Sinus bone graft and simultaneous vertical ridge augmentation – retrospective clinical study

Dong-Woo Kang¹; Young-Kyun Kim²
¹Korea; ²Seoul National University Bundang Hospital, Korea

Background: Several Vertical ridge augmentation procedures have been practiced. Clinicians have to consider the best option about the effectiveness of each procedure when choosing among them.

Aim/Hypothesis: This study aims to examine the outcome by analyzing examples of maxillary sinus lifting, bone graft, and simultaneous vertical ridge augmentation, through retrogressive studies.

Material and Methods: From 2005 to 2010, the patients who have severe alveolar bone loss due to long-term no treatment or progress periodontitis and received sinus lifting, bone graft, and simultaneous vertical ridge augmentations were selected. 15 patients who visited in Seoul National University Bundang Hospital were analyzed according to clinical records and radiography (periapical view, panorama) and evaluated postoperative complications, success and survival rate of implants, complications of prosthesis, Implant stability quotient (ISQ), Vertical resorption of grafted bone in postoperative 1, 2, 3 years and final observation and marginal bone loss.

Results: The average age of patients in total was 54.2 years. Among the 33 implants, 6 failed to survive, resulting in 81.8% survival rate, and 6 failed to success, resulting in 81.8% success rate. The ISQ of 1st surgery was 61.3 and 73.5 of the 2nd surgery or impression. Postoperative complications were characterized by 4 ecchymosis, 3 peri-implantitis, 2 sinusitis, 2 fracture of fixture, and 1 hematoma, 1 bleeding, 1 exposure of titanium mesh, 1 numbness, 1 trismus, 1 loss of fixure. Prosthetic complications involved 2 screw loosening, 1 fracture of abutment, 1 food packing. Complications were double counted on 1 implant. The resorption of grafted bone material was 0.23 mm after 1 year, 0.47 mm after 2 years, 0.41 mm after 3 years, and 0.37 mm at final observation. The loss of marginal bone was 0.11 mm after 1 year and the loss of marginal bone at final observation was 0.16 mm.

Conclusions and Clinical Implications: When sinus lifting, bone graft, and vertical ridge augmentation was practiced simultaneously, post-operative complications are increased and survival rates are low. For the long-term good prognosis, implant surgery was recommended that sufficient recovery period to ensure good bone formation and the delayed implantation after bone graft are needed.