

Ultrastructural characteristics of connective tissue around porous hydroxyapatite hypodermic implants in rats

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Adult Sprague-Dawley rats were implanted with porous hydroxyapatite (Interpore 200®), following a procedure different from that of Kawaguchi et al. Instead of implanting hydroxyapatite (Ha) in periodontal osseous defects, we introduced Ha-implants in the hypodermis of rats. Animals were sacrificed on days 30, 90 and 150 (six in each stage). The interface between the Ha and connective tissue was studied by transmission electron microscopy, with the aim of understanding the biocompatibility and mechanisms of union of both parts. The connective tissue reaction to the Ha implant was characterized by fibro-vascular proliferation, with abundant fibroblasts, macrophages, multinucleated giant cells, and by the formation of a capsule surrounding the implant. The multinucleated giant cells were observed in the interface along all stages and exhibited: a) a progressive increase in mitochondria, ribosomes, rough endoplasmic reticulum, and vesicles containing particles of Ha; and b) an electronlucen