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Effect of New Bone Substitute Materials Consisting of Collagen and Tricalcium Phosphate

Ken Takahashi[1)]

1) Department of Operative Dentistry, Tokyo Dental College

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Abstract: The purpose of this study was to investigate the effect of new bone substitute materials consisting of collagen and tricalcium phosphate (TCP). Prior to the experiment, mandibular dog teeth were extracted. After 3 months, specific cavities were prepared on the alveolar ridge. In one group, cavities were filled with collagen sponge (CS group), in the other, cavities were filled with TCP sponge (TCP group). Cavities with no fillings (Cont group) were created as controls. Mandibular bone was evaluated histopathologically at experimental time periods of 1, 2, 4, and 8 weeks. Due to the non critical inflammatory symptoms that each group showed throughout all the time periods investigated, a low irritation level was observed. Absorption of material was almost complete at after 4 weeks in the CS group, and at after 8 weeks in the TCP group. At the top of the cavity, the TCP group exceeded the Cont group in amount of neogenesis at after 8 weeks. The materials examined in this study showed good osteoconduction and biodegradable character. The TCP Group, in particular, showed highly acceptable results, demonstrating that the materials used were excellent candidates as bone substitute materials.

Key words: Bone substitute, Collagen, α-TCP

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