



Sinus Lift

Selection of Applicable Abstracts

OSTEOGENICS

B I O M E D I C A L

Galindo-Moreno P, Avila G, Wang HL, et al.,

Clinical and Histologic Comparison of Two Different Composite Grafts For Sinus Augmentation: A Pilot Clinical Trial.

Clin Oral Implants Res. Aug 2008; 19(8): 755-9.

Background and objective: Sinus augmentation is a procedure used for augmenting insufficient bone height that is often observed in the maxillary posterior areas. Many different techniques as well as bone graft regimens have been suggested for performing this procedure. It was the goal of this study to compare, clinically and histologically, two different composite grafting regimens used for sinus augmentation.

Materials and methods: Five patients, needing a bilateral sinus augmentation to allow implant placement, were recruited for this study. Right sinuses were grafted with cortical bone (collected from overlying the sinus membrane) and bovine hydroxyapatite (HA), while the left side sinuses were grafted with overlying autologous bone plus a bioglass (BG) material. Bone core biopsies were taken at 6 months after sinus graft or at the time of implant insertion. A waiting period of 6 additional months was granted to allow healing, before prosthetic restoration and functional loading. The level of peri-implant bone was evaluated 12 months after loading. A comparative histomorphometric analysis was conducted and a statistical analysis was performed.

Results: All implants in both groups were functional after a

12-month loading period. No bone loss was observed radiographically or clinically in both groups. Histologic analysis revealed that both composite grafts had a high biocompatibility. In the bovine HA-containing group, minimal xenogenic graft absorption was noted. In contrast, BG group samples presented a high absorption rate with some remaining particles imbedded in new normal bone.

Conclusion: Sinus augmentation using a combination of autogenous bone plus either bovine HA or BG is a predictable technique.

Kotsakis GA, Mazor Z.

A Simplified Approach to the Minimally Invasive Antral Membrane Elevation Technique Utilizing a Viscoelastic Medium for Hydraulic Sinus Floor Elevation. Oral Maxillofac Surg. 2015 Mar;19(1):97-101.

Objective: Maxillary sinus augmentation surgery is frequently employed to provide adequate vertical bony dimensions in posterior maxillary sites. When significant gain in bone height is sought for, an invasive lateral-window approach is routinely used to achieve sinus floor elevation. The minimally invasive antral membrane elevation technique was initially conceived as a surgical improvisation that has been shown to lead to up

to, or exceeding, 10 mm of bone height, while enhancing the safety profile of the transalveolar sinus augmentation technique. This approach is based on the use of hydraulic pressure that is applied to the schneiderian membrane via a saline-inflatable balloon. Even though this technique has been shown to be a safe and efficacious treatment modality, the need for specialized equipment, training, and corresponding costs may hinder its widespread application. The purpose of this clinical paper is to introduce a simplified approach to the minimally invasive antral membrane elevation technique.

Methods: The simplified minimally invasive antral membrane elevation technique is based on the application of hydraulic pressure by a viscous bone graft that acts as an incompressible fluid. The specific clinical steps of this technique will be demonstrated to illustrate how grafting of the maxillary sinus is achieved simultaneously with the atraumatic elevation of the schneiderian membrane, thus resulting in even less operative time.

Conclusion: This simplified technique may make the minimally invasive antral membrane elevation technique more accessible to implant surgeons as it eliminates the need for purchase of specialized equipment and aids in further decrease of intra-operative time accomplished with the original technique.

Urban IA, Monje A, Lozada JL, Wang HL.

Long-term Evaluation of Peri-implant Bone Level after Reconstruction of Severely Atrophic Edentulous Maxilla via Vertical and Horizontal Guided Bone Regeneration in Combination with Sinus Augmentation: A Case Series with 1 to 15 Years of Loading. Clin Implant Dent Relat Res. 2016 May 30. [Epub ahead of print]

Background: To the best of the authors' knowledge, there is very limited clinical data on the outcomes of simultaneous guided bone regeneration (GBR) for horizontal and/or vertical bone gain for the reconstruction of severely atrophic edentulous maxilla. Therefore, the purpose of the clinical series presented herein was to clinically evaluate long-term horizontal and vertical bone gain, as well as implant survival rate after reconstruction of severely atrophic edentulous maxillary ridges.

Material and methods: Sixteen patients (mean age: 64.6 ± 14.6 years of age) were consecutively treated for vertical and/or horizontal bone augmentation via GBR in combination with bilateral sinus augmentation utilizing a mixture of autologous and anorganic bovine bone. Implant survival, bone gain, intraoperative/postoperative complications and peri-implant bone loss were calculated up to the last follow-up exam.

Results: Overall, 122 dental implants were placed into augment-

ed sites and have been followed from 12 to 180 months (mean: 76.5 months). Implant survival was 100% (satisfactory survival rate of 97.5%). Mean bone gain was 5.6mm (max: 9 mm; min: 3 mm), while vertical bone gain was 5.1 ± 1.8 mm; horizontal bone gain was 7.0 ± 1.5 mm. No intraoperative/postoperative complications were noted. Mean peri-implant bone loss values were consistent within the standards for implant success (1.4 ± 1.0 mm). At patient-level, only one patient who had three implants presented with severe peri-implant bone loss.

Conclusion: Complete reconstruction of an atrophied maxilla can be successfully achieved by means of guided bone regeneration for horizontal and/or vertical bone gain including bilateral sinus augmentation using a mixture of anorganic bovine bone and autologous bone.

Jodia K, Sadhwani B, Parmar BS, Anclia S, Sadhwani SB.

Sinus Elevation with an Alloplastic Material and Simultaneous Implant Placement: A 1-Stage Procedure in Severely Atrophic Maxillae. J Maxillofac Oral Surg (July-Sept 2014) 13(3):271-280

Objective: The aim of the study is to evaluate clinically and radiographically the long term success of one-stage direct (lateral) sinus lift procedure using alloplastic bone graft material and bio-absorbable membrane in conjunction with two stage implant placement in atrophic partially edentulous posterior maxilla.

Materials and methods: One stage direct maxillary sinus lift in conjunction with two stage implant placement was carried out in 12 patients at 13 sites. All the patients were partially edentulous with posterior maxillary alveolar ridge height of >5 mm and were in the age group of 20-50 years. Bioactive glass putty, bio-absorbable collagen membrane and 3.75×11.5 mm implants were used. Loading of implants was done 6 months after placement of implants. Patients were evaluated clinically and radio-graphically 6, 18, 30 months after placement of implants to assess increase in residual ridge height, peri-implant condition (marginal bone loss, plaque and gingival index) and implant stability.

Results: Maxillary first molar was the most common site (69.23 %) for sinus lift and implant placement. Caries was the most common cause (76.92%) for loss of tooth. Increase in residual ridge height ranged from 71.43 to 133.33% as measured by Denta-Scan. Implant survival rate was 100%. Marginal bone loss ranged from 0.68 to 1.22 mm. Implant stability was measured by periotest (-2.7 to -3.6). Only one patient had perforation of sinus membrane, but it was sealed satisfactorily by bio-absorbable membrane.



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