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Maxillary sinus augmentation by sinus membrane elevation using a space-maintaining device and dental implants in the atrophic posterior maxilla

Takahiro Kaneko
Saitama Medical University, Japan

Abstract

Background: Sinus membrane elevation in combination with implant placement without grafting materials results in new bone formation in the sinus, but the amount of bone formed varies. In addition, the bone volume is often insufficient to ensure initial stability of implants in severely atrophic maxilla.

Purpose: To illustrate the clinical outcome of maxillary sinus augmentation by one- or two-stage sinus membrane elevation without using grafting materials in the atrophic posterior maxilla.

Methods: Maxillary sinus augmentation was implemented by one- or two-stage sinus membrane elevation without grafting materials. In the two-stage procedure, the sinus lifting procedures consisted of a lateral approach for space maintenance using a bone fixation device and a crestal or a lateral approach in combination with simultaneous implant placement. The pre- and postoperative alveolar crest height was evaluated using computed tomography.

Results: In both procedures, new bone formation around the implant was generally observed in accordance with the implant apex. In the two-stage procedure, after the second sinus membrane elevation with implant placement, additional medial invasion of new dense bone was observed in the sinus cavity.

Conclusions: Membrane elevation maintained for a certain period can generate new bone in the secluded space under the elevated sinus membrane, and repeated elevation of the sinus membrane is expected to increase the bone volume in the sinus.

Biography

Takahiro Kaneko is dentist in Japan that specializes in oral and maxillofacial surgery. He completed his Ph.D. from Saitama Medical University at the age of 35. Dr. Kaneko has gained significant clinical experience in maxillofacial implantology, trauma, oncology and orthognathic surgery.