

New bone formation in a bone defect associated to dental implant using absorbable or non-absorbable membrane in a dog model

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The aim of this research was to determine the bone formation capacity in fenestration defects associated with dental implants using absorbable and non-absorbable membranes. Six dogs were used in the study. In both tibiae of each animal 3 implants were installed, and around these 5 mm circular defects were created. The defects were covered with absorbable membranes (experimental group 1), non-absorbable membranes (experimental group 2), and the third defect was not covered (control group). At 3 and 8 weeks post-surgery, the animals were euthanized and the membranes with the bone tissue around the implants were processed for histological analysis. The statistical analysis was conducted with Tukey's test, considering statistical significance when $p < 0.1$. Adequate bone repair was observed in the membrane-covered defects. At 3 weeks, organization of the tissue, bone formation from the periphery of the defect and the absence of inflammatory infiltrate were observed in both experimental groups, but the defect covered with absorbable membrane presented statistically greater bone formation. At 8 weeks, both membrane-covered defects showed adequate bone formation without significant differences, although they did in fact present differences with the control defect in both periods ($p > 0.1$). In the defects without membrane, continuous connective tissue invasions and bone repair deficiency were observed. There were no significant differences in the characteristics and volume of the neofomed bone in the defects around the implants covered by

the different membranes, whereas the control defects produced significantly less bone. The use of biological membranes contributes to bone formation in three-wall defects.

Biological membrane

Bone defect

Bone regeneration

titanium

animal

animal model

article

artificial membrane

biodegradable implant

biological membrane

bone defect

bone development

bone regeneration

comparative study

dog

equipment

methodology

pathology

pathophysiology

periodontics

prosthesis

tibia

time

tooth implant

biological membrane

bone defect

Bone regeneration

Absorbable Implants

Animals

Dental Implants

Dogs

Guided Tissue Regeneration, Periodontal

Membranes, Artificial

Models, Animal

Osseointegration

Osteogenesis

Prosthesis Design

Tibia

Time Factors

Titanium