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PREVALENCE OF *ENTAMOEBA GINGIVALIS* AMONG STUDENTS OF COLLAGE OF SCIENCE IN AI-MUSTASYRIA UNIVERSITY, BAGHDAD, IRAQ

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ABSTRACT

A sample of 100 students of both sexes. of the Al-Mustansiriyah University of biological Sciences in Baghdad A special questionnaire form was arranged for each individuals including the following information's (sex, smoking habit, brushing and medical status). 50 healthy students were chosen as control group The samples were taken and examined by wet mount smear and Giemsa staining for diagnosis of *Entamoeba gingivalis* It was found that the rate of *Entamoeba gingivalis* in males was 23(46%), and in female 15(30%), there was significant relationship between the rate of infection and smoking, The highest rate was found in smoker students 20(52.6%) than non-smoker 13(20.9%). The rate of parasite infections was higher among non-brushing students 12(32.4%) than brushing 8(12.6%), also in healthy students (control) the rate of infection only 2(8%) present in male only.

KEYWORDS: *Entamoeba gingivalis, Trichomonas tenax,* smoker, Al-Mustansyria.

1. INTRODUCTION

Research into microbiological and parasitological organisms is complicated by the occurrence of different environmental conditions in various parts of the oral cavity. Bibliographical data concerning the presence of protozoa and their importance in the oral cavity is scarce. It is well known that the presence of protozoa may be established both in persons with pathological alterations in the oral cavity, and in those with no such symptoms.[1] The oral cavity of human is colonized by specific bacteria, fungi and protozoa. *E. gingivalis* and *T. tenax* are protozoa found in human oral cavity and could be seen in

swabs taken from dental pockets on the surface of periodontium. These parasites were correlated with age and sex of the host.[2]

Entamoeba gingivalis belongs to Entamoebaidae family[3], it is considered as an important cause of periodontal disease.[4] *E. gingivalis* lives on the surface of the teeth and gum, gingival pockets near the base of the teeth and also seldomly in the crypts of the tonsils. The organism is abundant in cases of gum and tonsil diseases but no evidence show that they are involved in the etiology of these conditions.[5] They are usually spread by direct contact from one person to another by kissing, droplet spray or sharing eating utensils. It is known that up to95% of individuals with unhygienic mouth may be infected with this amoeba.[6] *E. gingivalis*, is a cosmopolitan amoeba that is present in the human oral cavity. It is a protozoon with a simple development cycle. We distinguish only one stage – the trophozoite, which is characterized by a variable shape. It does not create cysts. Hitherto, the prevalence of this protozoon, the course of infection and its pathogenicity were the subject of few studies.[7]

The research focused on assessing the incidence of *Entamoeba gingivalis* amongst students of the Al-Mustansiriyah University of biological Sciences in Baghdad, and to analyses the impact of oral cavity hygiene on the frequency and intensity of infection by this amoeba.

2. MATERIALS AND METHODS

The study consisted of 100 students of the Al-Mustansiriyah University of biological Sciences in Baghdad, of both sex. A special questionnaire form was arranged for each individuals including the following information's (sex, smoking habit, brushing and medical status). 50 healthy students were chosen as control group.

The dental plaque samples were collected by scraping the area with sterile swab rubbed around the surface of teeth from caries and around the gingival crevices, the swabs were dipped in sterile vials containing normal saline, after that the swab rolled on the slide, also stained with Giemsa stain and examined under light microscope (40x, 100x, 200x, and 400 x). The parasites of *Entamoeba gingivalis* were identified by their shape depending on the expansion of the pseudopodia formation and presence of vacuoles.

2.1 Statistical Analysis

The data for various parameters were subjected to statistical analysis SPSS, software program using analysis of variance (ANOVA).

3. RESULT

The *Entamoeba gingivalis* trophozoites dyed with Giemsa stain are presented with this staining technique, the amoeba's cytoplasm dyes dark blue. Table (1) shows the distribution of *Entamoeba gingivalis* infection among students according to sex, the higher rate was in male 23(46%), than female 15(30%). The prevalence of *Entamoeba gingivalis* infection among students according to smoker in Table (2) shows the rate of infection in smoker students 20(52.6%) was higher than non-smoker 13(20.9%). Table (3) indicates that the level of infection of parasite according to brushing was higher among non- brushing students 12(32.4%) than brushing 8(12.6%). In healthy students (control) there is few case of infection with *Entamoeba gingivalis* 2(8%) and the parasite found only in male as shown in Table (4).

Table (1): Prevalence of *Entamoeba gingivalis* according to Sex

Sex	No. of Examined	*E.gingivalis*	
		No.	%
Male	50	23	46*
Female	50	15	30*
Total	100	38	76*

*p<0.05

Table (2): Prevalence *Entamoeba gingivalis* according to smoker

Samples	No. of Examined	*E.gingivalis*	
		No.	%
Smoker	38	20	52.6*
Non- Smoker	62	13	20.9*
Total	100	22	73.5*

*p<0.05

Table (3): Prevalence of *Entamoeba gingivalis* according to brushing

Samples	No. of Examined	*E.gingivalis*	
		No.	%
Brushing	63	8	12.6*
Non- Brushing	37	12	32.4*
Total	100	20	45*

*p<0.05

Table (4): Prevalence of *Entamoeba gingivalis* in Control healthy group

Sex	No. of Examined	*E.gingivalis*	
		No.	%
Male	25	2	*8
Female	25	0	0
Total	50	2	4

*p<0.05

4. DISCUSSION

There are only few reports on the role of oral commensals in the pathogenesis of periodontitis and gingivitis despite the high incidence of certain protozoa, such as *Entamoeba gingivalis*. In this study the prevalence of oral parasite *E.gingivalis* in male was higher than females, its due to females dental and mouth care is more respected therefore the infection to *Entamoema gingivalis* were less prevalent than males, this finding is similar to.[8, 9] It might be due to boys playing outside houses and exposed to infection more than girls. High prevalence of mouth amoebiasis in the study reflects poor food hygiene and wrong social habits concerning food consumption in our Society.[10]

Our result in prevalence of high rate of parasites among smoker than non- smoker, was in agreement with[11, 12] tobacco smoking has been found to be a major environmental factor associated with generalized forms of severe periodontitis. The epidemiologic studies[13, 14] on arelationship between tobacco use and periodontal disease consistently reported that cigarette smokers were five times more likely to develop severe periodontitis than non-smokers. Tobacco smoking seems to be one of the most significant environmental factors in the initiation and progression of destructive periodontal disease.[10]

Wantland and Lauer[8], Cielecka *et al*.[15] and Linke *et al*.[16] reported an increased frequency of *E. gingivalis* infections among people with bad oral hygiene this report was in the line of our study. Improper oral care is conducive to inflammations of the mucous membrane, gingival diseases and caries. It favours accumulation of food residue and the development of dental plaque, which constitutes an excellent base for the growth of fungi and bacteria, as well as protozoa. The most significant hygienic factors impacting the frequency of occurrence of *E. gingivalis*. For this purpose, the following have been taken into consideration: the frequency and duration of tooth brushing, the type of toothbrush used, the application of additional care products, and other procedures improving the state of oral cavity hygiene.[17]

5. CONCLUSION

Although *E.gingivalis* is not generally associated with pathogenesis, their presence in the oral cavity is taken as a sign of poor dental hygiene. We should stress that the state of oral cavity hygiene among students is not Satisfactory. The oral cavity hygiene products which they use are largely ineffective.

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