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Survey of trichomoniasis in osogbo, southwestern nigeria

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ABSTRACT

A total of 882 individuals comprised of 794 (90.03%) females and 88 (9.97%) males were examined in Osogbo, Osun State, Nigeria between January 2005 and March 2006 from various centres for Trichomoniasis. Ninety one (10.3%) and 106 (12.02%) prevalence of Trichomonas vaginalis were reported with the wet mounts direct microscopy and modified oxoid culture medium method respectively. However, there was no statistically significant difference in prevalence (P>0.05). Infection rates were significantly higher (P<0.05) in females than in males and in the age group 21 - 30 years. Infection rate was also significantly higher among female students and non pregnant females on contraceptives than other groups. The clinical symptom of vaginal discharge (VD) recorded the highest prevalence (52.83%) which was statistically significant compared to other clinical signs in the study. The control of the disease condition was highlighted.

1. Introduction

Although the incidence of Trichomonas vaginalis infections varies widely between countries, trichomoniasis is one of the commonest, if not the most common, of the sexually transmitted diseases. In some areas of the United States, the incidence among women is as high as 50 percent [1]. In both sexes, most infections are asymptomatic or mild [2].

Symptomatic infection is common in women and rare in men [1]. It is a protozoan infection which is receiving increase attention in the developing countries of the world. This is because of its increasing prevalence and debilitating disease processes [2]. Trichomoniasis in women is frequently chronic and is characterized by vaginitis, a vaginal discharge, and dysuria. [3] The inflammation of the vagina is usually diffuse and characterized by hyperemia of the vaginal wall and migration of poly-morphs-nuclear leukocytes into the vaginal lumen. Major complications in men include urethritis and prostate inflammation [4].

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There is scanty information about Trichomonas vaginalis infection in Osogbo as a result of little or no studies on the disease from this part of the Country. In Nigeria, only a few reports of Trichomoniasis are available with prevalence ranging between 1.5% and 15.0% [4-6].

In Osogbo, the level of sexual promiscuity is believed to be on the increase recently. This could be as a result of lack of discipline among youths, couple living attitude among males and females students of tertiary institution in the state and influx of female students into the state capital on week ends for economic reasons in hotels. Poor knowledge of the hazards of sexually transmitted diseases (STD) among the populace is an important factor in spread of the infection. Other reasons include poverty and activities of human trafficking in general. It is thus essential to study trichomoniasis, AIDs and other STDs that have the same mode of sexual transmission with a view to providing information and data base for control of the spread of the infections.

This study was designed to provide a data base on investigation of the overall prevalence of trichomoniasis in Osogbo using wet mount and oxoid culture methods as described[4]. The associated clinical symptoms and infection rate in relation to sex, age groups and occupation were also studied.

2. Materials and Methods

2.1. Study Site

This study was carried out in Olorunda Local Government with headquarters in Osogbo, the capital of Osun State, Nigeria. The area is located in the tropical vegetation zone of south western part of the country, about 500 km kilometers from Abuja, the nation's capital. It lies approximately on Latitude 40 degrees N and longitude 7.34 degrees E, and about 1100 meters above sea level.[7] Osogbo is cosmopolitan with most basic social infrastructures. The area is marked by two seasons, the raining season which starts from April and terminates in October, and dry season which prevails from October to march. It has a population of about a million people and a busy commercial town being a gate way to Kwara State and other parts of Northern Nigeria. The city has elaborate social activities of life.

2.2.Collection and Examination of Samples

A total of 882 individuals comprising of 794 (90.o3%) females and 88 (9.97%) males samples were collected between January 2006 and November 2007 from various centres namely: Lautech Teaching Hospital (LTH), State Hospital, Asubiaro Osogbo, Primary Health Care Centre, Ita Akogun, Atelewo, and Isale Abgara and other five private Health centres within Osogbo City. Specimens collected were High Vaginal Swabs (HVS) and Endo cervical Swabs (ECS) in females, and Urethra Swabs (US) in male subjects. Informed consent was obtained from each of the subjects before completion of a standard questionnaire. Questionnaires were semi structured, interviewer administered and pretested tool that as divided into four sections, and administered by four trained research assistants.

Subjects that have already started treatment and those that refused to give consent were excluded from the study. Other sample collected from individual that volunteered was early morning urine (EMU). Methods described by [3,4 and 8] were used for samples collections, the wet preparation for microscopy examination of samples and identification of Trichomonas vaginalis. Modified Oxoid Trichomonas medium No1 was used as the culture medium in which specimen from the samples collected were incubated at 370c in microaerophlic jars and examined at 2 days intervals as described by [3,9] The results obtained were analyzed with the participant's detailed clinical history as well as with the answers they supplied to the questionnaire on medical and social status used for this study.

2.3. Statistical analysis

The data analysis was done using the SPSS software version 15.0 and frequency tables generated. The chi-square test was used to determine significant relationship between categorical variables at a significant P value of less than or equal to 0.05. ANOVA was used for the variation between the results of the two diagnostic methods in this study and the age distribution of the population sample.

3. Results

A total of 882 early morning urine specimens were screened for Trichomonas vaginalis using direct microscopy and culture methods.

The overall prevalence was 12.02% and a total of 106 individuals were infected with *T.vaginalis* using the modified oxoid Trichomonas medium culture method while 91 (10.3%) were infected from the wet mount microscopical examination of the samples. (Table 1). In the analysis of other samples, the High Vaginal swab (HVS) samples had highest prevalence of 15.5% followed by the End cervical Swab (ECS) sample10.6% while the urethral swabs (US) samples had 3.4%. Generally, the modified oxoid cultured method gave the highest prevalence of infection than the direct wet mount microscopy method, though the difference was not statistically significant (Table 1).

Table 1. Result obtained using direct examination and culture methods

Specimen Type	Wet Mount Microscopy		Culture Method	
	Number Examined	Number (%) infected	Number Examined	Number (%) infected
Early morning urine	882	91 (10.3)	882	106 (12.02)
High vaginal swab (HVS)	265	34 (12.8)	265	40 (15.1)
Endocervical swab (ECS)	94	4 (4.3)	94	10 (10.6)
Urethral swab US	29	1 (3.4)	29	1 (3.4)
Total No of individuals used and Prevalence	882	91 (10.3)	882	106 (12.02)

P>.05

The distribution of T.vaginalis in relation to age showed that, of the 106 infected individuals, age group (21-30) had highest prevalence rate which was statistically significant (P<0.05) compared to those in age group (51-60) with a prevalence of 9.52%. Those above the age of 61years had no infection as shown in (Table 2). Out of 882 patients examined, 794 (90.02%) were females and 88 (9.98%) were males. Among the females, 102 (12.85%) were infected whereas among the males only 4 (4.55%) were infected. There is statistical significant difference between males and females infection rate (P<0.05). Women without pregnancy had significantly higher (P<0.05) prevalence of infection (13.68%) than pregnant ones with (9.9%) prevalence. Those on contraceptives among non-pregnant group had higher prevalence of infection (24.12%) than those not on contraceptives (12.34%) prevalence (Table 3).

Table 2:. Age specific prevalence of Trichomoniasis

Age group	Number Examined	Number infected	% with respect to total No. of patients infected	% with respect to total no of people Examined
11 – 20	126	12 (9.52)	11.32	1.36
21 – 30	324	56 (17.28)	52.83	6.35
31 – 40	173	25 (14.45)	23.58	2.83
41 – 50	101	8 (9.92)5	7.47	0.90
51 – 60	42	(9.52)	4.72	0.67
61 & above	28	0 (0.0)	0.00	0.00

Table 3. Trichomonas Vaginalis Infection in various Categories of Women

Status	Number Examined	Number (%) infected	% Infected with respect to the total No of females infected
Pregnant group	81	8 (9.9)	7.84
Non-pregnant group	687	94 (13.68)	92.16
1. female on contraceptives	112	27 (24.12)	26.47
2. female not on contraceptives	575	71 (12.34)	69.61
Unclassified group e.g.			
House wife	26	0 (0.0)	0 (0.0)
Total	794	102	12.85

***members include old women above 60 years old.**

The clinical symptoms seen in patients examined revealed that vaginal discharge (VD) had the highest prevalence (52.83%) followed by those with vulvo vaginitis/pruritis (VV/P) and pelvic inflammatory diseases (UD), with (16.03%) and 10.38% prevalence respectively. The lowest prevalence of (2.8%) was among patients with routine check or no symptoms (2.8%). Other clinical symptoms were urethritis, urethral discharge, appendicitis and frequent micturition as seen in (Table 4)

Table 4. Clinical Symptoms among *T. vaginalis* infected individuals

Clinical diagnosis	Number infected	% Infected with respect to the total No.of patients infected	% Infected with respect to the whole individual examined
Vaginal discharge (VD)	56	52.83	6.35
Volvovaginitis / Puritis (VV/P)	17	16.03	1.93
Pelvic Inflamatory Diseases (PID)	11	10.38	1.25
Urethritis / Discharge (UD)	4	3.77	0.46
Appendicitis (APP)	2	1.89	0.23
Other symptoms	5	4.72	0.57
Routine check / No symptoms	3	2.83	0.34
Frequent Micturition	8	7.55	0.91
Total	106	100	12.04

This study showed that out of 106 positive cases, students had the highest prevalence of (17.34%) with 45 individuals which is significantly higher ($p<0.05$) than prevalence recorded by unclassified group like house wives and those without specific occupation (7.86%) with 11 individuals. No respondent claimed to be a commercial sex worker among the subjects. Prevalence of 9.43% and (11.11%) were reported for civil servants and private workers in this survey as shown in (table 5)

Table 5. Trichomoniasis against occupation in the study

Occupational Group	Number Examined	Number Infected	% Infected with respect to the total No.of patients infected	% Infected with respect to the whole patients examined
Students	260	45 (17.31)	42.45	5.10
Civil servants	212	20 (9.43)	18.87	2.27
Private workers	270	30 (11.11)	28.30	3.40
Unclassified	140	11 (7.86)	10.33	1.25
IndividualsTotal	882	106 (18.86)	100	12.02

4. Discussions

Trichomoniasis is a common worldwide infection. Although sexual intercourse is believed to be the usual mode of transmission, some infections probably are acquired through fomites such as towels, toilet seats, and sauna benches [10].

This study is showing a relatively high prevalence which is in accordance with the study done in Benin city, [4] which is a similar urban and highly social city like Osogbo. A prevalence of 12.02% in the present study is high when compared to lower prevalence of 2.5% in another study [11]. This calls for concern because there should have been more effective control measures compared with the study done in a one and half decade ago.

However, higher prevalence has been recorded from other Africa countries and other part of the world. In Harare Zimbabwe, 32.0% [12], 28.5% in Czechoslovakia, [13] 20.2% in Khartoun, Sudan, [14] and 15.0% in Washington D.C USA [15].

The high infection rate observed in this study can be attributed to increase promiscuity due to lack of sexual discipline among the youths particularly students who had highest prevalence. Others include the freedom of indiscriminate sexual activities has been enhanced by early sexual exposure, poor awareness on implications of sexual exploitations and peer pressure induces-use of contraceptives in preventing unwanted pregnancy, as it was the non-pregnant females on contraceptives that had the highest infection rate.

The present study is in line with earlier reports, [4, 10, and 16] that culture method yielded a higher infection rate than the direct wet mount microscopy. It can be suggested that both methods be adopted for diagnosis particularly the direct method that is cheap, fast and very ideal for large population study, since there is no statistical significant difference between the prevalence of both methods.

According to this study, infection is more in females than males, which is in line with [9, 17] which postulated that the female genital tract provides the most suitable medium for the growth of the protozoa. Although the difference in infection rate between the sexes was significant, it should be recommended that more thorough diagnosis be done on males because infection can be hidden in the prostate glands of males and only very little of the parasite are shed at a time in males [18] .

In this Survey, the infection gradually increased with age to a peak prevalence at the sexually active age of 21-30 years, then dropped as menopause approached. This supports findings from other studies.[5,17] They further stated that the very low or total absence of infection in women above 60 years was due to decrease in concentration of glycogen and changes of the ph of vagina which make the environment unsuitable for the growth of the organism.

The findings in this study according to symptoms also agree with previous report from Sudan,[14] and Nigeria.[11,17] All reported vaginal discharge, vulva vaginitis / pruritis, Pelvic inflammatory diseases and urethritis as the most common clinical symptom among subjects with trichomoniasis in their studies. However, there is a need for further investigations to observe the extent to which other observed clinical symptoms are related to trichomoniasis.

Because of the frequent role of asymptomatic men in Spreading of trichomoniasis, control of this infection necessitates examination and, if necessary, treatment of male sex parthners. Delay of sexual initiation, avoidance of sexual promiscuity and consistent and correct use of condoms could be effective ways of interrupting the transmission of these infections, most especially among our youths.

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5. Reference

[1] Baron S. Medical Microbiology, Fourth Edition pg 966-967 University of Texas publishers, 1996.

[2] Adebayo JA. Leuorrhoea by gram stain as an aid to selection of Vaginal Swabs for Trichamonas vaginalis Cultivation. J med. Lab. 1995; SC 3:34-36.

[3] Krieger J. Trichomoniasis in Men: Old issue and new data. Sex Transm. Dis. 1995; 22 (2): 83-96.

[4] Okaka CE, Ogboe-Obanor HE. Trichomonas vaginalis infection in Benin-City, Nigeria. International J. of Bromedical and Health Sciences. 2006; 2: 30.

[5] Oyawoye OM, Fabiyi JP, Ephraim AA. Prevalence of Trichomonas Vaginalis amongst different Categories of women in Bauchi metropolis. Abstract of the 18th Annual Conference of the Nig. Soc. Parasitology, 1995; P.19.

[6] Nmorse OPG, Daudu. OP. Candidiasis and trichomoniasis among hospital patients at Ekpoma, Edo State Nigeria. Abstract of the 18th Annual Conference of the Nigeria Society for Parasitology, 1994; P49.

[7] Amoo AOJ, Hassan A O. A survey of Prevalence of Urinary schistosomiasis Among Pupil in Osogbo Osun State. Journal of Urinogenital Medicine.2005; 5(1), pp4-7

[8] Kunin CM. Detection, Prevention and management of Urinary tract infections 3rd Ed. Lea and Febinger Publishers,1979.

[9] Adebayo JA. Isolation of Trichomonas Vaginalis, a simple diagnostic medium afor use in developing countries. J of Med Las Sciences,1998; 45:273-274.

[10] Krowchuk DPJ, Trina M, Kumar ML. Rapid diagnosis of Common Sexually transmitted diseases in adolescents. A Review. Adolese, Paediatries,Gynae Cal. 1989; 6 (4): 275-288.

[11] Konje JC, Otolorin EO, Oguniyi JO, Obisesan KA, Ladipo OA. The prevalence of Gardinerella vaginalis, Trichomonas vaginalis and Candida albicans in the cytology Clinic at Ibadan, Nigeria. Afr J Med Sci. 1991; 20 (1): 29-34.

[12] Manson PR, Forman L. Serological survey of Tricomona vaginlis infection in Zembabwe. Rhodesia. Cent. Afri J of Medicine. 1980; 26(1):6-8.

[13] Unzeitig V, Cupr Z, Bucek R. Use of native microscopic examination of the vaginal flora in the diagnosis of trichomoniasis. Britis Lek Listy.1989; 90(8):608-613.

[14] Omer EFE. Trichomoniasis in Sudanese women presenting with vaginal discharge. Sud Med J.1978; 16:1 1-5.

[15] Hooton TM, Bowers A, Copass MK, Krieger JN, Hillier SL, Kiviat N, Corev L, Stamin WE, Holmes KI. Sexually transmitted diseases in victims of rape. Nor Engl J Med.1990; 322(ii): 713-716.

[16] Sparks RA, Williams JMH, Boyce TC, Fitgerald C, Shelley G. Antenatal screening of Candidiasis, Trichonomiasis and gonorrhea. Britis J of vener Dis. 1975; 51:2: 110-115.

[17] Ibeh IN. Incidence of and Immune response to Trichomonas Vaginalis in women in Benin.City Nigeria. Msc thesis University of Benin Nigeria. J of Med Las Sciences.1988; 40:273-274.

[18] Sexana SB, Jenkins RR. Prevalence of Trichomonas Vaginalis in young men. J adolesc HIth Car.1989; 10:250.