

Study of *Trichomonas tenax* and its relationship to oral health in adults

Bafreen Mohamad Raza

Kirkuk University College of Science, Biology Department, Iraq

Email: bafreen.baracitology@uokirkuk.edu.iq

Abstract: This study was conducted on 370 patients from health centers and private clinics from February 2021 to December 2021. The samples were examined by the direct swab method. The DMFT was used in accordance with the recommendations of the World Health Organization. The current study showed a decline in the level of oral care among smokers, as well as the results showed that the total infection rate of the parasite *T. tenax* was the highest infection in smokers, reaching 95.6%, and the lowest infection was among non-smokers, reaching 20.15%. The highest incidence was in the age groups more than 50 years. In this study, SPSS statistical analysis was used, and no significant differences were recorded.

Keywords: - mouth, gums, *T. tenax*, ulcers, necrosis, smoking

Introduction

This anaerobic parasite coexist in the mouth, where it is considered the appropriate environment for it, especially in the festering gum tissues and between the teeth and in the periodontal pockets near the base of the teeth but it turns into pathogenic and opportunistic parasites that cause pathological conditions, especially when there are periodontal disease or tooth decay, and therefore accompanying pathological conditions may increase the development of gingivitis and can cause the secretion of pus [1]. Some researchers have shown that the percentage of these parasites may reach about 95% in people with gingivitis and tooth decay. These parasites are transmitted from one person to another through kissing, sneezing, spraying, drinking water, and using the same eating utensils and toothbrushes for more than one person [2]. There are some studies that indicate that age is a factor affecting oral parasite infection, especially in people who suffer from supportive tissue disease, and the prevalence of parasite infection increases with age [3]. The factors are age, smoking and alcohol intake, in addition to the presence of chronic diseases such as diabetes, pressure, heart disease, taking antibiotics and the immunity of the pregnant person [16] [4]. This parasite has specific factors for its presence and pathogenesis where it was believed that these parasites are coexisting organisms in the mouth, but many researches have proven the pathogenicity of these parasites, especially when the aforementioned factors are present in people with oral diseases. The standard of living, type of work and bad habits practiced by these individuals may have a clear impact. The parasite is usually transmitted by kissing, flying spray, using contaminated eating utensils and toothbrushes, or by drinking. The parasite is resistant to changes in temperature and can live in drinking water from hours to many days. There is no cystic phase in the life cycle of this parasite. Therefore, reproduction takes place through cellular division of the active phase, as the nucleus divides consisting of (2-8) nuclei and then followed by division Cytoplasm and in the end the parasite will be (2-8) individuals [5] [6]. The human oral cavity is the home of many microorganisms and possesses a number of characteristics that make it a unique microbiological environment. Inflammation of the gums and tooth decay is the main cause of tooth loss, and tooth decay occurs as a result of the decomposition of sugar in the various foods we eat, which results in a type of acid that erodes the outer layer of the teeth causing tooth decay [8][7]. According to the report of the World Health Organization in 2003, oral and dental problems are the fourth most expensive disease in industrialized countries, and the problem increases among the elderly due to dry mouth caused by taking some medications [9] [17].

Materials and methods

This study was conducted from February 2021 to December 2021, the study sample in this research consisted of two groups, the first group for smokers and includes 250 saliva samples, while the second group includes 120 saliva samples from males according to age groups from health centers and private clinics of

the Kirkuk governorate center. After taking samples from the mouth of the auditors, then fixing the sample on the glass slide and then examining it with a light microscope under the two forces (minor and big) (X10, X40, X100) and using the Phase Contrast microscope, which we can observe the movement of the spiral parasites that is one of the characteristics of the parasites and see the eggs attacking the globules). And bacteria, which we can distinguish from others. The DMFT was used in accordance with the recommendations of the World Health Organization, as it expresses the number of teeth affected by a carious lesion (Decayed Teeth): D: the number of missing teeth due to caries (Missing Teeth): M: the number of teeth restored due to caries: F: the total number of restored, missing and decayed teeth DMFT.

Results

The results showed that the infection rate of *T.tenax* parasite in smokers was 95.6% higher than the infection rate in non-smokers 20.15%, while the infection rate of *T. tenax* parasite for caries of smokers was 34.8%, which is lower than the infection rate of people infected with *T.tenax* parasite Oral ulcers 60.8%, as well as for non-smokers, tooth decay was less affected than gingivitis and oral ulcers, as shown in Table (1). The results of the statistical analysis showed that there were no significant differences in the incidence of parasite infection between non-smokers and smokers.

Table No. (1) Type of sample according to people

The sample	Infected	Oral disease group				The number total		C.S. (*) P-value
		<i>T. tenax</i> Tooth decay		<i>T. tenax</i> Gingivitis and oral ulcers		Patients	%	
		Patients	%	Patients	%			
smokers	250	87	34.8	152	60.8	239	95.6	C.C.=0.152 P=0.135 (NS)
Non-smokers	120	18	0.15	24	20	42	20.15	
Total	370	105	34.95	176	80.8	281	115.75	

The results showed a clear difference in infection with *T.tenax* parasite between the age groups for each of the youngest and those over 50 years old, where the highest percentage of *T.tenax* infection was recorded at 98.77% in the age group (more than 50) years and the lowest percentage in the age group (21 -30) years, and no moral differences were recorded.

Table No. (2) Type of the sample by age groups

Age group	Infected	Oral disease group				The number total		C.S. (*) P-value
		<i>T. tenax</i> Tooth decay		<i>T. tenax</i> Gingivitis and oral ulcers		Patients	%	
		Patients	%	Patients	%			
21-30	47	17	36.17	29	61.70	46	97.87	C.C.=0.197 P=0.158 (NS)
31-40	66	35	53.03	28	42.42	63	95.45	
41-50	92	36	39.13	51	55.43	87	94.56	
More than50	165	74	44.84	89	53.93	163	98.77	
المجموع	370	162	173.17	117	213.48	359	386.65	

It was found through this study that there is an effect of the group (number of times brushing teeth), as we noticed the highest percentage of people who brush their teeth once a day, as it was 92.85%, and less for those who brush three times a day, as it was 57.29%, and no significant differences were recorded.

Table No. (3) Distribution of the sample according to groups and frequency of brushing.

The sample	Infected	Oral disease group			The number total	C.S. (*) P-value
		<i>T. tenax</i> Tooth decay	<i>T. tenax</i> Gingivitis and oral			

				ulcers				
		Patients	%	Patients	%	Patients	%	
Once a day	98	51	52.04	40	40.81	91	92.85	C.C.=0.249 P=0.158 (NS)
Twice daily	129	73	56.58	26	20.15	99	76.73	
Three times a day	143	33	23.03	49	34.26	82	57.29	
Total	370	157	131.65	115	95.22	272	226.88	

Discussion

The presence of the parasite *T. tenax* in the oral cavity is an indication of the lack of interest in oral hygiene, dental care, and gum disease, and this is done by kissing, flying spray, or the joint use of eating and drinking utensils [10]. It was previously believed that this parasite is not pathogenic, but recent studies indicate that the presence of this parasite is linked to a poor oral environment as well as associated with periodontal disease and bleeding gums. Smoking at an early age and smoking cigarettes with a high content of tar are the most dangerous in causing general and oral diseases, and passive smoking leads to negative effects on health at all ages [12] [11]. The results of the current study showed that the infection rate of *T. tenax* parasite was higher for smokers 95.6%, while for non-smokers it was 20.15%. Smoking causes a change in the oral flora, which may lead to an increase in organic lending colonies. Saliva plays an important role in oral health and many studies have been studied Researches between smoking, saliva quantity, saliva buffering strength, and salivary bacteria count [13]. The study also showed, in terms of age groups, that the lowest infection rate was within the age group 21-30 years, which was 97.87%. And that the most widows were within the age group over 50 years, which amounted to 98.77%. The relationship of age factor and its impact on the incidence of oral parasite infection, as elderly people are old, most of their teeth are damaged, and the reason may be due to a lack of awareness of the importance of oral hygiene and dental and gum care, as well as the frequent exposure to polluting factors such as smoking, alcohol and contaminated food, which leads to providing an appropriate environment for oral diseases Oral fungi and parasites [14]. As for the tooth brushing study, the infection rate was higher for people who brush their teeth once, reaching 92.85%, and the lowest injury was among people who brushed their teeth three times a day, 57.29%. Seriously, oral diseases spread among people, while we notice the opposite in people who do not care about adequate health and that oral hygiene and bad habits led to the infection and spread of oral parasites [15].

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