

## ORAL PROTOZOA IN A NIGERIA POPULATION

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A study aimed at establishing the occurrence of oral protozoa in a Nigeria population was carried out over a 6-month period, January 1998 to June 1998. A total of 203 dental patients attending the dental clinics of the University of Nigeria Teaching Hospital (UNTH), Enugu were involved. Scraping of plaque were taken from the buccal surface of T16 and T36 (near the gingival margins) and placed on individual glass microscope slides. To each was added a drop of saline, which was mixed with the plaque and covered with a coverslip and then examined immediately. Thirty-three (16.30%) of the patients harboured protozoa in their mouths. Of these, 10 (4.9%) had *Trichomonas tenax*, while the majority 23 (11.3%) had *Entamoeba gingivalis*. No patient had both species of protozoa in their mouths. The associations of age, sex, teeth cleaning and other dental parameters with prevalence of protozoa were recorded. Our findings suggest that poor oral hygiene, calculus, old age and loss of attachment of periodontal fibers are factors which favour the proliferation of *Entamoeba gingivalis*.

### INTRODUCTION

*Entamoeba gingivalis* and *Trichomonas tenax* were first described from the human mouth in 1849 and 1850 respectively (1). Studies from different parts of the world have confirmed that both organisms parasitize in an oral cavity changed by inflammation, yet also in a healthy mouth (2,3,4). Their highest occurrence rate has been

recorded in adults with periodontitis and atrophy of the periodentium, somewhat lower in adults with gingivitis (2). No study has been conducted on the topic in Eastern Nigeria. The present study was carried out in the dental clinics of the University of Nigeria Teaching Hospital, Enugu.

## MATERIALS AND METHODS

A temporary laboratory was set up in the Dental Clinic of the University of Nigeria Teaching Hospital, Enugu, Nigeria and all patients attending the clinics were included in the survey. A prepared chart was used to record information on age, sex, dental parameters, teeth cleaning and protozoa isolated. The dental parameters were recorded by the dentists and were taken from 6 index teeth "T16, TU, T24, T31 and T44 or where absent, from the neighboring tooth" as follows: presence or absence of bacterial dental plaque, subgingival calculus, gingival bleeding. Patients were interviewed to obtain information about the instrument used to clean their teeth (toothbrush, chewing stick (atu), or both) and the frequency of cleaning teeth (once a day, more than once, sometimes).

Scrapings of plaque were taken from the buccal surface of T16 and T36 (near the gingival margins) and placed on individual glass microscope slides. To each was added a drop of saline, which was mixed with the plaque and covered with a coverslip. Similar preparations were made of scrap-

ings from any posterior carious lesion. The wet smears were examined immediately under a 40X objective for the presence of motile amoebae or flagellates and their presence or absence recorded.

## RESULTS

Out of a total of 203 patients examined (123 females and 80 males), 33 (16.3%) harboured oral protozoa. Of these 14 (42.4%) were males, while 19 (57.6%) were females. Thus 17.5% of males were infected while 15.5% of females were infected. Ten (4.9%) harboured *Trichomonas tenax*, while 23 (11.4%) harboured *Entamoeba gingivalis*. Individuals aged 20 years or less were one third as infected (33.3%) as those above age 20 years (66.7%) Table 1.

The highest overall prevalence was in the age group > 50 years (33.3%) followed by the age group 11-20 years (19.6%). The age group < 10 years had the lowest prevalence (10.5%) Table 1. Also with respect to sex, the highest prevalence was in the > 50 years age group. There was no increase in prevalence with respect to age. Seventy eight percent had plaques present on the index teeth while

58.3% had calculus. Individuals with calculus on 5 index teeth were more infected (23.2%) than those without calculus ( $P < 0.25$ ).

Although oral hygiene was generally poor, 51.5% claimed that they clean twice a day. There was no association between the occurrence of oral protozoa and the type of cleaning instrument used or the frequency of cleaning (Table II.)

Table 1: Age in relation to Prevalence of Protozoa

	<10	11-20	21-30	31-40	41-50	>50
Positive for protozoa	2	9	7	5	3	7
Negative for protozoa	17	37	53	40	19	14
Percentage Positive	10.5	19.6	11.7	14.3	13.7	33.3

Table 2: Teeth cleaning habits in relation to prevalence of protozoa

Frequency	Toothbrush	Chewing stick	Both
2 x day	9(47.4%)	4(50%)	3(50%)
1 x day	10(52.69)	3(37.5%)	3(50%)
Sometimes		1(12.5%)	

## DISCUSSION.

The prevalence of *Entamoeba gingivalis* (11.4%) amongst the patients in the study was much lower than that reported in Kenya (1) and in American and European studies (16). As suggested by others (1), the proportion would have been higher if a culture technique (7) had been used for diagnosis. Although *Trichomonas tenax* was encountered less

commonly than *Entamoeba gingivalis*, the prevalence of 4.9% though higher than the 2.8% recorded in Kenya, is much lower than reported in other places (3,6,8,). This study thus suggests that *E. gingivalis* is more common than *T. tenax* in Nigerians

Although the highest prevalence in this study was found in the age group above 50 yrs, there was no overall increase in preva-

lence of protozoa with age as has been reported in other studies (5, 6). A possible explanation for this, may be due to the fact that there was not much difference in oral hygiene between the different age groups except in the > 50 yrs group, where oral hygiene was particularly poor coupled with greater prevalence of calculus in the age group. Chinge *et al* (1) and Wanstland and colleagues (3) found a positive association between age and prevalence of protozoa in males. Such an association was not observed in the present study. The explanation of the previous authors was that older men tend to be less careful about oral hygiene than women and suggested that this may account for the higher prevalence of protozoa in men.

Several authors (1,4,9) have implicated the state of oral hygiene as being an important factor. In this study both the amount of calculus and the loss of attachment of periodontal fibres were associated with the presence of protozoa. Such an association had earlier been reported by others (1, 9) who found that infection with protozoa was directly proportional to the amount of calculus and to the pro-

gression of periodontal disease. No association was found between gingival bleeding and the presence of protozoa, similar to the study by Chinge *et al* (1) but in contrast to the report by others (10). Leo *et al* (11) explained that since gingival bleeding may occur as a result of bacterial dental plaque remaining in contact with the gingival tissues for a relatively short period, it's presence may not necessarily reflect a state of prolonged poor oral hygiene.

There was no association found between frequencies of teeth cleaning or the instrument used for cleaning and the occurrence of oral protozoa. The finding of dental plaque in 78.8% of the patients suggests that oral hygiene was generally poor.

These findings suggest that poor oral hygiene, calculus, old age and loss of attachment of periodontal fibres are factors, which favour the proliferation of *E. gingivals* similar to the report by others (1).

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