

## Frequency of Trichomoniasis in Patients Admitted To Outpatient Clinics in Hamadan (2007) and Relationship between Clinical Diagnosis and Laboratory Findings

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### ARTICLE INFO

#### Article history:

Received: 27 May 2009

Revised: 17 April 2010

Accepted: 26 April 2010

Available online: 20 June 2010

#### Keywords:

Trichomoniasis  
Prevalence  
Clinical diagnosis  
Iran

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### ABSTRACT

**Background:** Trichomoniasis is recognized as a major sexually transmitted disease (STD) in the world and has the highest prevalence and incidence of STD. The prevalence strongly is related to cultural and social norms in different societies, in relation to sexual partnership, monogamy, or polygamy. Our objective was to describe the frequency and natural history of infection and correlation of clinical signs with parasite detection.

**Methods:** From February 2006 to March 2007, in a cross sectional study, clinical and wet mount examination of vaginal smear along with culture were performed on 683 women attending to private outpatient clinics in Hamadan, western Iran. Trichomoniasis was diagnosed based on major clinical symptoms. Diagnosis was confirmed using wet mount microscopically and culture in Diamond medium.

**Results:** Only 2.2% of patients with clinically diagnosed trichomonal vaginitis were positive for *Trichomonas vaginalis* by wet smear and culture. The mean age of patients was 33.6±9.7 yr, and majority of them were married and non-pregnant. Some (5 patients) infected cases were divorced and others (7 patients) husband were car driver. There was not statistically significant relationship between clinical diagnosis and laboratory findings ( $P>0.5$ ), because the most of patients diagnosed trichomoniasis, were infected by *Candida* or other vaginal infections.

**Conclusion:** Because of special cultural background, the vaginal trichomoniasis has minor importance problem in this population and clinical diagnosis is not efficient for treatment decision.

### Introduction

For more than a century following its initial description in 1836, *Trichomonas vaginalis* was considered either a harmless vaginal colonizer or simply a minor nuisance [1]. More recently, it has been recognized that *T. vaginalis* infection may be associated with a range of adverse reproductive health outcomes, including preterm birth [2-4], cervical neoplasia [5, 6], post-hysterectomy infection [7], atypical pelvic inflammatory disease [8, 9], and infertility

[10]. The parasite also is a major cause of vaginitis, cervicitis, urethritis and pelvic inflammatory disease in women and may cause nongonococcal urethritis, prostatitis, and perhaps other lower genitourinary tract syndromes in men [11]. In recent years, it has been appreciated that *Trichomonas* may play a critical role in amplifying human immunodeficiency virus (HIV) transmission [12].

While there is continued debate about the causal linkage between *T. vaginalis* infection and obstet-

rical, gynecological, and infectious complications, it is generally recognized that the incidence of this sexually transmitted infection (STI) has reached epidemic levels in many regions worldwide. In 1999, the World Health Organization (WHO) estimated the global incidence of *T. vaginalis* infection to be 173 million cases annually, making this parasite the most common cause of non-viral STI [12]. The greatest burden of disease was observed in less developed regions, but a high incidence was also found in North America (8 million cases annually) and Western Europe (11 million cases annually) [13, 14].

Because the increasing changes of the social norms in developing countries, such as Islamic Republic of Iran, epidemiologic studies of STDs is an essential need for evaluating the health importance of these infections and notice them in clinical practice. Our objective was to describe the frequency of *T. vaginalis* infection in a relatively traditional society and, its relationship with clinical symptoms. Because clinical symptoms associated with vaginitis are various and result in misdiagnosis, the clinical diagnosis alone is often deceptive. Therefore, second objective of this study was to evaluate the accuracy of clinical diagnosis in comparison with laboratory findings.

## Materials and Methods

In this cross sectional descriptive study, a total of 683 women admitted to public and private gynecology clinics evaluated for *T. vaginalis* infection by clinical examination, direct wet mount and culture methods. Chief complain, signs and symptoms of patients recorded, and vaginal swab samples from distal fornix were obtained during clinic visit and vaginal examination. One swab were examined by direct wet mount method prepared by saline normal, and other swab sample cultured in Diamond medium. Direct wet mount prepared and examined immediately in clinic by an expert technician. Cultured tubes were kept in an incubator with 37° C temperatures and examined microscopically after 24 h. For negative cultures results, fresh medium were added in the tubes and kept for one 48 h more. Only the patients diagnosed as having trichomoniasis on the basis of clinical signs and symptoms, compared with the results of wet mount examination and cultured vaginal specimens (in terms of being positive for *T. vaginalis*).

## Results

The age range of study population was 15 through 68 yr. Majority (32%) of them was educated in high school and 88.7% were homemakers. The chief complaint of patients was vaginal discharge, itching, burning, and chafing. About 8.7% of patients mentioned the history of trichomoniasis (diagnosed clinically) and were already treated for this infection.

*Trichomonas vaginalis* infection was identified in 2.2% (15/683) of the patients in both wet mount and cultured samples; however, 4.4% (30/683) patients had symptoms related to trichomonal infection. The most of patients (31%) had discharge and itching that diagnosed *Candida* sp in the stained vaginal smears. A striking finding was the infected individuals were divorced and were supporting by charity institutions or, here husband were truck driver (Table 1). There was not significant relationship between clinical diagnosis and laboratory findings, because most of patients' diagnosed trichomoniasis, were infected to *Candida* or other vaginal infections.

**Table 1:** Laboratory findings of 683 patients initially diagnosed as trichomoniasis

Laboratory findings	Number	Percent (%)
<i>Trichomonas vaginalis</i>	15	2.2
Trichomonal symptoms	30	4.4
<i>Candida</i> sp	212	31
Abnormal discharge	198	29
Normal discharge	228	33.3
Total	683	100

## Discussion

This study indicated that trichomoniasis is not a major problem, at least in some parts of Iran, especially in the traditional societies. However, some reports from other parts of Iran have shown higher prevalence of trichomoniasis in the at risk groups, such as women taken in prison [15]. Totally, trichomoniasis reported from as low as 0.46% to as high as 33.7% in different parts of Iran [15, 16]. The differences in the prevalence of trichomoniasis between societies and sub-populations almost cleared by various epidemiologic studies, but some minor differences in social norms can influence on trichomoniasis [11]. Bacterial vaginosis and *Candida* vulvovaginitis

are responsible for 90% of cases of vaginitis. Many cases of bacterial vaginosis are asymptomatic or present with only malodorous vaginal discharge and no inflammatory complaints. Therefore, many vaginal infections diagnosed trichomoniasis clinically, can be bacterial vaginosis [17].

This result of this study is comparable with reports from some other Islamic countries for example Libya that reported a 1.2% prevalence of trichomoniasis (29/2450) from Benghazi City [18-22]. Another study conducted in Saudi Arabia Kingdom reported a prevalence of 28% (10967/39049 patients) trichomoniasis among total STDs recorded during 6 yr in a traditional society [23]. Prevalence of trichomoniasis infection is different in the various parts of Iran. For example, prevalence of trichomoniasis infection is 17% (12/141) in Zahedan [24], 9.9% (100/1010) in Kashan [25], 10.75% (43/400) in Bandar Abbas [26], 1.37% (275/19530) in Chaharmahal and Bakhtiari Province [15], 9% in Kerman [27] and, 5.6% in Mashad [28]. Majority of studies conducted in the gynecology clinics or mother and child health centers that could be considered as representative of general population of women.

Most of epidemiologic studies of trichomoniasis conducted on females and in the gynecology clinics, because of known risk factors and easy access to target population [29-33]. Recently, in some developed countries the incidence of trichomoniasis infection is decrease by hard intervention and control measures such as health education, mass screening, and treatment of confirmed cases in high-risk groups [34].

In considering how a public health response to *T. vaginalis* might be implemented, a number of important questions must be addressed. For example, who would be screened and at what intervals? What type of testing should be used? What approaches would be most effective for case reporting and ensuring partner treatment? While the answers to these questions are beyond the scope of this article, it is worth noting that the essential tools for *T. vaginalis* control are already available. A range of diagnostic tests, including vaginal saline wet mount microscopy, culture, rapid antigen testing, and nucleic acid amplification and detection, provide alternatives that could be used in a

variety of settings [35]. Oral metronidazole and tinidazole offer inexpensive, effective, and generally well-tolerated treatment options that are widely available [1]. This study was limited to those patients who were admitted to some selective gynecology clinics. Therefore, these patients might not be the representative of general population of the women in Hamadan Province.

## Conclusion

This study indicated that trichomoniasis infection is not noticeable, as much as other organisms such as *Candida* sp., thus, other bacterial vaginosis must come to attention.

## Acknowledgements

This work was partially supported by Research Department of Hamadan University of Medical Science grant, hereby gratefully acknowledged. We gratefully acknowledge Miss Karimkhani and Mrs. Habibi for assistance in specimen's collection and parasite culture. We also thank all patients for kindly cooperation. The authors declare that they have no conflicts of interest.

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