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Original Article

Trichomoniasis in Asymptomatic Patients

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Abstract:

Background: Trichomoniasis is an extremely common infection worldwide and is associated with important public health problems, including amplification of HIV transmission. This disease is in forms of symptomatic and asymptomatic in women and may depend on host as well as parasite variables. Thus the aim of this study was to evaluate the patients attending gynecology clinic with different symptoms and checked them for *Trichomonas vaginalis* infection.

Methods: The vaginal secretion and urine samples of the patients attending gynecology clinic, Imam Reza Hospital, Amol City, were checked by direct smear and cultured in TYI-S-33 culture media.

Results: Out of 853 samples collected, 8(0.9%) were positive for *T. vaginalis* and the number of asymptomatic patients for trichomoniasis were 1.3 times more than infected samples belong to symptomatic ones. Per speculum examination revealed that 75% of *T. vaginalis* positive subjects had normal appearance of vagina and cervix.

Conclusion: According to the epidemiological aspects, these asymptomatic patients are very important as healthy carriers, and *T.vaginalis* infections are commonly associated with other STDs and are a marker of high-risk sexual behavior. Thus laboratories could play important role for diagnosis of infection and help the physicians for properly treatment.

Keywords: *Trichomoniasis, Diagnosis*, *Gynecology*, *Iran*

Introduction

Human trichomoniasis is now widely recognized as prevalent sexually transmitted disease (STD), capable of causing considerable morbidity as well as significant emotional and economic burden on the community. The prevalence of trichomoniasis in inner city U.S. STD clinics typically approaches 25% and may be higher in certain population (1). The clinical spectrum of the disease in women has wide inflammatory variation manifesting as urethritis, vulvo-vaginitis, and cervicitis with associated complications. Complete absence of symptoms in the form of carrier state has also been recognized since long (2). Infected men are usually asymptomatic, but sometimes show symptoms of urethritis and prostatitis, which are usually self-limiting (3). Women, who are predisposed to infection during pregnancy, are more prone to premature rupture of the placental membrane, premature labour, and low-birth weight infants (4). Despite the availability of effective chemotherapeutic agents with little evidence of the development of significant drug resistance (5), trichomonal infection has recently been associated with severe complications with increased risk of developing invasive cervical cancer and a six-fold high probability of infection in human immunodeficiency virus infected patients (6).

Several reports from Iran estimated the prevalence of 1% to 42% from different geographical areas (7-9). Unfortunately, clinical manifestations are not reliable criteria for the diagnosis of trichomoniasis; demonstration of the parasite is required for accurate diagnosis of infection. For establishment of infection in humans, importance of initial adhesion followed by invasion and persistence are well accepted (10). The mechanism thought to be involved at different stages of urogenital trichomoniasis are based on their adhesive and colonization ability (11), production of cell detaching factors, pore forming proteins,

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soluble haemolysins and extra cellular proteinases (12). Whether similar mechanism is involved in both the group of patients (symptomatic and asymptomatic) is not known. Existing information fails to define/differentiate between the roles of recognized virulence determinates in the development of symptomatology of the disease.

The aim of this study was to evaluate this infection in women attending gynecology clinic in Imam Reza Hospital Amol City, and correlate with their symptoms.

Materials and Methods

Two sterile vaginal swabs, from the posterior vaginal fornix of each patient and urine samples, collected from 853 women attending gynaecology clinic in Imam Reza Hospital Amol City, Mazanderan Province, Iran since spring 2005 to summer 2006 were processed for isolation of *T. vaginalis* from symptomatic and asymptomatic female patients. Isolates obtained from patients complaining of vaginal discharge and/or pruritis, dysuria, and dyspareunia were considered as symptomatic patients isolate (SP). Isolates obtained from patients attending the clinic for routine checkup, infertility or some other gynaecological problems with no complain of above mentioned symptoms were considered as asymptomatic patients isolates (ASP). One swab was cultured immediately in Diamond's TYIS-33 medium, and incubated at 37º C. Urine samples were centrifuged at 1500×g for 10 min and pellet was checked for any motile protozoa, and one drop was also added in the culture media. Culture medium was examined under inverted microscope daily for seven days to check for growth of *T. vaginalis* as described by Valadkhani et al. (13).

Data were analyzed for statistical significance using Epi-info software, z-test and parametric methods.

Results

Parasite was isolated in 8(0.9%) women out of 853 clinical samples examined. Clinically suspected of trichomoniasis, complaining of vaginal discharge and/or itching, dysuria and dyspareunia were considered as symptomatic women however, out of 496 symptomatic patients in 4 samples *T. vaginalis* were detected. Women attending the clinic for routine checkup, infertility or some other gynaecological problems were considered as asymptomatic patients and 4 samples were positive for trichomoniasis out of 357 ASP. Out of total positive samples 0.8% was from SP and 1.1% was from ASP. However results showed that there was not significant difference between the isolation of *T. vaginalis* from SP and ASP. Table 1 presents data of isolation rate of *T. vaginalis*.

Vaginal discharge, itching and dysuria were the main complain (52%) of symptomatic patients (A). However out of total patients attending the clinic 41.8% belongs to asymptomatic patients (G). Fig.1 shows relative frequency of symptomatology in patients attended in gynecology clinic. Appearance of vagina and cervix in SP and ASP are shown in Table 2. Per speculum examination revealed that 6(75%) out of 8 *T. vaginalis* positive subjects had normal appearance of vagina and cervix. The findings were statistically significant ($P< 0.05$) in symptomatic vs. asymptomatic group.

Comparisons of smear versus culture on isolation rate of *T. vaginalis* in vaginal swabs and urine samples are shown in Table 3 and 4. Totally in 7 patients *T. vaginalis* could be isolated by culture method from both swab and urine samples. When we considered culture as a gold standard method for detection of parasite the sensitivity of smear versus culture by using vaginal swabs was 86%, however it was 75% when urine samples were used for detection of *T. vaginalis.*

Table 1: Frequency of patients attended in gynecology clinic (%).

Symptoms	Negative for T. vaginalis		Positive for T. vaginalis		Total
	n	%	n	%	n
A) Vaginal discharge, itching & dysuria	256	(99.2)	2	(0.8)	258
B) Vaginal discharge &dysuria	89	(97.8)	2	(2.2)	91
C) Dysuria	15	(100)	-	-	15
D) Dysuria and itching	21	(100)	-	-	21
E) Vaginal discharge, itching	96	(100)	-	-	96
F) Itching	15	(100)	-	-	15
G) Asymptomatic	353	(98.9)	4	(1.1)	357
Total	845	99.1	8	0.9	853

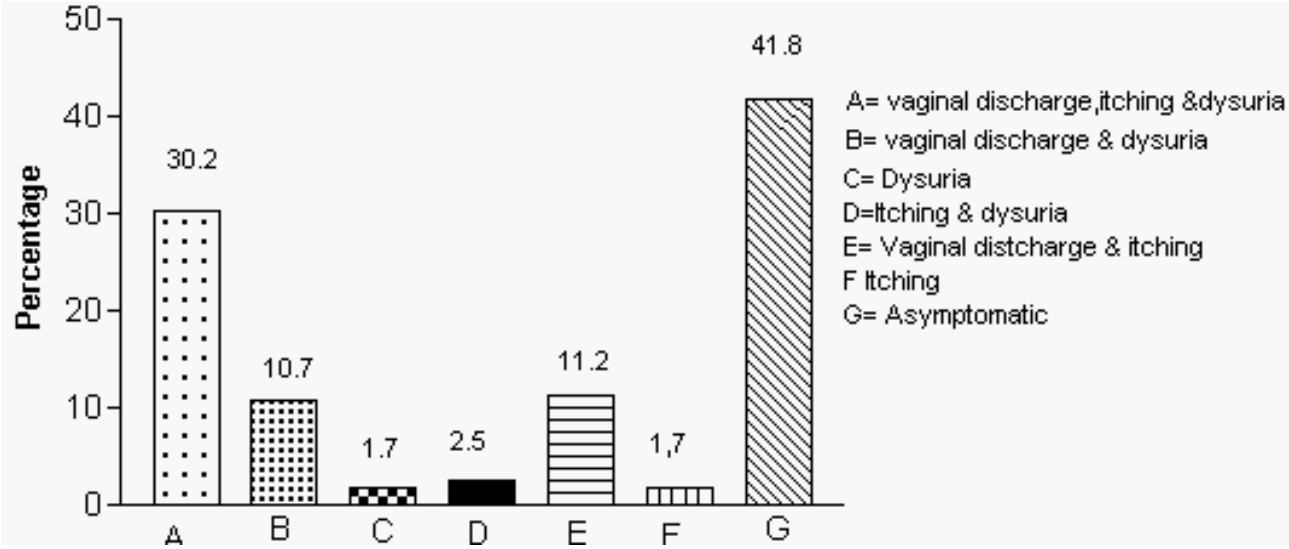

Fig. 1: Relative Frequency of Symptomes in patients Attended in Gyncology Clinic

Table 2: Spectrum of clinical presentation (signs) in symptomatic and asymptomatic patients

Appearance of Vagina and Cervix	No. of the patients	No. of positive patients
Normal	631	6
vaginitis	47	1
cervicitis	156	1
vaginitis and cervicitis	11	0
Total	853	8

Table 3: Validity of positive samples by direct smear versus culture in vaginal discharge

Culture	Smear		Total
	+	-	
+	6	1	7
-	1	-	1
Total	7	1	8

Table 4: Validity of positive samples by direct smear versus culture in urine

Culture	Smear		Total
	+	-	
+	3	1	4
-	2	2	4
Total	5	3	8

Discussion

The infection can occur both in males and females. Most often males may be asymptomatic while females are known to be symptomatic as well as asymptomatic and may depend on host as well as parasite variables. As it has been reported previously, the number of asymptomatic patient is increasing, thus in this study we checked the prevalence of trichomoniasis in patients with and without complaining the routine symptoms of the disease**.**

Most of the studies reported from females are based on examination of vaginal secretions and urine samples. Lawring et al. (14) compared detection of *T. vaginalis* in vaginal and urine specimens from women attending STD clinic and reported that only 74% of women who had vaginal culture positive for trichomonads had evidence of the organism in the urine as well. This study also showed that the sensitivity of vaginal swabs was 86% in compare with urine samples that was 75%. Thus vaginal discharge could be more important for detection of *T.vaginalis* as compared with urine samples and it can be used for screening in community. This indicates that the exclusive use of urine-based detection of *T. vaginalis* is not desirable in women. However culture media is known as gold standard method for detection of *T. vaginalis*, but the sensitivity of culture media is not 100%.

In order to grow parasite in culture media some points are important. For example number of parasites per/ml in sample, i.e. in order to grow *T. vaginalis* in culture media at least 350 parasites/ml should be available until they could grow successfully in culture media. Sometimes the overgrowth of vaginal bacteria in culture media, do not let the division and growth of the parasite even by using antibiotics to prevent the growth of bacteria, that's why it is better culture and direct smear in urine and vaginal discharge check in parallel. These are the reasons why sometimes direct smear is positive but parasite could not be seen the culture media. Results showed that 1.1% of the asymptomatic patients infected with *T. vaginalis* in comparison to 0.8% symptomatic ones.

Most of the physicians according to the symptoms complained, without checking by different laboratory methods, prescribing the drugs for the patients, while as we checked more than 70% of the suspected patients have other problems but not trichomoniasis and they neglected these infected ones. Therefore, if these women are not screened, the diagnosis will be missed, however many of diseases have similar symptoms and vaginal examination can help for correct treatment. According to the epidemiological aspects, these asymptomatic patients are very important as healthy carriers, and *T. vaginalis* infections are commonly associated with other STDs and are a marker of high-risk sexual behavior, thus a full screened is suggested. As it has reported earlier, there is difference between isolates from symptomatic and asymptomatic isolates (13). Results showed that there was significant difference between clinical and laboratory diagnostic in patients attending gynecology clinics ($P< 0.05$) (7). The author indicated that more than 60% of patients infected with *T. vaginalis* were neglected.

Unfortunately, clinical manifestations are not reliable criteria for the diagnosis of trichomoniasis, demonstration of the parasite is required for accurate diagnosis of infection. The symptoms of this disease are variable and this study showed

that many infected subjects have no complain of mentioned symptoms. Thus full screening for detection of parasite is required. Opposite of previous reports that trichomoniasis is the common cause of vaginites (4).

In conclusion, this study showed that most of infected patients have normal vagina and cervix. Out of 853 samples, 357 were belonging to those who referred to asymptomatic group. Thus laboratories could play important role for diagnosis of infection and help the physicians for properly treatment.

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The authors declare that they have no Conflict of Interests.

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