

Tissue Engineering in Dentistry

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Introduction

Perforation of maxillary sinus mucous membrane is of the most prevalent complication during open sinus lift surgery. Moreover, such complication can usually be managed by an absorbable membrane. As far as absorbable membranes are concerned, decellularized maxillary sinus mucous membranes, which is an extracellular matrix, can be used as a biologic scaffold and insulating membrane in sinus lifting surgery.

Methods:

The decellularization process of the maxillary sinus membrane was performed by the means of physical and chemical procedures (liquid nitrogen and sodium dodecyl sulfate). Then this membrane was used as a bioscaffold for culturing with adult mesenchymal stem cells, which are derived from adipose tissue.

Results:

Histologic evaluation of decellularized scaffold revealed that cell of the schneiderian membrane were completely removed via concentration of 1% SDS. Scanning electron microscope (S6N – Leo vp1450 Germany) of the scaffold indicated that collagen fibers of decellularized maxillary sinus membrane were intact. Culture studies showed that this scaffold supports cell seeding .

Conclusion:

Decellularized human maxillary schneiderian membrane has 3D structure similar to extracellular matrix of native tissue. It can support cell seeding.

Keywords: Decellularized, Electron microscope, Tissue engineering.

Poster Presentation

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