

Genital Trichomoniasis Among Women At A University Teaching Hospital: Findings From A Study On 8,443 Clinical Urogenital Samples In Jos, North Central Nigeria.

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Citation

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Abstract

Aim: The study was set to ascertain the incidence of *Trichomonas vaginalis* among women in Jos.

Methods: The study was retrospective in nature. Data generated by the Microbiology laboratory of the Jos University Teaching Hospital (JUTH) on high vaginal swab/endocervical swab (HVS/ECS) samples was compiled for a period of five years (July 2000-June 2005). Samples were collected, transported, stored and processed using standard laboratory procedures. Additional information was obtained from patients' records. Results were analysed using Epi Info 6 statistical software, while P values <0.05 were considered significant.

Results: The incidence of *T. vaginalis* among women was found to 1.2% in Jos. The peak age of infection was 20-29 years, and there was no significant age difference ($P > 0.05$). Clinical features associated with *T. vaginalis* infection include: Nil 6.7%, Itching + Rashes 10.6%, Discharge only 35.6%, Rashes only 8.6%, Itching + Discharge 27.9%, and Itching only 4.8%.

Conclusion:

T. vaginalis is not a rare STD among women in Jos. Proper sex education especially for the youths and adolescents should be intensified so as to ensure a population fully aware of the Dos and Don'ts of STDs and hence reduce the spread and rate of infection with *T. vaginalis* and other STDs.

INTRODUCTION

Trichomonas vaginalis is a trophozoite; oval in shape as well as flagellated. Five flagella arise near the cytosome; four of these immediately extend outside the cell together, while the fifth flagellum wraps backwards along the surface of the organism^{1,2}. *T. vaginalis* is an established cause of sexually transmitted diseases (STDs), and currently affects at least 170 million people worldwide; more than gonorrhea, syphilis and Chlamydia combined^{3,4,5}. The organism has been reported to cause pneumonia, bronchitis and oral lesions^{6,7}, while a greenish-yellow frothy vaginal secretion and itching are its commonest presentations^{8,9,10,11}. Infertility, premature rupture of membranes, preterm labor, and abortions have all been associated with the organism^{7,8,9}.

T. vaginalis, though generally believed to be a female agent has been detected in between 11% to 17% of men attending

STD clinic in which it was the sole organism detected in the urethra^{12,13}. In North Carolina USA, *T. vaginalis* was detected in 29% of women attending an STD clinic using polymerase chain reaction (PCR)¹⁴; while in Dhaka, Bangladesh, *T. vaginalis* was detected in 45.5% of the 269 street-based female sex workers¹⁵. Also in Cotonou, Benin, *T. vaginalis* was detected in 10.5% of female commercial sex workers¹⁶.

T. vaginalis has been reported to induce cervical intraepithelial neoplasia (CIN) (a premalignant condition) faster than the hitherto strongly associated organisms^{17,18}. In India it was found that, CIN detected by cytology was detected in 7.04%, 4.89% and 4.89% of women infected with *T. vaginalis*, herpes simplex virus, and human papilloma virus respectively¹⁹. *T. vaginalis* has also been shown to induce epithelial monolayer disruption, creating a

microenvironment conducive for HIV-I replication²⁰, a phenomenon which could encourage the spread of HIV infection^{21,22,23,24,25}.

Recent findings have shown a gradual built up of metrinodazole resistant *T. vaginalis*^{26,27}, the drug of choice for its treatment. This has been attributed to a reduction in transcription of the ferredoxin gene thereby decreasing the ability of the cell to activate the drug²⁸. This has constituted a potential challenge towards the future management of trichomoniasis^{27,28}.

In Nigeria, Nwosu, et al reported *T. vaginalis* prevalence of 12.5% among females in a cross-sectional study²⁹, while Akerele, et al, in Benin-city³⁰, reported about 15% detection of the organism among pregnant women, Papin, et al from a study on 659 men with urethral discharge reported *T. vaginalis* to account for 13.8% of the cases across West Africa³¹.

Among the agents of STDs, *T. vaginalis*, though fairly researched, appears to attract less enthusiasm among researchers compared to the other agents of STD^{32,33,34}. Also knowledge of the depth of the infection in this locality needs to be known^{35,36}. Such information would be a useful guide to the health personnel involved in the management of similar and related patients as well as a good projection of the sequelae that might arise from such ailments, hence the need for this study.

MATERIALS AND METHODS

Setting The study was carried out at the Microbiology laboratory of the Jos University Teaching Hospital (JUTH), Jos Plateau state.

Procedure The study was retrospective in nature. Data generated by the Microbiology laboratory of JUTH endocervical/high vaginal swab (ECS/HVS) samples was compiled for a period of five years (July 2000- June 2005). Samples were collected, transported, stored and processed using standard laboratory procedures, while *T. vaginalis* was detected by wet preparation of the genital samples. Additional information was obtained from the patients' records.

Analysis of Results: Results obtained were analysed using Epi Info statistical software, while P values < 0.05 were considered significant.

RESULTS

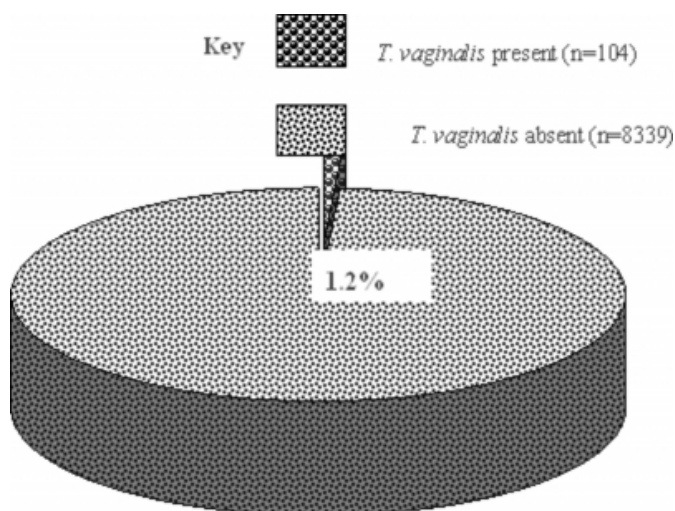
The incidence of *T. vaginalis* infection among the women studied was 1.2% (n= 104) (Fig. 1).

Table II shows the age distribution pattern of *T. vaginalis* infection in Jos: no isolate was recovered from those aged less than 10 years; the peak age of infection was 20- 29 and 30-39 years 0.3% (n= 29) each. The rate of infection among other ages was: 10-19 (0.2%; n= 14); 40-49 (0.2%; n= 16); 50-59 (0.1%; n= 9), and 60 years and above, (0.05%; n= 5). Incomplete data was recorded in two (0.02%) cases. Overall, there was no significant age difference in infection (P>0.05).

Figure 2 shows the clinical features associated with isolation of *T. vaginalis*: Nil, 6.7% (n= 7); Itching + Rashes, 10.6% (n= 11); Discharge only, 35.6% (n= 37); Rashes only, 8.6% (n= 9); Itching + Discharge, 27.9% (n= 29); Itching only, 4.8% (n= 5); 5.8% (n= 6) had inconclusive information.

Figure 1

Figure 1: Rate of isolation of from female genital specimens in Jos, Plateau state.



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Figure 2

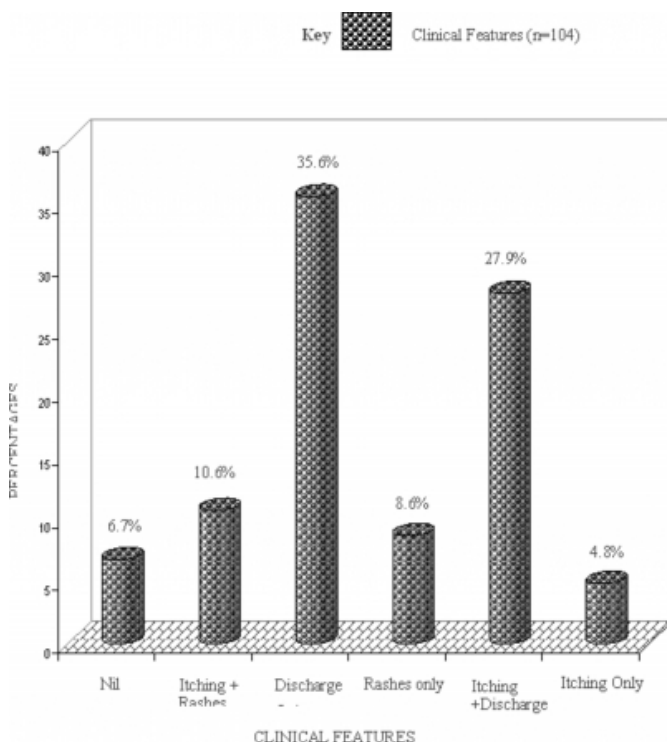
Table 1: Age distribution and rate of isolation of from female genital specimens in Jos, Plateau state.

Age (Years)	<i>T. vaginalis</i> Present (%)	<i>T. vaginalis</i> Absent (%)	Total (%)
1-9	0(0.0)	29(0.3)	29 (0.3)
10-19	14 (0.2)	564 (6.7)	578 (6.9)
20-29	29 (0.3)	2201 (26.1)	2230 (26.4)
30-39	29 (0.3)	2989 (35.4)	3018 (35.7)
40-49	16 (0.2)	1299 (15.4)	1315 (15.6)
50-59	9 (0.1)	705 (8.4)	714 (8.5)
60 & Above	5 (0.05)	442 (5.2)	447 (5.3)
Unclassified	2 (0.02)	110 (1.3)	112 (1.3)
Total	104 (1.2)	8339 (98.8)	8443 (100)

$\chi^2= 2.38$; OR= 1.92; RR= 1.9; P= 0.12

Figure 3

Figure 2: Clinical Features associated with isolation of from female genital specimens in Jos, Plateau state.



DISCUSSION

The incidence of *T. vaginalis* infection among women in Jos

was found to be 1.2%. This finding is in line with that of Uneke, et al in Abakaliki, Nigeria³⁷ who obtained an incidence of 2.8% among antenatal women studied. The strong association of *T. vaginalis* infection with several obstetric and gynaecological problems^{38,39,40} makes its detection among women at any rate of utmost clinical importance, so as to safeguard against them.

Special measures aimed at preventing the transmission of *T. vaginalis* as well as other agents of STD should be put in place. These include: proper sex education among the adolescents, the youthful girl and boy child by parents in order to imbibe a decent sexual habit ahead of adult life; community based organizations and religious groups as part of their social responsibility, could inculcate sex education especially for the youths as part of their community remodeling measures. These would eventually entrench safe and disciplined sexual habits and culture including the use of protective devices such as condoms and diaphragms. The overall impact would be a reduction in the spread of STDs including *T. vaginalis*^{41,42,43}.

The finding of *T. vaginalis* incidence of 1.2% in the present study is much lower than that of: Adad, et al, in Sao Paulo, Brazil⁴⁴, where 10%, 19.8%, and 15.9% incidence was reported in different decades on Obstetrics and Gynaecology outpatients using papanicolaou test; Rahman, et al, in Dhaka Bangladesh^{15,45} where incidence of 45.5% and 4.3% was respectively reported among street based and hotel female sex workers; and over 23% prevalence among African-American women in the general population⁴⁵ using culture and genetic methods of diagnosis. Also, Nwosu, et al²⁹, and Akerele, et al³⁰, respectively reported 12.5% and 15% in Nigeria; though higher than the present study with similar methodology: this may be due to variation in the degree of sexual exposure of the two groups as well as differences in protective measures among the two. The much higher 21.9% prevalence recorded by Bakare, et al in Ibadan⁴⁶ was understandably strictly among commercial sex workers sampled from 18 brothels.

The low incidence of *T. vaginalis* recorded in the present study may partly be incidental arising from a pool of lightly infected population; it may also have to do with the method of detection of the organism. The wet preparation method which was used in the present study has been shown to be about 50% as sensitive the culture and PCR methods which were methods of choice in most of other studies^{44,47,48}, these are however lacking in this study centre. Improvement in the

methods of detection could have probably recorded higher incidence rates.

The peak age of infection with *T. vaginalis* was found to be 20-29 years. This finding is in consonance with that of Uneke, et al in Abakaliki, Nigeria³⁷ where the peak age of infection was found to be 20-25 years old; and Nessa, et al, in Bangladesh⁴⁵, where the peak of *T. vaginalis* infection was detected 18-25 years old range. Besides being a very sexually active, the adventurous disposition of this age bracket and the desire to experiment could as well contribute to these findings⁴⁹.

The absence of clinical features in some subjects with *T. vaginalis* infection underscores the need to search for their proper treatment in other cases of STDs most especially in the high risk groups such as commercial sex workers⁵⁰.

More reliable diagnostic methods should be introduced in *Trichomonas* research in the country such as: culture methods, PCR, and P16 Immunocytochemistry⁵¹. Since these have all been proven to be more sensitive (>98%) and specific (> 97.8%) compared to the current wet preparation method commonly in use in the nations health centres.

In conclusion, *T. vaginalis* is not an uncommon STD among women in Jos; proper sex education of adolescents and young adults should be carried out by parents, religious organizations, community based organizations, and other relevant character modeling agencies. These, if well articulated and sustained will entrench a culture of restraint built on proper sex education and prevention of STDs. The overall impact being a decrease in the spread and transmission of STDs including *T. vaginalis* with its avalanche of sequelae.

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