Presence of Entamoeba gingivalis in dental patients

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ABSTRACT

This study has been carried out to investigate the presence of *E. gingivalis* in dental patients in Mosul. So a total of 115 patients with different oral pathological conditions (dental caries, periodontitis, gingivitis & abscess) were examined. The result revealed 52 (45.2%) were positive for the presence of *Entamoeba gingivalis.* In addition 55 healthy individuals with good oral hygiene were also examined as control group, 3 of them (5.4%) were seen positive for the presence of parasite. Examination was carried out by direct wet smear method.

Results shows the highest incidence (53.3 %) of this parasite was found in patients with dental caries, they were 24 out of 45, while the lowest incidence (26 %) was found in patients with tooth extraction, they were 4 out of 15.

The present of this parasite was (46.7 %) in males and (43.3 %) in females, the percentage are approximately similar in both sexes.

Key words: *Entamoeba gingivalis,* periodontitis, abscess, parasites.

الخلاصة

أجريت هذه الدراسة للتحري عن تواجد طفيلي ألـ *Entamoeba gingivalis* في مرضى الفم والأسنان لذا تم فحص 115 مريض لديهم مختلف الحالات المرضية في الفم مثل (تسوس الأسنان ، التهابات اللثة ، التهاب ماحول الأسنان والأنسجة الرخوة وخراجات الفم) وقد ظهر 52 مريض أي بنسبة (45.2%) حاملين لطفيلي الـ*Entamoeba gingivalis* أضافة الى 55 شخص اصحاء الفم والأسنان أيضا تم فحصهم كمجموعة سيطرة وظهر ثلاثة منهم حاملين للطفيلي أي بنسبة (5.4%) وتم إجراء الفحص للتحري عن هذا الطفيلي بطريقة المسحة المباشرة الرطبة.

لقد كانت أعلى نسبة للإصابة بهذا الطفيلي(53,3%) في المرضى الذين لديهم أسنان متسوسة والذين كان عددهم 24 من مجموع 45 مريض، واقل نسبة (26%) وجدت في المرضى الذين قلعت أسنانهم وكان عددهم 4 من مجموع 15.

لقد أظهرت النتائج بأن نسبة تواجد الطفيلي في الذكور (46,7%) وفي الإناث (43,3%) أي أن نسبة الإصابة في كلا الجنسين متقاربة .

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INTRODUCTION

Entamoeba gingivalis is a human oral protozoa, found only as a trophozoite stage which regarded non-pathogenic but associated with cases of dental caries, periodontal disease and badly hygienic mouth.

The average size range from 10 to 30 Um. It is closely resembles *Entamoeba histolytic*. A striking features of the trophozoite are presence of a large no. Of food vacuoles and RBCs. As described it by Von Prowazek in 1904, according to Belding [1] and other investigators [2,3] subsequently attempted to link its presence causally with periodontal disease, leading to the treatment of some of these conditions with emetine hydrochloride. Others [4,5] have been unable to verify this causal relation, though they agreed that this amoeba tended to be more prevalent in-patients with poor oral hygiene.

The organism lives around the gum line of the teeth, in the tartar and gingival pockets and it has a greater prevalence in pyorrhea, dental caries and inflammatory lesion [6].

So the aim of this work is to study the rate of infection with this oral protozoa and its relation to different oral pathological conditions in dental patients.

MATERIALS AND METHODS

During the three months from October through December 2000, 115 patients attending the oral diagnosis clinic at Saddam hospital of dental college were diagnosed as having different oral clinical problems (dental caries, periodontal disease, gingivitis and oral abscess), in addition to 55 healthy individual were examined as a control group for the presence or absence of *Entamoeba gingivalis*.

A sterile swab dipped in sterile saline was rubbed around the gingival line, between teeth, from the surface of teeth and from caries before the dental procedure began. The collected sample examined directly by wet smear preparation. A drop of saline incubated at 37°c was put on a clean glass slide and the swab rolled on the slide and covered with cover slide.

Failure to detect protozoa in the initial wet smear is not regarded as negative result unless two slides are examined.

Patients with tooth extractions had additional slide made from the removed teeth. Some of the slides were stained by the papunicolaou stain method [7] and examined for the presence of amoeba. The questionable specimens were recorded as negative.

RESULTS

Out of 115 patient examined 52 (45.2%) were positive (table 1) while the control group only 3 (5.4%) out of 55 were positive.

Table (2) illustrated the number and percentage of positive cases in different oral condition.

Table (1): the incidence of E. gingivalis in 115 male and female

Sex	No. of cases	No. of positive	Positive %
Male	62	29	46.7
Female	53	23	43.3
Total	115	52	45.2

Table (2): clinical condition associated with E. gingivalis

Clinical condition	No. of case	Positive %
Dental caries	45	53.3
Periodontal disease	26	46.15
Gingivitis	20	35.0
Oral abscess	10	50.70
Tooth extraction	15	26.0
Control	55	5.4
Total	115	45.2

DISCUSSION

Entamoeba gingivalis is known only as a trophozoite stage cyst form has not been described, it is obviated because the organism can be transmitted among individuals by direct contact, droplet infection and kissing [8].

The incidence of *E. gingivalis* varies with the studies but remain high in population with dental problems. Wantland and Wantland [9] found 39% in 700 individual, while Jaskoski [5] found 61% in a group of 240 patients with poor oral hygiene and 42% in 265 students with good oral condition. Levine [10] reported the occurrence as high as 62%. AL-Najar [11] reported 40.8% in 147 patients with different oral pathological condition in Baghdad – Iraq. Carneri [12] found *E. gingivalis* in oral 37% of 367 women in Italy.

Our own result was 45.2% in oral dental problems patient and 5.4 % in healthy control individuals. These results are lower than those reported earlier, they have remained high despite recent efforts to improve oral hygiene and reduction of dental caries by fluoridation.

The culture method was used for all other studies cited, but ours employed only the swab technique with direct smear on a glass slide. Cultures are both expensive and time consuming.

Earlier studies implicated *E. gingivalis* as the agent of gingival pyorrhoea [2,3], it appears now that this organism is acting as scavenger, living in crevices between the teeth and gum to feet on food particles and cellular materials collected in these areas.

Table (2) showing different oral conditions associated with *E. gingivalis* in our patients, the highest rate of investigation is found in people with carious teeth (53.3%), the next highest rate is found in patient with oral abscess (50.7%) is in coordinate with results reported by AL-Najar [11] then the last highest rate were in periodontal disease (46.15%).

In our result there is no difference between the incidence in male (46.7%) and female (43.3%), this is in agreement with the result reported by Wantland et al [9] which found that both sexes male (39%) and female (42.9%) show approximately the same incidence, while Al-Najar in Bagdad[11] reported that there is a significant difference between the incidence in male (58.2 %) and female (44.1 %).

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