

Sinus lift using a nanocrystalline hydroxyapatite silica gel in severely resorbed maxillae: histological preliminary study.

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PURPOSE: The aim of this preliminary study was to evaluate histologically a nanocrystalline hydroxyapatite silica gel in maxillary sinus floor grafting in severely resorbed maxillae. **MATERIALS AND METHODS:** A total of 16 consecutive patients scheduled for sinus lift were recruited during this study. Patients were randomly divided in two groups, eight patients each. In both groups, preoperative residual bone level ranged between 1 and 3 mm (mean value of 2.03 mm). No membrane was used to occlude the buccal window. Second surgery was carried out after a healing period of 3 months in Group 1 and 6 months in Group 2. Using a trephine bur, one bone specimen was harvested from each augmented sinus and underwent histological and histomorphometric analysis. **RESULTS:** Histological analysis showed significant new bone formation and remodeling of the grafted material. In the cores obtained at 6 months, regenerated bone, residual NanoBone, and bone marrow occupied respectively 48 +/- 4.63%, 28 +/- 5.33%, and 24 +/- 7.23% of the grafted volume. In the specimens taken 3 months after grafting, mean new bone was 8 +/- 3.34%, mean NanoBone was 45 +/- 5.10%, and mean bone marrow was 47 +/- 6.81% of the bioptical volume. **CONCLUSIONS:** Within the limits of this preliminary prospective study, it was concluded that grafting of maxillary sinus using nanostructured hydroxyapatite silica gel as only bone filler is a reliable procedure also in critical anatomic conditions and after early healing period.