



## Trichomoniasis- An Overlooked Sexually Transmitted Disease

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### Abstract

**Background-** *Trichomoniasis is a sexually transmitted disease of worldwide importance. Women infected during pregnancy are predisposed to premature labor, low birth weight infants and may amplify HIV transmission. Cervicovaginal smear examination is now considered an effective technique for early diagnosis of Trichomoniasis.*

**Aims and Objectives-** *To study the prevalence of Trichomoniasis in Gwalior, role of cervicovaginal smear examination in its diagnosis and spectrum of disease in various age groups.*

**Methodology-** *This is a retrospective study. Cases reported over the period of 5 years, from January 2010-December 2014 are included in the study. Sample size was greater than 20000 cases and age group was between 20-70 years. The data of cervicovaginal smear examination reported in past five years were retrieved, compiled and analyzed.*

**Results and Conclusions-** *Out of 24,292 cases reported, 372 (1.53%) females were positive for Trichomoniasis, with highest incidence found in women aged between 30-39 years (47.31%). Cervicovaginal smear examination with Leishman-Giemsa staining would help in early detection of Trichomoniasis which can prevent various complications in women chiefly in the reproductive age group.*

**Key Words-** *Trichomoniasis, Premature, HIV, Leishman-Giemsa, Cervicovaginal Smear*

### Introduction

*Trichomonas vaginalis* is a parasitic protozoan that is the cause of Trichomoniasis, a sexually transmitted disease (STD) of worldwide importance. Although the disease was first described as a clinical entity by Hohne in 1916,<sup>[1]</sup> the etiological agent, *T. vaginalis* was first identified by Donne' who visualized motile microorganisms in the purulent, frothy leukorrhea of women presenting with vaginal discharge and

genital irritation.<sup>[2]</sup> In the 1960s and 1970s, the research focused on biochemical tests and microscopic examination to understand the growth characteristics and behavior of the organism.

The classic acute signs and symptoms include purulent yellowish-green, often frothy, malodorous, thin discharge with burning, itching at the site; dysuria and dyspareunia. The vulva may appear fiery red and oedematous. The speculum examination often reveals mucosal

erythema and punctuate haemorrhage, the so called "strawberry" vagina and cervix.

The actual burden of the disease remains unknown. As per the published literature, the worldwide prevalence of *T. vaginalis* ranges from 0.4-27.4% in women and 0.0-5.6% in men<sup>[3]</sup>. Trichomonas vaginitis is one of the most common STDs among HIV-infected and un-infected women. Proportion of HIV-infected women diagnosed with *T.vaginalis* vaginitis ranges from 6 to 27%<sup>[4]</sup>.

It has been seen that women infected during pregnancy are predisposed to premature labor and low birth weight infants<sup>[5-6]</sup>. Further, it may amplify HIV transmission<sup>[7-8]</sup>, but prevention of Trichomoniasis has not been a priority due to lack of understanding of its public health implication and lack of resources. Therefore, there is a need for increased screening and treatment of this easily curable sexually transmissible infection in India.

The present study describes the burden and correlation of *T. vaginalis* infection among women and use of cervicovaginal smear examination by Leishman-Giemsa staining for its diagnosis in our region.

### Materials and Methods

Patients visiting the Gynaecology OPD with complaints of vaginal discharge, itching, dysuria, dyspareunia, and foul odour between the age group 20-70 years were considered symptomatic. Informed consent was taken from them and Cervicovaginal smear from each patient was carefully taken with aseptic precautions from January 2010- December 2014 (5 years) and prepared slides were sent for examination in the Department of Pathology, Cytopathology Section. The smear was air dried and was covered by Leishman stain for one minute, 2 drops of Giemsa stain was also added. After 10 seconds, it was diluted with distilled water and kept for 10

minutes. Then washed in running water, dried in air and mounted with Dibutyl Phthalate Xylene (D.P.X) mountant media. Total sample size was 24,292 cases. The slides were examined and reported by experienced cytologists and records were maintained in the master register. The data from the 2010-2014 were retrieved, compiled, summarized and statistically analyzed by frequency distribution and percentage proportion.

Limitations of the study- the study could only be carried out in the patients who visited the OPD of our centre so the actual prevalence in this region was not ruled out due to the undiagnosed hidden cases in this region.

### Results

A total number of 24,292 cases were reported through cervicovaginal smear examination from January 2010- December 2014 out of which 372 (1.53%) cases were positive for trichomonas infection. The number of cases positive in individual year is shown in Table no.1 .

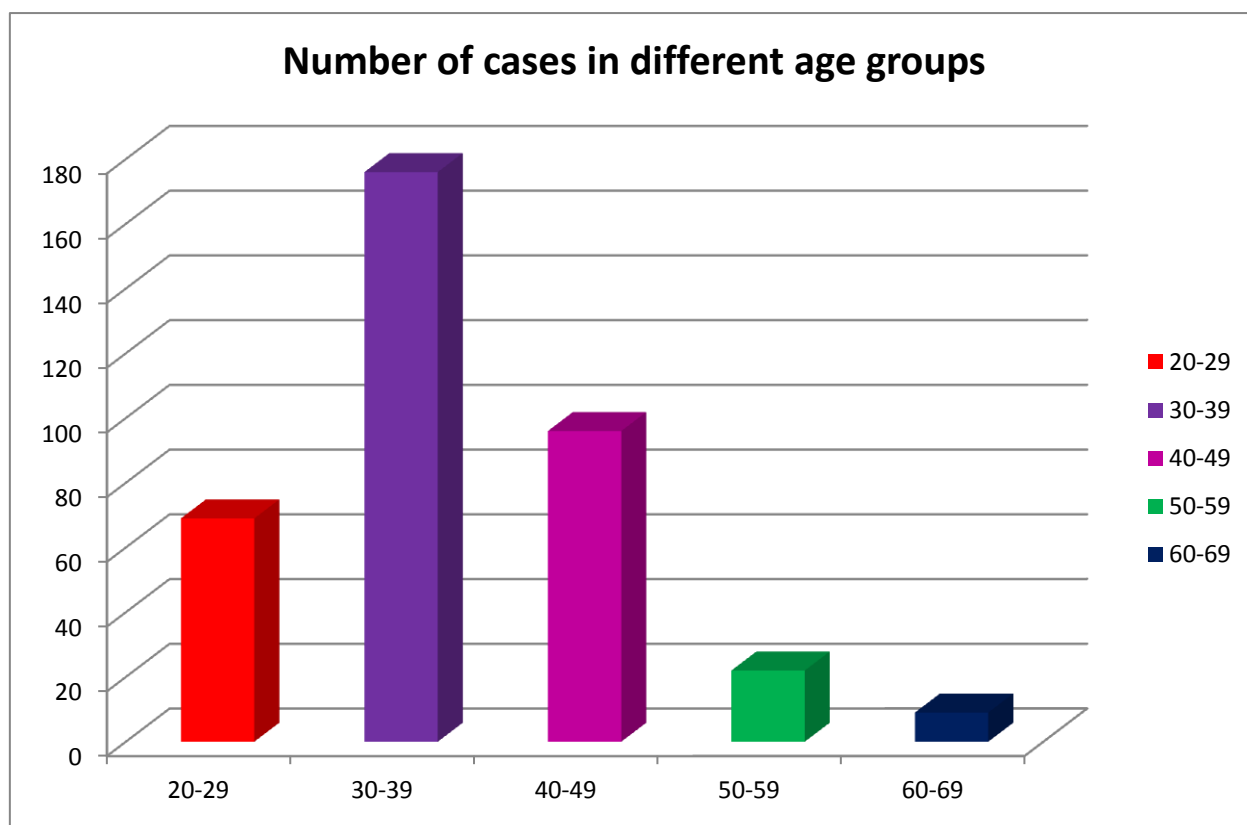
The positive cases were further divided into various age groups which showed that out of 372 positive cases 69 (18.54%) patients were in their 20's, 176 (47.31%) were in their 30's, 96 (25.38%) in 40's, 22 (5.91%) in 50's and 9 (2.41%) were in their 60's (table no.2, fig. no.1). Approximately 50% of cases which were positive for Trichomoniasis presented between the month of October to February, which showed a heavy burden of the infection in the winter season.

**Table No. 1-**Year wise distribution of Cases of Trichomoniasis

Year	Number Of Cases	Positive	Percentage
2010	3605	83	2.30%
2011	3808	74	1.94%
2012	4675	72	1.54%
2013	5600	71	1.26%
2014	6604	72	1.09%

**Table No. 2 -**Age Wise Distribution Of The Cases Positive For Trichomoniasis

Age Group (In Years)	Number Of Cases	Percentage
20-29	69	18.54%
30-39	176	47.31%
40-49	96	25.38%
50-59	22	5.91%
60-69	09	2.41%



**Fig no. 1 :** Distribution of positive cases of trichomoniasis in different age groups

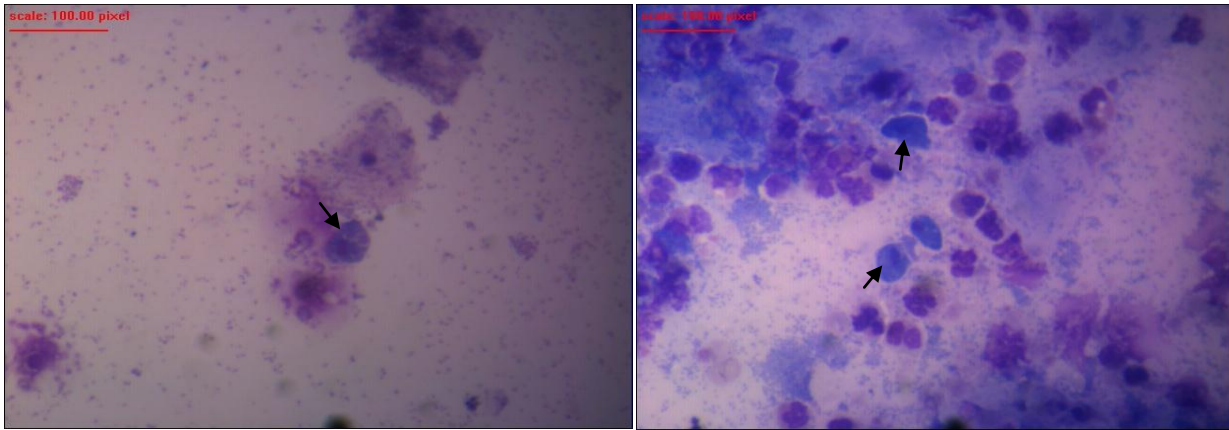
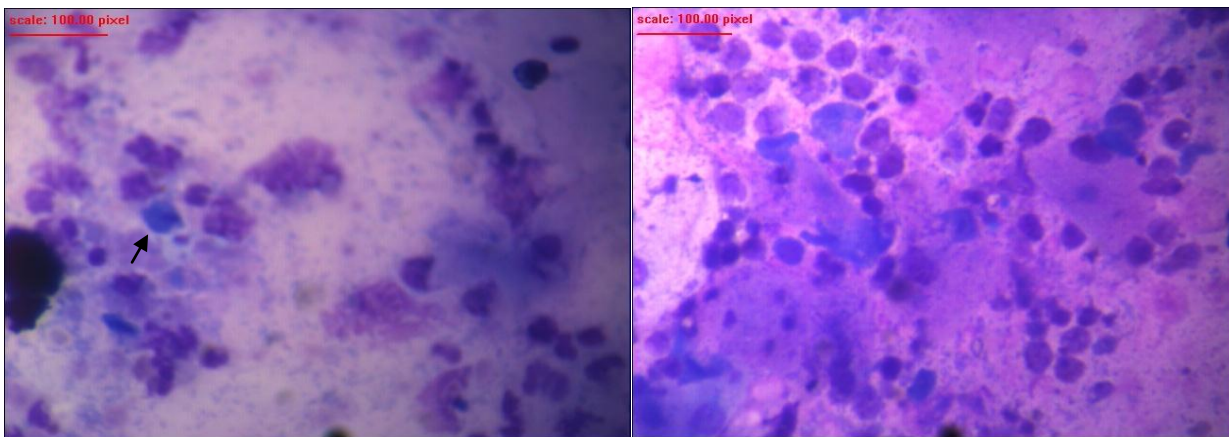


Figure Showing Single Trichomonas MGG , 40X

Figure Showing Multiple Trichomonas



Figures Showing Multiple Trichomonas With Acute Infection

### Discussion

Trichomoniasis is a sexually transmitted infection (STI) caused by a parasite. It can affect women or men. Many people who have the infection have no symptoms, but when symptoms occur, they include vaginal or urethral (in men) discharge that may appear greenish and frothy, burning on urination, discomfort during sex, and itching in the genital area. Diagnosis is based upon identifying the parasite through microscopic examination in the vaginal or urethral discharge, they appear to be pear shaped, oval to round cyanophilic flagellate organism size varying from 15-30 micron, nucleus is pale, vesicular and eccentrically located and they sometimes attach to the surface of squamous cells to form a ring around the margin. Trichomoniasis is the most common curable STD in young, sexually active women. An estimated 7.4 million new cases occur each year in women and men. In

pregnant women it may cause premature rupture of the membranes that protect the baby and early delivery. Trichomoniasis is associated with increased risk of transmission and infection of HIV <sup>[9]</sup>. In the present study a cervicovaginal smear with Leishman- Giemsa staining is used for its diagnosis. A total number of 24,292 cases were examined through cervical smear using Leishman-Giemsa staining method from January 2010-December 2014 with 372 females positive for trichomonas infection (1.53%). The results reveal that from the year 2010 to 2014 there is a radical increase in the number of patients who went through a cervicovaginal smear examination. In 2010 there were 3605 cases which increased upto 6604 cases in 2014. This represents that in the past years the awareness of people regarding genital tract infection is improved. It can also be concluded that with proper diagnosis, medical intervention and treatment there is decline in the

prevalence of cases from 2010-2014 i.e. from 2.30% to 1.09%. The above data also shows that the highest incidence of Trichomonas infection in Gwalior was found in the women aged between 30-39 years (47.31%), followed by women in 40's (25.8%), 20's (18.54%), 50's (5.91%) respectively and least in the 60's (2.41%). There is also a noticeable seasonal variation in the number of cases positive for Trichomonas infection, most of them presented between the month of October-February and maximally in people living in rural area (lower socioeconomic group) which shows that it's more common in winter season and in people living in poor hygienic and poor sanitary conditions.

A study done by Madhivanan P et al showed the burden of *T. vaginalis* infection 8.5% , relatively high among a community sample of young reproductive aged women <sup>[10]</sup>. Another study done by SR Fule et al<sup>[11]</sup> showed that out of the 156 women examined with vaginal discharge, 19 (12.06 %) showed *T. vaginalis* infection. The prevalence rate of 1.53% found in this study is significantly lower than 12.3% found in Abakiliki, Southern Nigeria [26] ,4.7% in Ilorin, [27] 5.2% in Calabar [19]and 2.8% in another study from South Eastern Nigeria.[6] Other researchers found much higher prevalence. These include 17.7% in Uyo Nigeria<sup>[12]</sup>, 18.66% in Zaria Nigeria<sup>[13]</sup>, 24.1% in Jos Nigeria<sup>[14]</sup>, 46.9% in New York<sup>[15]</sup> and 36.1% in Nebraska<sup>[16]</sup> These differences in prevalence could be explained on the basis of differences on social, cultural and environmental factors. All the women affected by trichomoniasis belonged to active reproductive age group, i.e. 20-40 years. In our study the most common age group was 30-39% (47.31%) a similar study showed *T.vaginalis* infection prevalence was highest in women aged 39 – 44 years (21.1%). <sup>[17]</sup>

### Conclusion

Trichomoniasis is found worldwide. With early diagnosis and proper treatment, the outcome is likely to be excellent. It can be seen from the above data that cervicovaginal smear examination with Leishman-Giemsa staining would equally

help in early detection and treatment of Trichomoniasis like pap smear examination which can prevent various complications like premature rupture of membrane, low birth weight infants and HIV transmission in women chiefly in the reproductive age group. Proper medical intervention, diagnosis and treatment showed decline in the prevalence of Trichomoniasis. Also, in the past five years the awareness of people regarding Sexually Transmitted Diseases is increased which is seen by the raise in number of patients who went through a cervicovaginal smear examination. The highest incidence in Gwalior was found in the women aged between 30-39 years (47.31%) which was more common in winter season and highest in people living in poor hygienic conditions.

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