PREVALENCE OF TRICHOMONAS TENAX AND ENTAMOEBA GINGIVALIS AMONG PATIENTS ATTENDING DENTAL CLINICS IN KIRKUK CITY[+]

Mohammed Abdul –Aziz Kadir [*] **Ali mahjoub AL-Mashhadani** [**]
Suheila S. Tahir D.I.M[***] **Güler Omar Chapook** [****]

Abstract

The present study was carried out to show the prevalence of Trichomonas tenax and Entamoeba gingivalis among 156 (88 males and 68 females) patients who attended dental clinic in kirkuk City, using direct wet smear method. The rate of T. tenax and E. gingivalis was 11.54% and 16.66% respectively. Both infections were lower in males than females and the rate of infections varied in different age groups.

The highest rate of both T. tenax and E. gingivalis was among patients with dental caries. In T. tenax was followed by gingivitis, oral abscess and periodenitis, while in E. gingivalis was followed by oral abscess, gingivitis and periodentits. No parasites were detected in patients without pathological conditions.

المستخلص

هذه الدراسة أجريت للتحري عن مدى أنتشار الطفيلي Trichomonas tenax ، Entamoeba gingivalis على ١٥٦ مريضاً (٨٨ ذكراً و ٦٨ انثى) الذين راجعوا عيادات الأسنان في مدينة كركوك بأستعمال طريقة المسح المباشر. نسبة أصابة T. tenax و E. gingivalis كانت (١١,٥٤%) و (١٦,٦٦%) على التوالي. كلتا الإصابتين كانتا اقل في الذكور من الإناث وان نسبهما كانت مختلفة في مجاميع الأعمار المختلفة.

وان أعلى إصابة للطفيليتين كان لدى المرضى المصابين بتسوس الأسنان وفي إصابة ب T. tenax يعقبها في المرضى المصابين بألتهاب اللثة وخراج الفم والتهاب ماحول السن بينما إصابة E. ginigivalis كانت تعقب المصابين بخراج الفم والتهاب اللثة والتهاب ما حول السن. ولم يعثر على الطفيليتين في المرضى الذين لم يظهر عليهم أية أعراض سريرية.

Introduction

Trichomonas tenax is a small organism with trophozoite stage only in its life cycle.It occurs most frequently in teeth , gums or tonsillar crypts . Although it is considered to be a harmless commensal in the mouth , there are reports of respiratory

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[*] **Prof. , COLLEGE OF MEDICIN\ TIKRIT.**
[**] **1 st JUNE HOSPITAL, KIRKUK.**
[***] **DIRECTORATE OF HEALTH\ AL-TAMEEM.**
[****] **1 st JUNE HOSPITAL\ KIRKUK.**

infections and thoracic abscess . The prevalence rates vary from 0 to 25% , depending on opportunities for exposure and oral hygiene [1].

Entamoeba gingivalis , is morphologically similar to E. histolytica , it has no cyst stage in its life cycle . Like T. tenax , it occurs most frequently in the soft tartar between the teeth, tonsillar crypts and it is sometimes aspirated to set up a transitory bronchial or pulmonary infection . It might be mistaken for E. histolytica from pulmonary abscess [2,3].

The exact method of transmission of both organisms is not known , but most probably , they may be transmitted through droplet spray from the infected mouth , from kissing , or from contaminated cups, dishes or eating utensils [4,5].

Several studies dealing with the incidence of these parasites in different countries have been done in general population , but only one done in Iraq (in the literature available). It is felt therefore to study the prevalence of these parasites in different pathological conditions of patients attending dental clinics in Kirkuk city , using the direct smear method.

Patients and Methods

The present study was carried out to show the prevalence of Trichomonas tenax and Entamoeba gingivalis among 156 patients (88 males and 68 females), who attended dental clinics in Kirkuk city , for period from July 1998 to November 1998 .

The source of specimens were from the following dental health centers (Baglar 48 , Saddam street 38 , Al-Tesaeen 40 and Musala 24) .

Two sterile swabs were rubbed around the surface of teeth, from caries cavities and around ginival crevices. The swabs were dipped in sterile tubes containing 1 ml. of sterile normal saline solution. The samples were examined by direct wet smear method. No cultures were done in this study due to lack of materials.

Results and Discussion

The prevalence of T. tenax and E. gingivalis in 156 patients was 11.54% and 16.66% respectively.

Table 1, shows the rate of T. tenax infection in males 9.09% was lower than in females 14.70% ($p<0.05$). Although the rate of E. gingivalis in males 15.90% was slightly lower than in females 17.65% statistically there was no significant difference between them ($P>0.05$).

The prevalence of both T. tenax and E. gingivalis varies in different countries but remains high in those patients with different pathological conditions of the mouth [2].

The prevalence of T. tenax infection in this study was (11.54%), which is lower than that reported in Baghdad [6]. This might be due to different periods of study and method of diagnosis. It was found that the rate of positive cases was higher using culture method than direct wet smear method [6,7 and 8].

The results of this study demonstrate that the rate of infection in males was lower than in females. This is not in agreement with the study done in Baghdad [6] which found the rate of infection was equal in both sexes. This might be related to sample size and place of study.

The prevalence of E. gingivalis was (16.6%) which was slightly lower than that reported by Al-Najar and Ismaeel [9] who carried on their study in Baghdad, the difference might be related to geographical distribution and period of study. The result is much lower than that reported by Goldsmid and Gericks [10] who reported (62.5%) diagnosed by using contrast microscopy and (81.25%) in permanent smears stained with iron-haematoxylin. This reflects that the direct examination only is not efficient for detection of E. gingivalis.

There are controversies about the distribution of infection according to sex. In the present study the percentage of infection in females was slightly higher than in males, while Al- Najar and Ismaeel [9] in Baghdad showed the percentage of infection in males was higher than in females. Wantland et. al. [11] showed that both sexes were equally infected with this parasite.

It is indicated in Table 2, that the rate of T. tenax among age groups 0-10, 11-20, 21-30, 31-40 and 41-50 is 20%, 9.30%, 11.42%, 16.66% and 8.11% respectively, while the rate of E. gingivalis is 20%, 18.60%, 14.28%, 13.88% and 18.92% respectively. The rate of both T. tenax and E. gingivalis is not related to the age groups of patients examined. As indicated, the rate of T. tenax and E. gingivalis is 20% in both sexes. The rate of T. tenax in age groups 11-20, 21-30 and 41-50 is lower than E. gingivalis while in age group 31-40 it is higher than E. gingivalis.

Regarding the age groups, the rate of infection varies in different age groups, with the highest being among one year to 10 years, this might be related to oral unhygienic condition of children [2], and the lowest percentage was among those from 41-50 year old. Wantland and Lauer [11] found the rate of infection increased with the age of patients up to the age of 40 years and then decreased

As far as age of patients is concerned, it seems that the rate of E. gingivalis is not related to the age of patients .Al- Najar and Ismaeel [9], found the incidence of infection increases with age up to 36-40 years, then it starts to decrease after 40 years. It has been shown that the percentage of positive cases increases with the age of male patients up to the age of 50 years and in females up to the age of 40 years and then it decreases [12].

Regarding the clinical signs, the highest rate of T. tenax was found among patients with dental caries (25.92%) followed by gingivitis. (15.62%), oral abscesses (14.28%) and periodontitis (12.19%). No positive cases were detected in those patients without clinical signs.

Entamoeba gingivalis rate is highest among patients with gingivitis (32%) followed by dental caries (29.26%), oral abscesses (28.57%), and periodontitis (19.51%) and no parasite is seen among those without clinical sings (Table 3).

The main clinical signs associated with T. tenax infection were dental caries, followed by gingivitis, oral abscess and periodontitis. This finding is not in agreement with that reported by Al-Najar and Ismaeel [6] and Wantland et.al. [11] who found the highest incidence of infection among patients with periodontitis.

Regarding the clinical illness associated with E. gingivalis, it was found that the highest rate of infection was in patients with dental caries, followed by oral

abscess, gingivitis and periodontitis. Al-Najar and Ismaeel [9] showed the highest incidence of infection in-patients with oral abscess.

In the present study, no positive cases were detected among patients without clinical signs, this is in agreement with that reported by William [4] who did not find the parasite in mouths free of any infection while Dao, et al [13] found E. gingivalis in 59 percent of 113 dental patients and in 32 percent of 96 controls with good oral hygiene.

From the results of this study it is concluded that the prevalence of both T. tenax and E. gingivalis is high and proper care of teeth and gums, should be takenand further studies should be carried out using iron-haematoxylim stain, culturing of swabs and using phase contrast microscopy.

Table 1. Prevalence of T. tenax and E. gingivalis among 156 patients according to sex.

Sex	No. examined	No. positive		Positive %	
		T. tenax	E. gingivalis	T. tenax	E. gingivalis
Male	88	8	14	9.09%	15.90%
Female	68	10	12	14.70%	17.65%
Total	156	18	26	11.54%	16.66%

X^2 Sex for E= 0.08 D.F.=1 (P>0.05)
X^2 Sex for T= 2.54 D.F.=1 (P<0.05)

Table 2. Prevalence of T. tenax and E. gingivalis among 156 patients according to age & sex.

Age (Year)	*No. examined*			No. positive						Positive %					
				M		F		Total		M		F		Total	
	M	F	Total	E	T	E	T	E	T	E	T	E	T	E	T
Below one-10	2	3	5	0	0	1	1	1	1	0	0	33	33	20	20
11-20	21	22	43	2	2	6	2	8	4	9.5	10	27	9	18	9
21-30	20	15	35	3	2	2	2	5	4	15	10	20	20	14	11
31-40	23	13	36	5	2	0	4	5	6	21	8	0	30	14	16
41-50	22	15	37	4	1	3	2	7	3	18	4	20	13	19	8
Total	88	68	156	14	7	12	11	26	18	16	8	17	16	16	11

M=Male F=Female
E=Entamoeba histolytica T=Trichomonas hominis
X^2 age for E= 0.63 D.F.=4 (P>0.05)
X^2 age for T= 1.91 D.F.=4 (P>0.05)

Table 3. The prevalence of T. tenax and E. gingivalis in different oral illness according to sex.

Illness	Number of cases			No. positive		Positive %	
	T	M (%)	F (%)	T. tenax	E. gingivalis	T. tenax	E. gingivalis
Dental caries	27	14 (51.8)	13 (48.1)	7	8	25.92 %	29.62%
Gingivitis	32	16 (50)	16 (50)	5	8	15.62 %	25.00%

Oral abscesses	7	4 (57.1)	3 (42.8)	1	2	14.28 %	28.57%
Periodontitis	41	19 (46.3)	22 (53.6)	5	8	12.19 %	19.51%
No Clinical signs	49	24 (48.90	25 (51)	0	0	0.00%	0.00%
Total	156	77 (49.3)	79 (50.6)	18	26	11.54 %	16.66%

T=Total M=Male F=Female

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