

## CLINICAL AND IMMUNOHISTOCHEMICAL STUDY ON THE EFFECT OF CIGARETTE SMOKING ON THE PERIODONTIUM OF SAUDI PATIENTS

Mossad Al-Sherbini,\* Zuhair Murshid,\*\* and Zeinab Darwish\*\*\*

### **ABSTRACT**

Tobacco smoking has a substantial influence on periodontal health and disease. It is associated with an increased disease rate in term of periodontal attachment loss, periodontal pocket formation and periodontal bone loss. In addition it exerts masking effect on gingival symptoms of inflammation. The purposes of this study were to examine the clinical influence of tobacco smoking on the periodontal condition of Saudi patients and to evaluate the effect of smoking on their gingival blood vessels. The study population consisted of 120 Saudi patients and was subset into two populations: sixty chronic periodontitis subjects who were non-smokers and sixty current smokers with clinical and radiographic evidences of chronic periodontitis. The periodontal examination for all periodontitis patients consisted of the plaque index, calculus index, gingival index, clinical attachment level, pocket depth, the amount of gingival recession, furcation involvement, tooth mobility and the number of extracted teeth. Gingival biopsy samples were obtained from twenty subjects (10 smokers and 10 non-smokers) who were undergoing routine periodontal surgery. Hematoxylin and eosin staining was used for histological assessment of inflammation, while immunohistochemical staining with CD34 mouse monoclonal antibody was used to mark the endothelial cells of blood vessels of each sample. The results of the current study showed that, smokers exhibited significantly advanced periodontal loss of attachment, probing depth, gingival recession, furcation involvement and tooth mobility compared to non-smokers. Smokers also exhibited a significant suppression in the signs of gingival inflammation. The histological and the immunohistochemical results of the present study showed that the gingival tissues of smokers had the higher proportion of small blood vessels and a lower proportion of large blood vessels, which was statistically significant. At the same time the difference between the vascular density of smokers and non-smokers was non significant. In conclusion; the results of this study suggest that cigarette smoking significantly worsens the periodontal health resulting in more disease progression and periodontal tissue destruction with little signs of gingival inflammation. The immunohistochemical staining technique used in this study showed that the inflammatory reduction was not only due to the repeated vasoconstrictive attacks of nicotine produced by cigarette smoking but also due to the higher percentage of smaller blood vessels in smoker more than in non-smoker population.

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\*Associate Professor, Oral Medicine & Periodontology; Faculty of Oral and Dental Medicine, Cairo University.

\*\*Assistant Professor, orthodontic Department, Faculty of Dentistry, King Abdulaziz University.

\*\*\*Associate Professor, Oral Pathology Department, Faculty of Dentistry, Alexandria University.