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Effects of α-DT cement with hydroxypropyl cellulose on bone augmentation within a titanium cap in the rabbit calvarium

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Abstract:
The present study was performed to evaluate the effects of calcium phosphate cement (α-DT cement) containing α-TCP, dicalcium phosphate anhydrous, and tetracalcium phosphate mixed with hydroxypropyl cellulose (HPC) for bone augmentation within a titanium cap in the rabbit calvarium. A total of 24 male adult Japanese white rabbits were used in this study. In each rabbit, one side of the cap was filled with α-DT cement (α-DT) or α-DT cement mixed with HPC (α-DTH), and the other side of the cap was left empty (control). After 1 and 3 months, newly generated tissue and mineralized bone areas were measured histomorphometrically. Significant differences in newly generated tissue and mineralized tissue were observed between the α-DT or α-DTH group and the control at 3 months. Furthermore, α-DTH showed significantly more mineralized tissue than α-DT group. Our findings indicated that although α-DT cement was effective for bone augmentation, α-DTH was more useful than α-DT for bone maturation.

Key words:
Guided bone regeneration, Bone grafts, Histology

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