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Full Length Research Paper

Trichomonas vaginalis: the most widespread sexually transmitted infection (STI) among female patients

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Trichonomas vaginalis **an etiologic agent of trichomoniasis, a sexually transmitted infection which was carried out among female patients at Nagari hospital, Keffi, Nigeria. Vaginal discharged with varying degrees of colouration and odour were collected into a normal saline added to the swab of 0.36 g of NaCl solution, the sediments were examined and the rate of prevalence observed were 17 (8.50%), positive with trichomonas infection through the months of April to August. In the category of patients, the unmarried women 5(9.62%) were most infected and 3(5.17%) married women were recorded the least infected and among female children with pelvic inflammatory diseases (PIDs) showed a significant difference in the positivity of infection (χ^2=1.07, p <9.49, df=4). However, between the aged group of 23 - 39 years olds were most vulnerable to *T. vaginalis* infection though, with a relationship in the rate of infection with *T. vaginalis* (χ^2=2.70, p <11.07, df=5). Importantly, most infected female patients had scratched-wounds at the superficial surfaces of the vagina due to severe itching with painful urination, this call for high personal hygiene and regular clinical checkups which should seriously be advocated and proper medical treatment strictly adhered.**

Key words: *Trichomonas vaginalis*, STI, prevalent, medical.

INTRODUCTION

Trichomonas, a parasitic protozoan is known to be an etiologic agent of Trichomoniasis, a sexually transmitted diseases (STD's) of worldwide importance.

Trichomoniasis is the most common non-viral (STD's) and it is associated with many perinatal complications, male and female genitourinary tract infections and increased incidence of HIV transmission. Infection rate among sexes generally is same with women showing symptoms and asymptomatic in men. Though, transmission takes place directly because the trichomonas does not have a cyst.

The World Health Organization (WHO) has estimated that, 16 million cases of infection are acquired annually worldwide, and the estimate for North America alone, are

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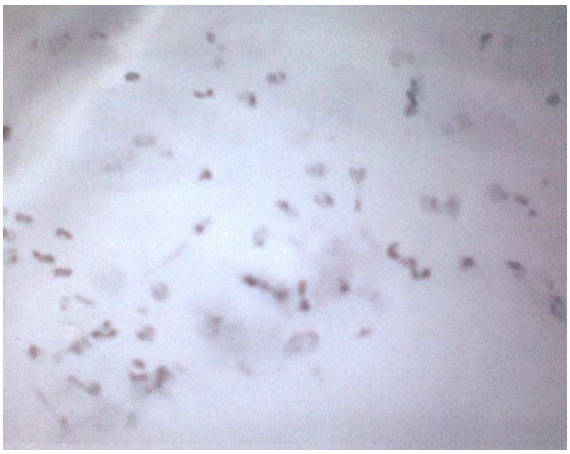

Plate 1. *Trichomonas vaginalis* from vaginal discharged.

between 5 and 8 million new infection each year with an estimated of asymptomatic cases as high as 50% (Graw et al., 2008). Having trichomoniasis can make one feel unpleasant to have sex and without treatment, the infection can last for months or years (Preferson et al., 2010). However, trichomonas can increase the risk of spreading other sexually transmitted infections example, genital inflammation caused by trichomoniasis makes it easier for HIV viruses. Recent data shows that, the prevalence of trichomoniasis is more than 170 million cases worldwide with a more disturbing number of asymptomatic cases that are not treated (Wang et al., 2001).

Trichomonas vaginalis is clearly pathogenic and usually of low virulence continue to cause considerable and often prolonged distress to many women in recent years due to lack of success in treating only the female alone and the high prevalence of the relapse even after a considerable period of freedom from symptom has resulted in attention being focused on *T. vaginalis* infection in the male and the possibility of re-infection in the female during sexual intercourse (Lawing et al., 2000). This is because the vaginal epithelial is the primary site for infection thus, the vaginal wall are usually erythematous that is red and may show patechial that is a small non-raised spot haemorrhage. Little is known about the pathophysiology associated with *T. vaginalis* infection but is presumably due to the interactions between the parasites and host epithelial cells. *T. vaginalis* can destroy cells in a contact dependent manner in vitro study therefore; adhesion of the trophozoite to the epithelium is believed to be a major factor in the pathogenesis. Several adhesion proteins have also been identified on the surface of the trophozoite in the past years, (Barbosa et al., 1997; Louis et al., 2008).

Nevertheless, the aim is to establish cases of *T. vaginalis* common among females of all categories and to determine the rate of distribution in the months of the year, age and their sexes.

MATERIALS AND METHODS

Study area

Nagari Hospital (NH), Keffi, Nasarawa State, Nigeria lies between latitude 8°, 50', 55" N and longitude 7°, 55', 25" E with an area of 138 persons per sqkm and a total population of 92,664 based on the census of Nigeria, 2006, Abuja flank it in the west (Akwa et al., 2007).

Diagnostic method

Ethical clearance was sought and was granted by the "Ethical clearing committee" of Nagari hospital, Keffi, Nigeria. This parasitological diagnosis of clinical trichomoniasis of fresh vagina discharged samples were collected into a normal saline added to the swab of 0.36 gm of sodium chloride (NaCl) which was dissolved in water to a volume of 100ml, the sediment were placed on a clean glass slide and was viewed immediately using a microscopic objective of x 100 (Smith et al., 2007; Wendel et al., 2007).

In this method used, a total of 200 female patients were each given universal sterile container sample bottle to collect vagina discharged fluid for a routine laboratory examination. Pus and epithelial were visible in most cases, depending on the level of infection. In cases where there was no discharge on the surface of the vagina, a non-lubricated speculum was inserted into the vagina to enlarge the cervix and discharges were collected from the posterior surface of the vagina.

The chi-square (χ^2) test was used to ascertain statistical variables among sexes and the age groups among female patients with established *T. vaginalis*.

RESULTS

Trichomonas

Female patients were positive with *T. vaginalis* (Plate 1) isolated from vaginal discharged samples 17/200 (8.50%). In the lineup, of the male categories, the unmarried patients (single) 5/58 (9.62%) were most vulnerable to *T. vaginalis* which follow in the prevalence rate, the pregnant mothers 4/(8.89%), married 3/52 (5.17%), and those with pelvic inflammatory disease (PID) 3/27 (11.11%) and the least among children 2/18 (11.11%) respectively. Nevertheless, the discharged samples appears whitish, yellow, whitish-gray and in some cases blood stain was with dark structures (Table 1 and Plate 1), there was however, significant difference in the spread of *T. vaginalis* among the category of female patients under examination (χ^2cal=1.07, p<9.49, df=4).

Table 1. *Trichomonas vaginalis* isolated from vaginal discharged among female patients of Nagari Hospital, Keffi, Nigeria.

Categories of female patients	Pregnant mothers	Pelvic inflammatory disease (PID)	Unmarried	Married	Children	Total
No. examined	45	27	58	52	18	200
No. positive (+)	4	3	5	3	2	17
No. percentage (%)	8.89	11.11	9.62	5.1	11.11	8.50

No. = Number, % = Percentage.

Table 2. Age related distribution of *Trichomoniasis* among female patients of Nagari Hospital, Keffi.

Age range	<8yrs	9-15	16-22	23-29	30-37	>40	Total
No. examine	9	10	37	45	78	21	200
No. positive	1	2	3	4	4	2	17
No. percentage (%)	11.11	20.00	8.11	8.89	5.13	9.52	8.50

Table 3. Monthly related Trichomonas infection among female patients of Nagari Hospital, Keffi.

Months of the year	April	May	June	July	August	Total
No. examined	32	39	43	49	37	200
No. positive (+)	2	3	4	5	3	17
No. percentage (%)	6.25	7.69	9.30	10.20	8.11	8.50

Age and *T. vaginalis*

Age related distribution of *T. vaginalis* among female patients of Nagari hospital (NH) is shown in Table 2. The age category 23-29 years old 4/45 (8.89%) and 30-39 years 4/78 (5.13%) were infected with the least observed among the ages <8 years old 1/9 (11.11%).

The severity of infection was mostly observed among the ages of 23-39 years old probably that, they are the most exposed group who in the coursed of infection exhibit little or no symptoms, this is indicative of infection which has lingered for months with a significant difference among the age groups defined ($_{\chi}^{2}$cal= 2.70, p <11.070, df=5).

Monthly distribution of *T. vaginalis*

Table 3, shows infection all through the months of the year, high *T. vaginalis* was recorded in July 5(10.20%), follow in June 4(9.3%) less in the distribution, with the least 2 (6.25%) in April and there wasa significant difference in the distribution of *T. vaginalis* in the months of the year ($_{\chi}^{2}$cal=0.509, p<9.49, df=4). Though, some of the samples were viewed with other structures such as pus and the epithelial cells which were indicative of infection, although, other infections can be seen only if cultured.

DISCUSSION

Infection of *T. vaginalis* in vaginal discharged samples was beginning to gather momentum hence, 8.50% prevalent rate was recorded among female patients at Nagari hospital though, lower than those previously reported from other studies in which the early prevalence, results from 0-75% with the highest rate found among sexually active females living in urban cities and the prevalence in inner city close to 25% in Mexican American women and persons with other parasitic infections (Weinstock et al., 2001; Ohlemeyer et al., 1998; Huppert et al., 2007.,Krieye et al., 1993).

Trichomoniasis is beginning to be recognized in Keffi, a sub-urban, flank off the west of Abuja. The result from the prevalence is similar to the previous work of Borchardt (1995) who observed from the prevalence data that, trichomoniasis occur worldwide and vary widely, depending on the number of population examined and the reliability of detection methods. In this present study, infection was associated with pelvic inflammation disease (PID), adverse pregnancy outcome and increased risk of acquiring and transmission of HIV infection similar with the observation made by Garbase et al. (1998). As most cases of *T. vaginalis* is been reported in developed as well as developing countries which include among others; Australia, Germany, Uganda, United Kingdom, Zambia, USA and Nigeria inclusive. Quite alarming from the

previous report, a particular age group is been identified to be vulnerable to *T. vaginalis* which is between 23-39 years old who exhibit symptoms of lower abdominal with painful urination as a result of high rate of indulgence into all manners of sexual intercourse and lack personal hygiene since *T. vaginalis* can strive well even in most environment like urines.

Trichomonas infection among children was similarly less observed in this study (< 8 years), among others probably that, they are less active to these infection though, non-viral transmission is rare but possible because neonatal get infected, through their mother during child birth (Alder et al., 2009; Sark et al., 2009; Hornberg, 1998). Similarly, observed in cervical smears over a 9-year span of studies demonstrates clear seasonal rhythms in yearly fluctuations in women being screened in the detection of trichomonas infection (Rietveld et al., 1997). And at monthly interval, between 1993 and 2004 in Kenya *T. vaginalis* was associated with 60% greater risk of becoming infected with HIV significantly (McClelland, 2007). However, it was less observed in this study where monthly variation remained statistically significant after adjustment for sexual-risk behaviours (8.50%).

However, infection with Trichomoniasis can cause infertility rupture of the placenta etc, teenagers and unmarried ladies may be at a high risk for contamination from having too many sex partners, not using condoms during intercourse and sharing of under wears and sponge. More care and health support may be needed to fully recover from this condition.

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