Evaluation of Volumetric Changes of Augmented Maxillary Sinus With Different Bone GraftingBiomaterials.

Gultekin BA[1], Cansiz E, Borahan O, Mangano C, Kolerman R, Mijiritsky E, Yalcin S.

Author information

Abstract

Extensive alveolar bone resorption because of pneumatized maxillary sinus is a common problem that limits dental implant placement. Maxillary sinus floor augmentation (MSFA) is an accepted treatment protocol that provides sufficient bone volume. The aim of this study was to evaluate the percentage of graft volume reduction following MSFA using cone beam computed tomography. In this retrospective study, cone beam computed tomography scans of MSFA were measured to evaluate the volume of the grafted sinus with deproteinized bovine bone(DBB), mineralized allograft (MA), or a mixture of MA and demineralized allograft as a composite.

The volumetric changes in sinusaugmentation between 2 weeks (T-I) and 6 months (T-II) after operation were analyzed. Thirty-nine patients were included in this study. The average percent volume reduction was 8.14±3.76%, 19.38±9.22%, and 24.66±4.68% for DBB, MA, and composite graft, respectively. A significant graft volume reduction was found between T-I and T-II for all groups ($P<0.01$). The DBB group showed the least volume reduction ($P<0.01$). Biomaterials can influence the bone graft volume change before implant placement. Deproteinized bovine bone may offer greater volume stability during healing than mineralized and composite allografts.

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