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Detection of *Trichomonas tenax* in patients with periodontitis using microscopy and culture compared to PCR.

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Abstract

Background: *Trichomonas tenax,* a commensal flagellated protozoan, inhabits in human oral cavity. This parasite is cosmopolitan and frequently found in patients with poor oral hygien and advanced periodontal disease.

Objective: detection of *Trichomonas tenax* in patients with periodontitis using different methods; microscopy and culture compared to PCR and also determine the frequency of T.tenax in these dental patients according to age, sex, smoking and some hygienic factors (teeth cleaning habit and amount of calculus).

Methodology: the study included 50 pateints with periodontitis (case group) and 25 individuals with healthy gingival (control group) of both sexes, whose ages varied between 20 and 50 years. Subgingival dental plaques were collected by sterile curettes from both groups and subjected to microscopic examination, culture on Diamond's medium and PCR

amplification using a pair of primers based on 18SrRNA gene for detection of *T. tenax*.

Results: the prevalence of *T.tenax* infection in case group and control group was 30% (15/50) and 0.0% (0/25) respectively, with a significant statistical difference (P<0.05). Out of 50 samples (case group), *T.tenax* was detected in 10(20%), 13 (26%), 14(28%) by microscopy, culture, and PCR respectively. PCR was able to detect *T. tenax* in 5, 2 negative samples by microscopy and culture respectively but, not able to detect it in one positive sample by two methods. Using PCR as gold standard method, microscopy and culture showed sensitivity (64.28% vs 85.71%) , specificity (97.22% vs 97.22), positive predictive value (90% vs 92.3%), negative predictive value (87.5% vs 94.59%) and diagnostic accuracy (88% vs 94%).

PCR has shown high sensitivity (93.33%), specificity (100%) positive predictive value (100%), negative predictive value (97.22%) and diagnostic accuracy (98%). *T. tenax* was correlated significantly (P<0.05) with the age and poor oral hygiene while it was not correlated significantly(P>0.05) with sex and smoking.

Conclusion : PCR proved to be more sensitive accurate tool for detection of *T. tenax* than microscopy and culture.