trichomonas vaginalis* infection with 15(4.84%) while the educated had 10.0(3.23%). The prevalence of Trichomoniasis in the study is significantly high, but there is no significant difference in overall distribution of the parasite in both HVS and ECS, thus either of the samples can be used for investigating *Trichomonas vaginalis* infection in patients with the symptoms. Improve hygiene, none relaxation of social taboos, decent sexual habit, use of protective device such as condom and diaphragm would promote safe and discipline sexual habit.

**Keywords:** Prevalence, *trichomonas vaginalis*, high vaginal swab, endocervical swab, urethral swab, Nigeria.

## INTRODUCTION

*Trichomonas vaginalis* is an anaerobic flagellate protozoan parasite that causes Trichomoniasis. It is sexually transmitted and exists in trophozoite form only<sup>31</sup>. It is oval in shape with five flagella, four of which immediately extend outside the cell together, while the fifth flagellum wraps backwards along the surface of the organism and serve as the axostyle which may be used for attachment to surface<sup>24,31</sup>. The genus *Trichomonas* has three species which occur in humans; *Trichomonas tenax*, *Trichomonas hominis* and *Trichomonas vaginalis*. *Trichomonas tenax* and *Trichomonas hominis* are nonpathogenic trichomonads while *Trichomonas*

*vaginalis* is the pathogenic. *Trichomonastenax* are found in the tartar of the teeth in the mouth, while *Trichomonas hominis* inhabit the intestine or the caecum of man<sup>8,1</sup>. *Trichomonas vaginalis* is an established cause of STDs as 170 million people are affected worldwide; more than gonorrhea, syphilis and Chlamydia combined<sup>4,7,24,23</sup>. This parasite is the cause of the most parasitic sexually transmitted infections in the world and estimated to 3 million infections in the United States annually<sup>5</sup>. The sexually transmitted parasite has become increasingly wide spread over the past several decades in association with relaxation of social taboos, the availability of oral contraceptives; inadequate education of adolescence about the responsibilities associated with sexual intercourse, and a decrease in funding for tracking contact of diagnosed cases<sup>6</sup>. *Trichomonas vaginalis*

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though generally believed to be a female agent can also be detected in men, it is the sole organism detected in the urethral and seems to affect women more severely than men because urethral in women is short, about 1.5 inches, compare to 8 inches in males<sup>22</sup> producing symptoms that range from annoying to life threatening<sup>2</sup>. The female genital tract plays a major role in the infection. In women; ovary, fallopian tube and uterus cells can be destroyed by *Trichomonas* infection<sup>13</sup>.

The symptoms that are associated with *Trichomonas* even if they go away by themselves, particularly when they appear within a few weeks of sex with a new partner are abnormal discharge from the vaginal or penis, pain or burning sensation with urination, sore or blister, painful or not, on genitals or nearby; swelling in the groin, abnormal vaginal bleeding or severe menstrual cramps, itching in vaginal or rectal area, pain in lower abdomen in women; pain during sexual intercourse and skin rash or mouth lesions<sup>22</sup>. However, a greenish-yellow frothy vaginal secretion and itching are its commonest presentations in women. Vaginitis, Cervicitis, Urethritis, and Prostatitis can be caused by the Protozoan in either of the sexes<sup>32</sup>. Infertility, premature rupture of membranes, preterm labour and abortions has also been associated with the parasite.<sup>20,26</sup> The diagnosis is usually obtained by microscopic examination of Endocervical swab, Urine, High vaginal swab, discharge or swab of prostatic in a drop of fresh physiological saline<sup>14</sup>. *Trichomonas vaginalis* has also been reported to cause pneumonia, bronchitis and oral lesions and is cytopathic to vaginal cells<sup>27,30</sup>. It also induces epithelial monolayer disruption, creating a micro-environment conducive for HIV- 1 replication<sup>10</sup>, a phenomenon which could encourage the spread of HIV infection<sup>3,19,28</sup>. The parasite survives poorly in environment outside its habitation because its ability to persist on fomites with moist surface is for 1-2 hours<sup>31</sup>. Transmission from one person to another usually requires intimate physical contact, through contact with a contaminated toilet seat and use of unsterile examination instruments such as speculum, spatula etc<sup>17</sup>.

Other parasites which are sexually transmitted by sexual contact include: Public louse, *Entamoeba histolytica* and *Gardia lamblia*, the last two may be transmitted by anal-oral sexual practices among male homosexuals<sup>1</sup>. Also, vaginitis may be due to infection including *Candida species* and *Gardnerella vaginalis* with anaerobes<sup>21</sup>. The main objective of this work therefore, was to estimate the prevalence of *Trichomonas vaginalis* among female patients, relating it to age and educational background in Ilesha.

## MATERIALS AND METHODS

### Place of study

The study was conducted between August and October 2008 at Wesley Guide Hospital, Ilesha, Osun state,

Nigeria. Wesley Guide Hospital is an arm of Obafemi Awolowo Teaching Hospital Complex, Ile Ife, Osun State, Nigeria.

### Source of samples

Samples were obtained from patients attending Wesley Guild Hospital, Ilesha Osun State A total of 310 swabs comprising 150 High vaginal, 150 Endocervical swabs and 10 Urethral discharges were collected by the aid of the gynaecologist.

## Specimen collection

**High vaginal swab:** The soft tip of the sterile swab stick was carefully inserted into the lower third of the vagina or about 2 inches past the introitus ( the entrance into the vaginal) and rotated for 10-30 seconds, making sure the swab touches the walls of the vaginal so that it absorb the vagina fluid or moisture. The swab was withdrawn without touching the skin and immediately placed into the swab tube. Care was taken that the soft tip was not touched and the swab placed in the tube in a manner to avoid contamination. The cap was tightened.<sup>14</sup>

**Endocervical swab:** with the aid of a sterile speculum, the cervix was reached. Excess mucus from the cervix and surrounding mucosa was removed. Then the swab stick for collecting specimen was inserted into the endocervical canal, gently rotated clock wisely for 10-30 seconds so as to ensure adequate sampling. It was carefully withdrawn to avoid contact with the vaginal mucosa and placed back into the swab stick tube and recapped tightly. The speculum after each use was washed and sterilized<sup>21</sup>.

**Urethral swab:** the patient should not have urinated for at least one hour prior to specimen collection. Area around the urethral opening was cleansed using a swab moistened with sterile physiological saline. Gently the urethral was massaged from above downward. Using a sterile swab stick, the discharged mucus was collected<sup>21</sup>

## Preparation of samples

### Wet-mount microscopy preparation

Sterile normal physiological saline of about 0.5ml was introduced into each swab container and agitated thoroughly in order to ensure that the vaginal, endocervical and the urethral contents get into the saline. Then, one or two drops from the content were put on a clean grease free slide. This was covered with a clean grease free cover slip and observed under x10 and x40 objective lens for motile flagellate with the condenser and iris was closed sufficiently to give a good contrast.

### Giemsa staining

The smear was prepared by emulsifying the swab sample into a drop of sterile normal physiological saline on a clean grease free slide, this was allowed to air dry and fixed with methanol for about 1 minute. Then, the fixed

**Table 1.** Overall prevalence rate of *Trichomonas vaginalis* in HVS, ESC and urethral swab samples collected from patients.

Type of Swab	Number positive	Number Negative (%)	Total of samples (%)
HVS	13 (4.2)	137 (44.2)	150 (48.4)
ESC	12 (3.9)	138 (44.5)	150 (48.4)
Urethral swab	0 (0.0)	10 (3.2)	10 (3.2)
Total	25 (8.1)	285 (91.9)	310 (100.0)

Note;  
HVS- high vaginal swab  
ECS- endocervical swab

**Table 2.** Distribution of *Trichomonas vaginalis* in HVS, ECS and urethral swab according to age group.

	AGE RANGE (YEARS)					Total (%)
	6-15(%)	16-25(%)	26-35(%)	36-45(%)	46-55(%)	
HVS	1(0.32)	8(2.58)	4(1.29)	0(0.00)	0(0.00)	13(4.2)
ECS	1(0.32)	7(2.36)	4(1.29)	0(0.00)	0(0.00)	12(3.9)
Urethral	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
Total	2(0.65)	15(4.48)	8(2.60)	0(0.00)	0(0.00)	25(8.1)

Note;  
HVS- High vaginal swab  
ECS- Endocervical swab

smear was flooded with 10% Giemsa stain for 45 minutes and washed off with clean water, the back of the slide was wiped clean with dry cotton wool. Afterwards, the slide was placed on warmer dish to dry the stained smear and Viewed using oil immersion objective lens(x100).

## RESULTS

Three hundred and ten samples of high vaginal swab, endocervical swab and urethral swabs were examined for *Trichomonas vaginalis*. A total of 25.0(8.1%) samples were positive for *Trichomonas vaginalis* while 285.0(91.9%) were negative. Out of the 25.0(8.1%) positive samples; high vaginal swab had the highest prevalence of 13.0(4.2%), Endocervical swab had 12.0(3.9%) while urethral swab had none (0.0%) (Table 1).

It was observed that the distribution of *Trichomonas vaginalis* in high vaginal swab, endocervical swab and urethral swab according to age showed that age group 16-25years had the highest occurrence of *Trichomonas vaginalis* of 8.0(2.6%), followed by age group 26-35years 4.0(1.3%),6-15years 1.0(0.32%) while age groups 36-45years and 46-55years had zero (0%) respectively. Likewise, in this study, Endocervical swab had highest prevalence of 7.0(2.36%) in age group 16-25years, followed by 26-35years 4.0 (1.3%), 6-15years 1.0 (0.32%) while ages 36-45years and 46-55years had 0.0(0.0%) occurrence respectively. In urethral swab of patients examined no *Trichomonas vaginalis* was found (table 2).

Table 3 showed the prevalence of *Trichomonas vaginalis* in High vaginal swab, Endocervical swab in relation to educational status of patients. It was revealed that the uneducated had the highest occurrence of 15.0(4.84%), comprising of 8.0(2.58%) in High vaginal swab, 7.0 (2.26%) in Endocervical swab while the educated had 5.0(1.61%) the educated had 5.0(1.61%) positive for High vaginal swab and Endocervical swab respectively and none for Urethral swab 0.0(0.00%). The tables were well represented by the figure 1, 2 and 3as shown below.

## DISCUSSION AND CONCLUSION

*Trichomonas vaginalis* is one of the major cause of vaginitis, cervicitis and urethritis in humans<sup>32</sup>, In this study three hundred and ten samples of high vaginal swab, Endocervical swab and urethral swabs were collected. *Trichomonas vaginalis* was detected in high vaginal swab and endocervical swab of the subjects while the urethral swab gave a negative result. This may be due to the short length of 1.5 cm urethra in women compared to 8 inches in male, thus the parasite gain easy access to the vagina and cervix, this makes the female more susceptible to Trichomoniasis.

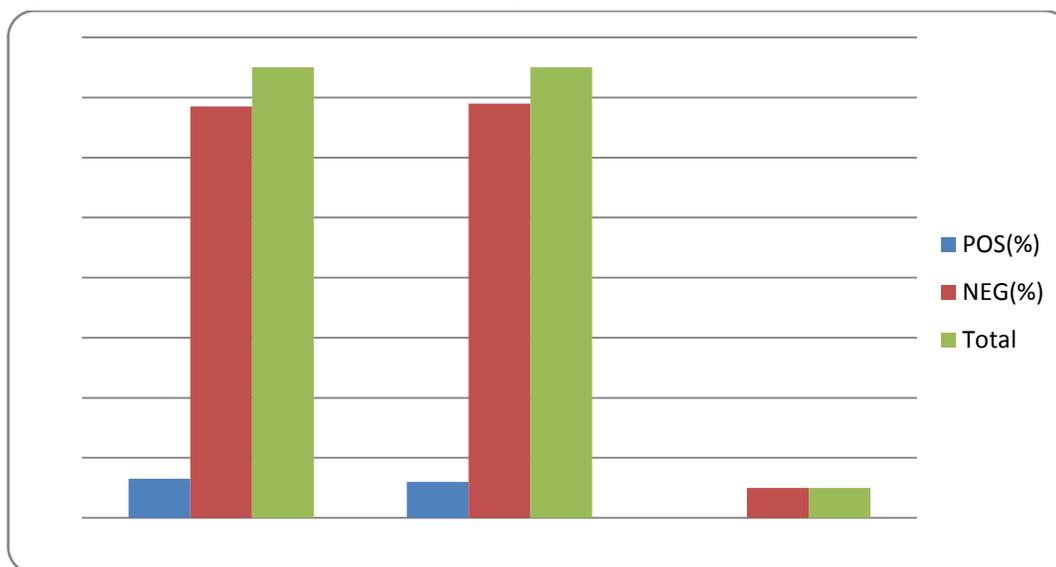
It was observed that ages group 16-25years had the highest occurrence of *Trichomonas vaginalis*, in high vaginal swab 8.0(2.58%) and endocervical swab 7.0(2.26%), probably because it is the most common curable STD in sexually active young women, as supported by CDC in 2006. Hillier in his publication

**Table 3.** Prevalence of *Trichomonas vaginalis* in HVS, ECS and urethral swab in relation to educational status of patients.

	Uneducated (%)	Educated (%)	Total (%)
HVS	8(2.58)	5(1.61)	13(4.19)
ECS	7(2.26)	5(1.61)	12(3.87)
Urethral swab	0(0.00)	0(0.00)	0(0.00)
Total	15(4.84)	10(3.23)	25(8.1)

Note;  
HVS- high vaginal swab  
ECS- endocervical swab

**Figure 1.** Overall Prevalence rate of *Trichomonas vaginalis* in the samples from patients.



showed a data of 67.2 million cases of Trichomoniasis in adult aged 15-49 years in 1995 his work is found to in line with this research. The same rate of prevalence in Ages 26-35years 4.0(1.29%) of *Trichomonas vaginalis* in both high vaginal swab and endocervical swab, can be compared with the work done by Hillier's (1995) that active sexual life of the patients may cause the high rate of Trichomoniasis. He also noted that the percentage of women was higher than that of men. Patients within 36-45years and 46-55 years recorded no occurrence of *Trichomonas vaginalis* for both vaginal swab 0(0.00%) and endocervical swab 0(0.00%) reasons may be associated to reduction in sexual activity of people in this age group and change in vaginal pH to semi acidic which is not conducive for the parasite growth

This agrees with Krieger and Alderate (1999) and Arora and Arora (2007) that if the normal acidity of the vagina is shifted from semi- acidic pH (3.8-4.2) to more basic one (5-6), it would be conducive for *Trichomonas vaginalis* growth. Absence of the *Trichomonas vaginalis* in urethral swab in this study may be due to limited route through contact with infected woman as discussed in CDC (2006) but women acquire the infections from infected men or

women, in pregnancy, sharing of sex toys as established by Govender *et al* (1999). Kirby (2000) made known that transmission may also occur in the vagina by secondary contact of contaminated towels, douche equipment and examination instruments such as speculum and spatula. Prevalence of *Trichomonas vaginalis* in relation to educational status showed that the uneducated patients had the highest compared to the educated, the reason may be due to lack of good personal hygiene and fore-hand knowledge about the infection. Whereas on the part of the educated *Trichomonas vaginalis* infection may be link to improper sex education as discussed by Jombo and Opajobi in 2007. *Trichomonas vaginalis* infection can be controlled if there can be increase in fund for creating public awareness and tracking down contact of the infection properly, adequate education of adolescence as suggested by Thomas in 2002, improved hygiene, non relaxation of social taboos, decent sexual habit, use of protective device such as condom(s) and diaphragm(s) as counseled by Cohen, 1998. These would eventually promote safe and discipline sexual habit. However, patient tested positive for *Trichomonas vaginalis* must be well treated together with their sex partner (s) at the

Figure 2. Distribution of *Trichomonas vaginalis* according to Age range.

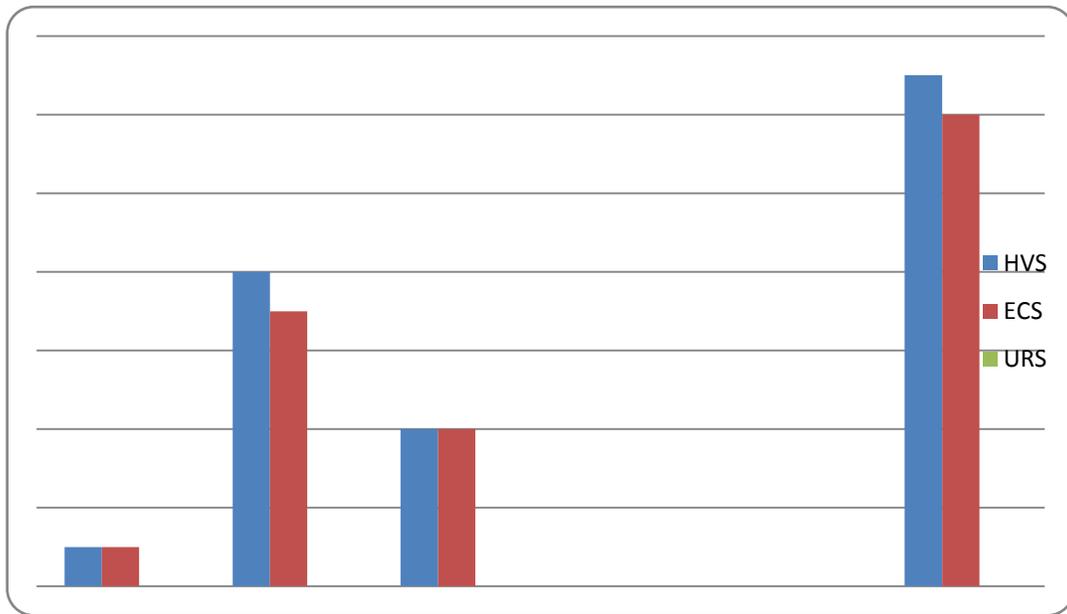
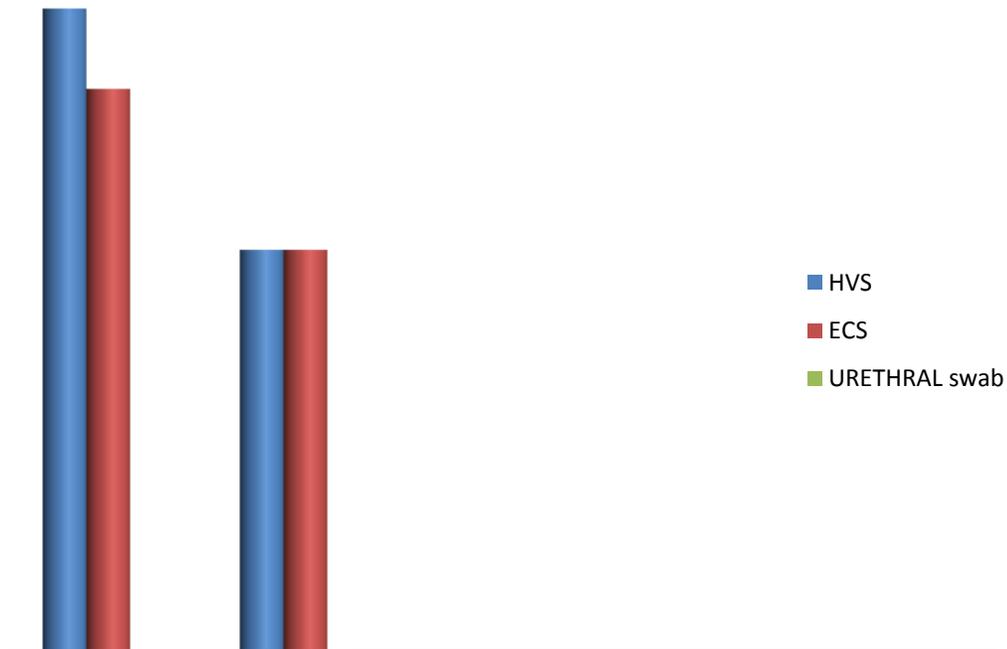


Figure 3: Prevalence of *Trichomonas vaginalis* in relation to education status of the patients.



same time in other to eliminate it completely as advised by CDC 2006. From the work done, High vaginal and Endocervical swab samples of patients can be collected to demonstrate *Trichomonas vaginalis* infection, because there is no significant different in the overall distribution of the parasite in the two type of swab samples collected.

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