ONLINE ISSN : 1881-1361
PRINT ISSN : 0287-4547

Dental Materials Journal
Vol. 26 (2007) , No. 1 p.96-104

Metallic Pigmentation of Human Teeth and Gingiva: Morphological and Immunological Aspects

Zora VENCLÍKOVÁ[1)], Oldrich BENADA[2)], Jirina BÁRTOVÁ[2)], Ludek JOSKA[3)] and Lubor MRKLAS[1)]

1) Institute of Dental Research, General Faculty Hospital
2) Institute of Microbiology, Academy of Sciences of the Czech Republic
3) Department of Metals and Corrosion Engineering, ICT Prague

(Received August 23, 2006)
(Accepted October 17, 2006)

Abstract:
The composition of metallic pigmentations in gingiva and dental roots was determined by means of transmission electron microscopy with energy dispersive x-ray microanalysis. The systemic immune response to the metals found in the oral cavity was evaluated in 10 patients by using a modified lymphocyte proliferation test. Immunological results were compared with a group of five controls without metallic materials and pigmentation. Dense particles of various shapes and sizes, as well as of diverse extracellular and intracellular localization patterns, were detected in the pigmented lamina propria gingivae. Metallic deposits consisted predominantly of silver accompanied by selenium or sulfur or both. Besides, Ag, Au, Cr, Ni, Fe, Hg, Cu, and Ti were identified in dentinal tubules of teeth reconstructed with dental alloys. Nine patients with metallic pigmentations had a positive lymphocyte proliferative response to one or more metals present in their own metal reconstructions. Results of this study thus indicated that dental alloys—by virtue of their corrosion process—might pose a significant risk to immunologically susceptible patients.

Key words:
Metallic pigmentations, EDX microanalysis, Lymphocyte proliferation

To cite this article:
Zora VENCLÍKOVÁ, Oldrich BENADA, Jirina BÁRTOVÁ, Ludek JOSKA and Lubor MRKLAS. Metallic Pigmentation of Human Teeth and Gingiva: Morphological and Immunological Aspects . Dent. Mater. J. 2007; 26: 96-104 .

doi:10.4012/dmj.26.96
JOI JST.JSTAGE/dmj/26.96