

# Frequency of *Entamoeba gingivalis* and *Trichomonas tenax* among patients with dental prosthesis-fixed or removable

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## Abstract

The aim of the present study is to evaluate the frequency of oral protozoa (*Entamoeba gingivalis* and *Trichomonas tenax*) among patients with dental prosthesis and study the association between sex, age with the presence of this Parasites.

40 presented both protozoa of 54 examined patients (26 male and 28 female),18 patients were over 50 years and the reminder were aged from 20 to 50 years.

*E. gingivalis* was found in 38(70.37 %) patient,35(64.81% )single and 3(5.55 %) mixed with *T. tenax.*, *T. tenax* was found in 5 (16.66 %) patients, 2 (3.70/) single and 3mixed.

The highest rate of infection was 83.33 % in patient with aged ovar 50 years and 46.66 %,76.29 % in patients aged from 20-35 and 35-50 respectively. Significant difference ( $p<0.05$ ) was recorded between the age groups.

## Introduction

*Entamoeba gingivalis* and *Trichomonas tenax* are human buccal protozoa, they are live in dental tartar in the necrotic mucosa of the cells and the gingival fringes of the gum<sup>(1,2,3)</sup>

This protozoan parasite is alumen dweller, but is sometimes found elsewhere, for example in pulmonary and tonsillar suppuration.

A parasite is an organism that lives at the expense of its host. By definition there can be no non pathogenic parasite. Only the degree of pathogenicity, for example, or remain in an apparently symptom- free host for a long time, as can be the case with *E-histolytica*.

In 1849, Gros published the first descriptions of *E-gingivalis*, during the next years, various investigators published their findings about this parasite, each independently reported the presence of *E-gingivalis* in destructive periodontal disease (4,5,6), the significance of these discoveries generally has been ignored or dismissed as in significant to oral health. Results suggest a relationship between the incidence of these lesions, the deterioration of the patients health and the occurrence of amoebae in dental plaque.

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Others disputed this causal relationship since amoebae were found frequently in normal mouths<sup>(7,8,9)</sup>.

### **Material and method**

Fifty four adult patients with either fixed or removable prosthesis in molar teeth region were selected Tartar and or dental plaque samples of 4-inferior molar were obtained by means of a scaler and a saliva sample was taken from each of the patients

Both were collected in the morning with no previous brushing or in other cases, after a period of at last three or four hours after buccal hygiene.

Samples were diluted with sterile physiologic solution and was observed through an opical microscope(100xand 400x)<sup>(10)</sup>

There was a previous microscopic observation of saliva followed by another observation after 2000t.p.m centrifugation during 5minutes (100xand400x) to identify protozoa. Both samples were coloured with gemza stain.

The statistical analysis was preformed to study the association between sex, age, with the presence of parasite<sup>(11)</sup>.

### **Results**

40 patients presented both protozoa (*E. gingivalis* and *Trichomonas tenax*) of 54 examined patients(26male and 28 female),18 patients were over50 years and the reminder were aged from 20-50 years old.

As shown in table 1, *E. gingivalis* was found in38 (70.37 %) patients, 35(64.81 %) single and 3(5.55 5 %) mixed with *T. tenax*.

*T.tenax* was found in 5(16.66 %) patients, 2(3.70% ) single and 3(5.55 %) mixed .

All aged groups were infected with *E. gingivalis* and the prevalence rate was 83.33% in patients with aged over 50 years and 46.66% and 76.19 % in patients aged from 20 to 35 years old and35 -50 respectively.

Significant deference ( $p<0.05$ ) was recorded between the three age groups.

### **Discussion**

*E.gingivalis* is regarded by most dentists and parasitologists as non-pathogenic organism of no importance in the causation of periodontal or other disease and even beneficial as a scavenger of cellular debris and bacteria<sup>(9,12)</sup>.

This study show the high frequency of oral parasites in patients with dental prosthesis, the statical study revealed that there might be association between the presence of the oral protozoa with many factors.

But other authors considered it potentially pathogenic because the parasite has been seen to ingest both erythrocytes and leucocytes<sup>(1,4,13,14)</sup>.

The high frequency oral protozoa varied according to the age of patients with dental prosthesis ,and the highest rate was among the old ones, this finding support the idea that *E.gingivalis* may play an active role in the mouth diseases, the complexity of the oral environment and the multifactorial nature of the caries

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lesion, with the loss of dental pieces, requires the cooperation of other disciplines such as microbiology, chemistry and dietetics. Both partial and total loss of dental pieces produce modifications in buccal biotic conditions <sup>(15,16)</sup>.

Lyous and palmer(1983) found that after demonstration of *E.gingivalis* from apparently healthy gingival tissue, there was no periodontal decline unless the protozoan was eradicated in the mean time.

The flora present in the microbiological plaque of dental prosthesis may be the cause of infection, not only at the local level but also of other systemic infections owing to the co-existence of predisposition factors in the host.

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Table (1) Frequency of *E. gingivalis* in patients with dental prosthesis

Sex	Total No.	Infected	
		No.	%
Male	26	18	33.33
Female	28	20	37.03
Total	54	38	70.37

\*Chi- square= 2.788 p=0.048 p<0.05 significant

Table (2) Frequency of *E. gingivalis* according to age groups

Age	Total No.	Infected	
		No.	%
20-35	15	7	46.66
35-50	21	16	76.19
50≤	18	15	83.33
Total	54	40	70.37

\*Chi- square= 4.663 p=0.042 p<0.05 significant

Table (3) Frequency of *E. gingivalis* according to age and sex

Age	Male		Female	
	Total No.	Infected	Total No.	Infected
20-35	8	4(50%)	7	3(42.85%)
35-50	10	8(80%)	11	8(72.72%)
50≤	8	6(75%)	10	9(81.81%)
Total	26	18(33.33.%)	28	20(37.03%)

\*Chi- square= 0.263 p=0.05 p<0.05 Non significant

**الخلاصة**

هدفت الدراسة الحالية تقييم انتشار الاصابة بطفيليات اميبا الفم و مشعرات الفم في ا لمرضى الذين لديهم اسنان تعويضات صناعية سواء كانت ثابتة(جسور) او متحركة ودراسة تاثير العمر والجنس على وجود تلك الطفيليات .

تم فحص 54 مريض (26 ذكر و 28 انثى) كان 18 مريض بعمر اكبر من 50 سنة و 21 مريض بعمر 35-50 سنة و 15 بعمر 20-35 سنة

كانت مجموع الاصابة الطفيلية الكلوية بنسبة 07-74% في 40 مريض، عثر على طفيلي اميبا الفم *E-gingivalis* في 38 مريض وبنسبة 37-70% منها 35 (81-64%) أصابة مفردة و 3(55-5%) اصابة

مشتركة مع طفيلي مشعرات الفم *T.tenax* .

اما نسبة الاصابة بطفيلي مشعرات الفم فكانت (66-16%) في 5 مرضى منهم 2(70-3%) مفردة و 3(55-5%) مشتركة مع طفيلي *E-gingivalis* .

وجدت الاصابة في جميع الفئات العمرية للمرضى، وكانت النسبة الاعلى وهي 33-83% في المرضى الذين اكبر من 50 سنة ، وبنسبة 29-76% في المرضى الذين تراوحت اعمارهم بين 35-50 سنة و بنسبة 66-46% في المرضى كانت اعمارهم 20-35 سنة ، وظهر فرق احصائي (P < 0-0.5) في الاصابة بين مجاميع الاعمار.