The Prevalence of Oral Protozoa *Trichomona Stenax* in some Patients with Gingivitis

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ABSTRACT

Background:As arelationshipbetween gingivitis disease and the presence of the oral protozoa *Trichomonastenax* has been represented byconsiderable differences among various study population.The purpose of present study is determining the prevalence of *T.tenax* in patients with gingivitis and healthy subjects.

Subjects,Materials and Methods:The presence of the parasite has been diagnosed with 58 patients withgingivitisand 58 healthy persons during the period of the study(April and May 2015) by taken two swabs for each one,microscopic examination was done using saline wet mount method and stained method. Age, sex and brushing teeth habit were in a count. Statistical analysis was done by SPSS program.

Results:Gingivitis disease was observed in 58patients among the total 163 examined subjects(35.58%)with a highly significant differences P<0.01 recorded between males and females(40.22%,30.26% respectively).The prevalence of *T.tenax* in gingivitis patients was higher than healthy(56.89%,6.89%)respectively. According to gender and age the highly prevalence rate was demonstrated in males (62.85%)and in the age category 51-60 years old (92.8%). Data analysis showed that a highly significant differences P<0.01was demonstrated in the prevalence rate between brushing teeth users 29.1% and non-brushing teeth users 11.9%.

Conclusion:The study confirmed the existence of a relationship between parasite infection and gingivitis disease where the higher prevalence of *T.tenax*was found in gingivitis patients compared with healthy controls. People should receive dental care togain high hygiene oral cavity and have low infection to *T.tenax*.

Keyword: Gingivitis, protozoa, *Trichomonastenax*. (J Bagh Coll Dentistry 2016; 28(1):179-182).

INTRODUCTION

One of the Trichomonadidae family membersis the protozoa parasite*Trichomonastenax* which commonly found in oral cavity of humansand frequentlyassociated with necrotizing ulcerative gingivitis in patients with bad oral hygiene[(1)].*T.tenax*infection typically produce oral tissue damages and bronchopulmonarytrichomoniasis disease may be caused when the parasite enters the respiratory tract by aspiration[(2)].

The main source of infection occurs by direct and /or indirect mouth to mouth contact, the trophozoite (the only stage in its life cycle) transmit through contaminated eating utensils (cups, dishes), saliva droplet spray,andkissing[(3)].

Association between this parasite of public health importance and oral diseases is not well ascertained.Sothe present study was designed to determine the prevalence of *T.tenax* inpatients suffering from gingivitis, age, gender, and brushing habit were in a count.

SUBJECT, MATERIALS AND METHODS

For two months (April and May 2015) a total of 163 patients of both sex and different ages (87 male,76 female) who attended Teaching Hospital of Dentistry College-Clinics of periodontics-Baghdad University were examined by periodontisto detect oral diseases including gingivitis, the diagnosis depend on clinical feature including color, size, shape, consistency, texture, bleeding and painful gingiva.

Case history was observed including general health, smoking, brushing teeth and antibiotic consumption.Fifty eight from the total number which recorded as ahealthygingiva persons were chosen as control group, while the remaining 47 patients were diagnosed with other oral cavity diseases.

Direct examination by light microscopic is the simplest methodfor parasitic detection,saline wet mountmethod was usedas the collection of samples was done by asterile swab(for conformation two swabs were taken from each patient)pass over and around the gingival crevices, the swab was dipped in sterile tube containing normal saline, after that the swab rolled on the clean glass slide and examined under 10x and 40x lens[(4)],the *T.tenax* trophozoite was identified by its circular movement, oval to pear shaped, measuring about 5 - 14 µm long and observation of five flagella (4 extend anteriorly and one extends posteriorly). To confirm the identification, all samples were stained with methylene blue stain for 5min. and wash the slide by Distilled water[(5)].

Statistical analysis was done by SPSS .V.16, the inertial statistic use chi-square-test with-p-value if $p<0.05$ significant, $p>0.05$ Non significant, $p<0.01$ High significant.

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RESULTS

In table 1,fifty eight patients were recorded as positive for gingivitis from the total examined number 163 including 35/87 male and 23/76 female. The overall oral gingivitis rate was 35.58%, statistic results revealed that highly significant differences($p<0.01$)were observed between male and female 40.22%,30.26% respectively.

In table 2, highly significant differences ($p<0.01$) were demonstrated in the presence of *T.tenax*which detected in 33/58 gingivitis patients (56.89%) in compare with only 4/58 of the healthy patients (6.89%)

Table 1: Gingivitis Rate among 163 Patients

Sex	No. examined	No. Positive	Infection %
Male	87	35	40.22
Female	76	23	30.26
Total	163	58	35.58

***Chi-square=53.395, P<0.01 High significant**

Table 2: Detection of *T.Tenax* in Gingivitis and Healthy Patients

Groups	No. examined	No. Positive	Percentage%
Gingivitis patients	58	33	56.89
Healthy patients	58	4	6.89
Total	116	37	31.89

***Chi-square=27.356, P<0.01 High significant**

(47.82%).The total number of positive diagnosis for *T.tenax*was 33 with a prevalence rate 56.89% also a highly significant differences ($p<0.01$) was observed.

As shown in table 3, the prevalence of *T.tenax* was higher in males than females,detection was observed in 22/35 males(62.85%), on the other hand from 23 females only 11 were recorded positive

Table 3:Prevalence of *T.Tenax* in Gingivitis Patients According to Gender

Sex	No.examined	No. Positive for *T.tenax*	Prevalence rate %
Male	35	22	62.85
Female	23	11	47.82
Total	58	33	56.89

***Chi-square=28.653, P<0.01 High significant**

The total number of infectionsfor *T.tenax* was 33(56.89%), distributedbetween the 22 number of infected males(37.9%) and 11number of infected females(18.9%).It included the age categories from 20 t0 60 years old, the higher infection rate was recorded in the age group51-60(92.8%) while the lower one was in 20-30 age group(16.66%). Statistically, there was no significant differences among numbers examined while significant differences($P<0.05$)was observed among positive number(table 4).

Table 4: Prevalence of *T.Tenax* in Gingivitis Patients According to Age

Age year	No. examined			No. positive			Infection rate %		
	T	M	F	M	F	T	M	F	T
20-30	12	9	4	2	0	2	16.66	0	16.66
31-40	15	11	6	6	2	8	40	13.33	40
41-50	17	8	6	8	4	12	47	23.52	70.5
51-60	14	7	7	6	5	11	42.85	35.71	92.8
Total	58	35	23	22	11	33	37.9	18.9	56.89

***Chi-square=2.667, p=0.102 P>0.05 Non Significant of No. examined**
***Chi-square=3.270, p=0.043 P<0.05 Significant of No. positive**

According to brushing teeth habit, the prevalence of *T.tenax*as higher in non-brush tooth users 29.1% as a total of 79 patients were examined and 23 were positive, in compare with a total of 84 brush-tooth users examined in which *T.tenax* was recorded in 10 patients with prevalence rat 11.9%.Thirty three is the positive number from the total 163 with a total prevalence

rate 20.24 which means highly significant differences between the two categories.

Table 5: *T.Tenax*Prevalence According to Brushing Teeth Habit

	No. examined	No.positive	Prevalence %
Non-Brush tooth users	79	23	29.1
Brush tooth users	84	10	11.9
Total	163	33	20.24

***Chi-square=28.435, P<0.01 High significant**

DISCUSSION

The inflammation of the gum tissue (gingivitis) is in response tobacterial biofilms (plaque), the main clinical features for diagnosis include the color (bright red), size and shape(swollen), consistency(soft),texture(loss of stippling),bleeding and painful gingiva with bad breath [6].

Current results showed that the prevalence of gingivitis was 35.58%. In a study done by Khansa[7],the results revealed that the prevalence of gingivitis recorded 76%. AlsoSarah [8]2011found that the prevalence was 69%. The differences between results among studiesmay depending on some factors that play a role in theprevalence such as poor oral hygiene, education and social level and different diagnostic criteria[9].Most gingivitalpatients were males 35/87(40.22%), while females recorded 23/76(30.26%) this may be attributed to smoking habit, this finding can be explained as smoking affects the prevalence, severity ofdisease by increasingthe levels of calculus and plaque, affected the immune response and decreasing gingival circulation[10].an agreement with our results reported by Sabrina[11] Andvilla[12].

Oral protozoa *T.tenax* showed higher prevalence(56.89%) in patients of this study thanother published reports[13,14].Worldwide,the prevalence ranges from 4.0 to 53% [15].The rezone for this higher prevalence might be related to different diagnosis methods and periods of study .In Brazil a study documented The prevalence of *T.tenax*was 23.53%[16]. AlsoDr.Ahmed[17]examined 33 gingivitis case and recorded the prevalence rate 14.2%.Another study showed that from 30 gingivitis case,*T.tenax* was observed in saliva samples 46.6% while in dental plaque samples 30%[18].In this study, out of 58 healthy patients ,observation of *T.tenax* was in 4 (6.89%). usually, healthy oral cavity did not provide favorable anaerobic conditions for the growth and survival of the parasite[19].A relationship has been demonstrated between the occurrence of *T.tenax* and gingivitis disease[15].

According to gender, data revealed that 33 of 58(56.89%) patients with gingivitis showed the presence of *T.tenax*. Males recorded higher prevalence than females (62.85%,47.82% respectively)which indicated the similarity with other studies, this could be due to physiological and immunological condition. In America, a study on American population showed males were affected more as compared to females significantly higher (P<0.001) than the females [20]. Another study was found that the prevalence of *T.tenax* was 53% in males and in females was(47%)[8].

According to age, the higher prevalence of *T,tenax* was detected in age group51-60 years old(92.8%)where persons of this group might have less careful about oral hygienic Behaviors such as smoking, un-brushing teethalso immunologic level might play a role. Similar finding was observed and explained that there isa direct correlation between age andoral protozoan[13,21-23].

According to the effect of brushing teeth on the prevalence of *T.tenax*, data showed that higher prevalence recorded in non-brushing teeth persons 29.1% while 11.9 was the rate of infection in brushing teeth persons,these results improved oral hygiene might be effective in elimination the infection. These results were compatible with other researches [24].

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