

Maxillary Sinus Augmentation With Deproteinized Bovine Bone and Platelet Rich Plasma With Simultaneous Insertion of Endosseous Implants

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Purpose: To investigate the clinical applicability of using deproteinized bovine bone mixed with autologous platelet rich plasma (PRP) in human maxillary sinus augmentations in severely resorbed posterior maxillary alveolar processes with simultaneous insertion of endosseous dental implants.

Materials and Methods: Fifteen patients with less than 5 mm of residual alveolar bone height in the posterior maxillary alveolus underwent a total of 24 maxillary sinus augmentations. Seventy endosseous implants were inserted simultaneously in the grafted sinuses. The implants were uncovered and loaded 4 months after insertion and the sinus augmentation. An osseous biopsy specimen was obtained from the augmented maxillary sinus in 1 patient. In 3 patients, computed tomography scans of the grafted maxillae were obtained and the bone density quantified and compared with native bone density using SIMPlant 7 (Columbia Scientific, Columbia, MD) software 4 months postoperatively.

Results: Although a total of 5 implants in 4 patients were lost, this did not result in the loss of any of the restorations, for an overall success rate of 92.9 %. Follow-up for patients in this study after insertion of the permanent restoration was between 6 and 36 months. The bone biopsy from the patients showed evidence of viable new bone formation in close approximation to the xenograft. The bone density of the grafted bone was similar or exceeded the bone density of the surrounding native maxillary bone.

Conclusion: Based on our clinical experience, we believe that the use of platelet rich plasma in combination with deproteinized bovine bone is effective for maxillary sinus augmentation with simultaneous insertion of endosseous dental implants in severely resorbed posterior maxillae.

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