



Mandibular Segmental Defect Regenerated With Macroporous Biphasic Calcium Phosphate, Collagen Membrane, and Bone Marrow Graft in Dogs

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OBJECTIVE:

To reconstruct segmental mandibulectomy using calcium phosphate ceramics and collagen membrane with a delayed bone marrow grafting in experimental animals.

DESIGN:

Defects of segmental mandibulectomy were filled with calcium phosphate granules and wrapped with a collagen membrane in 4 dogs and left empty as a control in 2 dogs. Two months later, a bone marrow graft was injected into the center of the implants. Animals were humanely killed after a 16-week delay.

SUBJECTS:

Six adult beagles were included in this study.

INTERVENTION:

Résumé en anglais Segmental mandibulectomy.

MAIN OUTCOME MEASURE:

Bone ingrowth and material resorption in the reconstructed segment.

RESULTS:

Successful osseous colonization bridged the whole length of the defects. The good new bone formation at the center and the periosteum-like formation at the periphery suggest the osteoinductive role of the bone marrow graft and the healing scaffold role of the membrane.

CONCLUSIONS:

This model succeeded in regenerating a large segmental defect in the mandible. An investigation with a postimplantation radiation delivery schedule is required with the use of this model, which should be considered as a preclinical study for a bone tissue engineering approach in patients with cancer-related bone defects.

URL de la notice <http://okina.univ-angers.fr/publications/ua10462> [8]
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Liens

- [1] [http://okina.univ-angers.fr/publications?f\[author\]=18427](http://okina.univ-angers.fr/publications?f[author]=18427)
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