



Prevalence of *Trichomonas vaginalis* among women in Albatnan District

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Abstract

One hundred and thirty eight high vaginal swabs were collected from married women. Their ages were 15-55 years, attending an obstetrics and gynecology clinic at Albatnan Medical Center from July to September 2004. 37 (26.8%) showed positive result for *Trichomonas vaginalis*. High percentage of infection was among 15-34 age groups. Also high percentage of infection was in the (1-5) category of parity. Non pregnant women are more susceptible to infection than pregnant women. There is a correlation between Trichomoniasis, vaginal discharge and puss cells.

Key-Words: *Trichomonas vaginalis*, Trichomoniasis, Vaginal discharge

Introduction

The flagellated protozoan, *Trichomonas vaginalis*, is the etiological agent in one of the most frequently occurring sexually transmitted diseases (STDs) (Borchardt *et al.*, 1992). The parasite *Trichomonas vaginalis* is known to cause prostatitis and showed a slightly increased prevalence rate in prostate cancer (Sutcliffe, 2009). Annually an estimated 180 million cases occur worldwide (Krieger, 1981). Contemporary clinical studies have demonstrated the significance of Trichomoniasis. *Trichomonas vaginalis* has been associated with premature rupture of the membrane in pregnancy, low birth weight in neonates from an infected mother and a potential increase in the exposure to the human immunodeficiency virus (Borchardt & Smith, 1995). A diagnosis of this infection only on clinical basis, such as characteristic of vaginal discharge may be erroneous (Fouts & Kraus, 1980). Various laboratory methods have been employed for detection of *T. vaginalis* in vaginal discharge; the saline wet mount; different stains and smears including Giemsa, Gram, Papanicolaou and Acridine orange, Enzyme immunoassay (EIA); monoclonal antibody staining of direct specimens and the latex slide agglutination (Hipp *et al.*, 1979; Krieger *et al.*, 1988; Yule *et al.*, 1987; Carney *et al.*, 1988). Testing for TV has changed in the UK in recent years dependent upon whether the woman has symptoms.

Microscopy and culture are now only performed in symptomatic women or in contacts of *Trichomonas vaginalis* (Gilmour *et al.*, 2012).

This study is the first epidemiological investigation of Trichomoniasis in Tobruk city, Libya evaluating both symptomatic and asymptomatic patients. Patient specimens were examined by the saline wet mount.

Experimental

One hundred and thirty eight women with abnormal vaginal discharge were studied during the period from 1st of July to the 30th of September 2004. The study included inpatient and patient who referred to the gynecological clinic of Al-Batnan Medical Center hospital. Their ages ranged from 15-50 years. For each patient a case sheet was prepared, including the following information: name, age, residence (rural-urban), occupation, education status, presence of other disease, and where patient pregnant or not, and parity. Vaginal swabs were taken by the gynecologist by insertion of sterile, unlubricatedusco's speculum and high vaginal swabs were collected care was taken to avoid contamination of swabs from the valva and outer third of the vagina. Two high vaginal swabs were obtained from each patient. Both swabs were taken in the same fashion; the swabs were examined by wet mount preparation.

Results and Discussion

Patients classified at different categories according to, age parity, pregnancy, residence, and occupation, were studied for Trichomoniasis by saline wet mount and culture. 37(26.8%) patients showed positive result with both wet mount and culture tests. In evaluating a

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specimen for Trichomonads by saline wet mount, the sensitivity of the test, varies by the number of Trichomonad present, the length of time the specimen has remained at room temperature, and the experience (Kriege *et al.*, 1988). The sensitivities and predictive value of culture method in diagnosis of *T.vaginalis*, if accurate cultures are available, documenting *T.vaginalis* offers several advantages compared to empiric treatment (John *et al.*, 1993). However Findings related to microscopy and culture results do not appear to demonstrate a significant risk in missed diagnoses and those who were microscopy negative (subsequently culture positive) had Hay and Ison Grade 2/3 and treatment with Metronidazole. In skilled hands, microscopy alone may be sufficient to diagnose TV in those attending with symptoms (Gilmour *et al.*, 2012). Misdiagnosis of Trichomoniasis is particularly important in patients who have had abdominal hysterectomies. Trichomoniasis vaginitis and bacterial vaginitis are risk factors for cuff cellulitis (Soper *et al.*, 1990). Women at age group 25-35 years revealed higher rate of *T.vaginalis* (43.25%) than other age groups Table 1.

The lowest infection was found among those 45-55 years of age (10.8%). These results are in agreement with results of others (Borchardt *et al.*, 1992; Sarab, 1998). The incidence of infection occurs at ages of greatest sexual activity (Omer *et al.*, 1986). This may be due to high level of estrogen which makes the vaginal environment suitable for growth of *T.vaginalis*. An observation that positive *T.vaginalis* were found in 4 patients in the age group 45-55 indicates the possibility of prevalence of this infection in patient of that age. However (Sarab, 1998) showed that women of 50-59 years age group free of *T.vaginalis*. The result of the present study showed that multiparous women had high prevalence of infection 56.70% and 24.32% while infertile women had lowest rate of infection, table 2.

These results are in agreement with the result of (Alkaisy, 1994) and disagree with those of (Sarab, 1998), (Omer, *et al.*, 1986) demonstrated that no association detected between the infection and parity. Significantly higher *T.vaginalis* infection was observed among non-pregnant women (83.78%) than pregnant women (16.22%) Table 3.

Our finding is similar to that reported by (Alkaisy, 1994) and deferent from the result of Cortez (2011) which was 5.71% and 3.8% by culture and direct observation, respectively. There are growing uses of laboratory performance improvement in the report of the prevalence of *T.vaginalis*. Infections in pregnant women are particularly troublesome in that treatment is not recommended in the first trimester because of the

possible mutagenic effect of the only available antibiotic for treating *T.vaginalis* infection, metronidazole (Draper, *et al.*, 1993). On examination, vaginal discharge was found to be present in all women with Trichomoniasis, vaginal discharge which is considered abnormal for the patient if there is an increase in volume, especially if there is an objectionable odor, or a change in consistency or color and characteristics. Moderate to high number of puss cells were present in the vaginal fluid in (54%) women with Trichomoniasis, Table 4.

This is similar to result reported by (Jane *et al.*, 1997) Who reported that there was no correlation between the presence or absence of leucocytes and the sensitivity of the direct wet preparation examination of the vaginal fluid. Rural women had significantly higher incidence of *T.vaginalis* infection 54.05% than urban women 45.95% Table 5.

This could be attributed to the socioeconomic, educational level and sanitation condition than rural areas. No studies were carried out about the disease in Albatnan area, but many reports are available about the incidence and occurrence of the disease in other parts of the Middle East. Our result was in agreement with those reported by Alkaisy (1994), whereas lower incidence reported by Kadher and Habeeb (1986) who reported 9.7% and (Al-Rawi *et al.*, 1986) reported 9.7% in Baghdad, 0.1% reported by Kader *et al.*, (1988).

Conclusion

Trichomoniasis is one of the most important health problems among women with vaginal discharge. These observations stimulated the worker, to study the problem of Trichomoniasis among women complaining of vaginal discharge and itching.

In the present study out of 138 women complaining of vaginal discharge 37 women were found to be infected with *T.vaginalis* giving incidence of (26.8%). This finding indicates that there is considerable number of women harboring the parasite, acting as the main reservoir and transmitting the parasite to other people and it is a real problem which should not be neglected and must receive attention from health authorities.

References

1. AlKaisy, A. A. (1994). The incidence of *Trichomonas vaginalis* among female with vaginal discharge. Msc. Thesis in Microbiology Baghdad University.
2. AlRawi, Z. T, Al-Khoja and Allawi N. A. S. (1986). Pathogenesis of vaginal discharge J.F. Med Baghdad; 28(4): 49-61.
3. Borchardt K A; V Hernandez, S Miller; K Loaigiga, LCruz, S Naranjo, N Maida (1992):

- A clinical evaluation of trichomoniasis in San Jose, Costa Rica using the in-pouch TV test. *Genitourin Med*; 68: 328-330.
4. Borhardt K A, RF smith. (1995). An evaluation of an in-pouch TM TV culture method for diagnosis *Trichomonas vaginalis* infection, *Genitourin Med*; 67:149-152.
 5. Carney JA, unadkat P, Yule A. (1988). Rapid agglutination test for diagnosis of *Trichomonas vaginalis* infection. *J. Clin Pathol*; 41:806-8.
 6. Cortez, (2011). P1-S1.26 Prevalence of *Trichomonas vaginalis* infection during the first trimester of pregnancy in pregnant women on Maternal and Perinatal Institute
 7. Draper D, Parker R, Patterson E. (1993). Detection of *Trichomonas Vaginalis* in Pregnant Women with the In-pouch TV cutter system. *J. Clin Microbiol* ; 1: 166-8.
 8. Fouts A C, Kraus SJ. (1980). *Trichomonas vaginalis*: Re-evaluation of its clinical presentation and laboratory diagnosis, *Journal Infect Dis*; 141: 137-93.
 9. Gilmour, L, Jones R, Jones C, E Cohen (2011) P72 Microscopy and culture for *Trichomonas vaginalis* (TV): are both tests required and should test of cures (TOC) be performed routinely? *Sex Transm Infect*; 88:A34 doi:10.1136/sextrans-2012-050601c.72
 10. Hipp SS, Kirtwood M W, Gaafar H A. (1979): Screening for *Trichomonas vaginalis* infection by use of acridin orange fluorescent microscopy. *Sex Transm Dis* 6:235-6.
 11. Jane R. Schwebke, Shellie C, Morgan, Gloria B. Pinson. (1997). Validity of self-obtained Vaginal specimens for Diagnosis of Trichomoniasis. *J of Clin Microbiol* vol.35, NO 6, p 1618 - 1619.
 12. John N Krieger, Michael Verdon, Nancy Siegel and King K. Holmes. (1993). Natural history of urogenital Trichomoniasis in Men. *The Journal of Urology*: vol.149, 145-1458.
 13. Jones, I. H 1994, Vaginal Community outlook, 4 (6): 22-23.
 14. Kader .M. , Salehy A. M. S, and Hammad, E.F. (1988). Studies on *Trichomonas vaginalis* in Arbil teaching hospital. *J. Fac Med Baghdad* 30 (1) : 83.
 15. Kader, M.S and Habeeb, S.M (1986). The role of seasonal variation and contraceptive pills in vaginal candidiasis. *Iraqi Medical journal* 34: 35-42.
 16. Krieger JN, Tam MR, Stevens CE. (1988). Diagnosis of Trichomoniasis, comparison of conventional wet mount examination with cytology studies, culture and monoclonal antibodies staining of direct specimens. *JAMA* ;259 :1223-7.
 17. Krieger TN. (1981) Urology aspect of Trichomoniasis. *Investigative Urology*, 18: 411-7.
 18. Nicol, R. (1981). Sexually transmitted disease. *International Medicine*, (5):196-207.
 19. Omer, E. E. El - naeen, H. Ali, H. M. and Forsay, T. (1986). Microorganisms associated with Trichomoniasis among Sudanese women. *Saud. Med. J.*;6(2):129-134.
 20. Sarab Fawzi, Al Rawi. (1998). Isolation and identification of *Trichomonas vaginalis* from women complaining vaginal discharge. Msc Thesis. Anbar University.
 21. Soper, D. E, Bump RC, Hurt WG, (1990). Bacterial vaginitis and Trichomonas vaginitis are risk factor for cuff cellulites after abdominal hysterectomy. *Am J of Obstet Gynecol* 163:1016-21.
 22. Sutcliffe S, Alderete JF, Till C, Goodman PJ, Hsing AW, et al. (2009). Trichomonos and subsequent risk of prostate cancer in the Prostate Cancer Prevention Trial. *Int J Cancer* 124: 2082-2087
 23. Yule A, Gelian, Mc, Oriel J D, Ackers JP. (1987). Detection of *Trichomonas vaginalis* antigen in women by enzyme immunoassay. *J Clin Pathol* 40:566-8.

Table 1: Percentage of *Trichomonas vaginalis* in different age groups

Age group	No of tested cases	Positive cases	
		No	%
15-24	32	12	32.43
25-34	54	16	43.24
35-44	32	5	13.51
45-55	20	4	10.82
Total	138	37	100

Table 2: Percentages of *T.vaginalis* in relation to parity

Parity	No of tested cases	Positive cases	
		No	%
0	36	7	18.92
1-5	72	21	56.76
> 5	32	9	24.32
Total	138	37	100

Table 3: A comparison percentage of *T.vaginalis* isolated from pregnant and non-pregnant women

Women	No of tested cases	Positive cases	
		No	%
Pregnant	24	6	16.22
Non-pregnant	112	31	83.78
Total	138	37	100

Table 4: the frequency of puss cells in women with Trichomonas

	> 5	+	++	+++	Total
No	20	12	3	2	37
%	54.05	32.43	8.11	5.41	100

+: 5-10 / HPF, ++ : 10-15 / HPF .+ +++: 20 / HPF

Table 5: Distribution of *T.vaginalis* according to residence

	No of tested cases	Positive	Percentage
Urban	66	20	54.05
Rural	72	17	45.95