Prevalence of *Trichomonas vaginalis* among married women attending some Clinics and Medical Centers at Sebha. Libya.

Abdulkadir Abugrara Ali Bernawi, Abdul Hafeez Khan, Salha Ali Sallam


**Abstract:** In fact, there are many ways to diagnose the infection of *Trichomonas vaginalis* like clinical and laboratory diagnosis. One of laboratory diagnosis direct examination by microscope due to scarcity of researches relative to these parasite within Libyan society. Thus this study has been carried out in order to discover the extent of propagation of this parasite between women visiting some Clinics and Medical Centers in the city of Sebha, between period of December 2013 to August 2014. A total of 300 samples of married women, who were attending Medical Centers. The specimens were taken from various Southern Libya regions (Sebha – Wadi El-Shati – Aubari and Murzuk), 243 doubled specimens, (swabs and urine) and 57 single specimens (swabs) from other patients. The results have shown the existence of the more parasite in the individual specimens at 5% and in doubled specimens 4% respectively. The statistical analysis has indicated the existence of moral difference, also these differences between pregnant and non-pregnant women have indicated who were infected by the parasite, its percentage among non-pregnants women highest than percentage of pregnant women with percentages of 4.5% and 3.3% respectively successively. Regarding to the propagation of the parasite according age categories, it was find out that the *T. vaginalis* infects women whose ages about 17-40 years, a category of 29-34 years was most infected with percentage of 6.3%, while the parasite was absent among the regarding women of 41 years and more. The women from Wadi El-Shati region were most infected with percentage of 7.6% followed by Sebha and Aubari with percentage of 4% and finally Murzuk region with percentage of 3%. This study results showed *Candida albicans* in infected specimen with percentage of 15%, the statistical analysis showed significant difference between presence and absence of *Candida albicans* among infected and uninfected with *Trichomonas vaginalis*.

Key words:- *Trichomonas vaginalis*, *Candida albicans*.

**Introduction:** Vaginal infection is a major public health problem that causes a variety of problems for women at different ages (1). Vaginitis is caused by an alteration in the normal vaginal defense mechanisms such as vaginal flora (Lactobacilli), vaginal pH, and vaginal squamous epithelium layer (2). There is one of two major types of vaginitis, the infectious vaginitis. It is accounts for 90% of all cases of vaginal infections at the reproductive
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Prevalence of *Trichomonas vaginalis* at Hamadan City, Western Iran is 2.1% (7). The highest infection rate (1.4%) in women was in the age group of 25-34 years, that was statistically significant compared to other age groups (p<0.05) (8). Studies in Libya has shown variety in areas according to the prevalence of *T. vaginalis* infection, Benghazi 1.2% (9), Aubari 1.84% (10), Nalut 0.35% (11), and Alzawia 22.4% (12). The aim of this study was to investigate the prevalence of *T. vaginalis* infections among married women visiting gynecology clinics in Sebha.

### Materials and Methods.

**Study sites:** This study was conducted from December 2013 to August 2014, at following places:

- Almanar, Alrhma, Alsafia, Alkhuds, Alfrdos, Clinics at Sebha Province.
- Infertility Reproductive Centre Sebha.- Altanuia hospitalSebha.
- Medical Centre of Sebha.-Laboratory Centre of Sebha

**Study population:** All married women were provided information and signed informed consent on study procedure with different age groups and interviewed them and filled questioner.

**Sample Collection:** Three hundred vaginal swabs and urine samples from married women visiting some Clinics and Medical Centers in Sebha from December 2013 to August 2014. 243 samples at both swabs and urine samples, and 57 samples vaginal swabs only. These samples were collected in plastic sterilized tubes with good cover. Put on the tubes all the information (name, serial number, date) and directly examined.

**Vaginal swabs examination:** Wet smear the discharge from the vagina was taken with sterilized cotton swab and mixed with a drop of normal saline taken on clean glass slide and covered with cover slip. The presence of flagellate organisms suggested the *Trichomonas vaginalis*. Two drops of Normal saline were introduced to each container of the vaginal swab mixed by shaking properly a drop of...
the mixture of each sample was placed on clean glass slide, covered with cover slip and examined under a light microscope using low power (x10) and dry high power (x40) magnifications respectively.

**Direct urine examination:** The urine specimens were centrifuged at 1000 to 1500 r.p.m for 2 to 3 minutes using electrically powered centrifuge. The supernatant fluid was discarded and the deposits of each sample was examined microscopically using both low power (x10) and dry high power (x40) respectively.

**Statistical analysis:** Data entry and analysis were done using Minitab. Statistical significance was considered at $p$-value $< 0.05$.

**Results**

This study was conducted from December 2013 to August 2014 on 300 samples from married women visiting some Clinics and Medical Centers at Sebha. All samples in the laboratory went for two direct examinations. First examination for 243 by both swabs and urine. Second examination for 57 by Swabs only. *Trichomonas vaginalis* was detected in 13 out of 300 participants (4.3%), 10 positive according to first examination and 3 positives according to second examination, with percentage recorded 4.1% and 5.3% respectively (Table 1).

From statistical analysis there was significant differences between first and second examinations ($P < 0.05$).

### T. vaginalis for first and second examinations.

<table>
<thead>
<tr>
<th>Sample type</th>
<th>First examination</th>
<th>Second examination</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of samples tested</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of positives</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Trichomonas vaginalis* infection in non-pregnant women percentage over pregnant women are (4.6, 3.3) respectively. From statistical analysis there was significant differences between the two category ($P = 0.013$).

On the basis of age groups infection of *Trichomonas vaginalis* as shown in (Table 3) the age groups 17-22 years 5.9% infected, 23-28 years 4.4%, 29-34 years 6.4%, 35-40 years 3.7%, no infection of T. vaginalis was detected.
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seen among the age groups 41-46 and 47-51. There was no significant difference between age groups (P=0.27).

**Table 2. Prevalence of *Trichomonas vaginalis* in pregnant and Unpregnant women.**

<table>
<thead>
<tr>
<th>Samples</th>
<th>Infected</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-pregnant</td>
<td>Pregnant</td>
</tr>
<tr>
<td>Number of samples tested</td>
<td>(80%) 240</td>
<td>(20%) 60</td>
</tr>
<tr>
<td>Number of positive samples</td>
<td>(4.6%) 11</td>
<td>(3.3%) 2</td>
</tr>
</tbody>
</table>

**Table 3. Prevalence of *Trichomonas vaginalis* according to age.**

<table>
<thead>
<tr>
<th>Age groups (Years)</th>
<th>Number of samples tested</th>
<th>Positive samples</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-22</td>
<td>17</td>
<td>1</td>
<td>5.9</td>
</tr>
<tr>
<td>23-28</td>
<td>68</td>
<td>3</td>
<td>4.4</td>
</tr>
<tr>
<td>29-34</td>
<td>94</td>
<td>6</td>
<td>6.4</td>
</tr>
<tr>
<td>35-40</td>
<td>82</td>
<td>3</td>
<td>3.7</td>
</tr>
<tr>
<td>41-46</td>
<td>36</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>47-51</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>13</td>
<td>%</td>
</tr>
</tbody>
</table>

**Table 4 Prevalence of *Trichomonas vaginalis* according to area.**

<table>
<thead>
<tr>
<th>Area</th>
<th>Tested samples</th>
<th>Infected samples</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wadi El-Shati</td>
<td>39</td>
<td>3</td>
<td>7.6</td>
</tr>
<tr>
<td>Sebha</td>
<td>181</td>
<td>7</td>
<td>3.8</td>
</tr>
<tr>
<td>Murzuk</td>
<td>58</td>
<td>2</td>
<td>3.4</td>
</tr>
<tr>
<td>Aubari</td>
<td>25</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

This study indicates the prevalence of the parasite according to areas as stated in Table 4 differences high percentage in Wadi El-Shati, then Aubari and Sebha, finally Murzuk with lower percentage. Statically results showed no significant differences were found in between the four areas (P=0.09).
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*Candida albicans* present in 2 out of 13 infected women with *Trichomonas vaginalis* with percentage 15.4%, and in uninfected women was present in 30 women with percentage 10.5%. The result of statistical analysis showed significant differences between presence and absence of the candida in infected and uninfected women with (P=0.013, and P=0.000) respectively (Table 5).

**Table 5** *Candida albicans* in tested samples.

<table>
<thead>
<tr>
<th></th>
<th>Infected samples</th>
<th>Uninfected samples</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candida present</td>
<td>Candida absent</td>
<td>Candida present</td>
<td>Candida absent</td>
</tr>
<tr>
<td>(15.4%) 2</td>
<td>84.6 (%) 11</td>
<td>(10.5%) 30</td>
<td>(89.5%) 257</td>
</tr>
</tbody>
</table>

Discussions

The present study is the first investigations of the prevalence of *T. vaginalis* infection in the married women patients attending some Clinics and Medical Centers in Sebha. *T. vaginalis* is a protozoan flagellated parasites cause trichomoniasis, it is a sexual transmitted disease. Trichomoniasis diagnosis is not depend on clinical symptoms only due to indifferent to other symptoms for disease transmitted sexually (13). Laboratory diagnosis either by direct examinations using vaginal swab or urine (14,15). Overall prevalence in some Clinics at Sebhawas about 4.3% (13/300).

The present result resemble previous studies in some countries, in Nigeria 4.7%, and Argentina 4% (16, 15) respectively. The differences between studies in areas in Libya, the present study more than in Nalut 0.35% (11), Benghazi 1.2% (9), and Aubari 1.8% (10) and less than Alzawia 22.4% (12). The results of the present study less than the results in Saudia Arabia 6.9% (17), and Palastine 13.6% (18) and 8.9% and in Egypt (19). This controversy depend on the social, sexual behavior, scientific status or the volume of study sample populations, the period, time implementation of diagnosis parameters. The present study on 240 non-pregnant and 60 pregnant women 4.6% positives and 3.3% positives for *Trichomonas vaginalis* respectively. This results indicated that *T. vaginalis* infections may delay pregnancy and statistically...
significant differences between them (P<0.05) and resemble previous study (20, 21). On the basis of age groups showed the highest rate at 29-34 age groups 6.3% goes with study in Aubari (10) at age groups 26-35.

The yeast (Candida albicans) present in positives and negatives patients of T. vaginalis but highest in positives samples than negatives 15%, 10% respectively, and significantly different (P=0.036). The presence of T. vaginalis increased the presence of yeast Candida albicans and its development in the vaginal tract due to change acidity of the vagina and the growth of the flora of vagina.(3).

References
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