Combining a Sinus Augmentation with Tooth Transplantation When Replacing a Missing Premolar in a Young Patient

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Aim

To present a case report of tooth transplantation with a graft-free sinus lift to a site which had insufficient bone volume.

Figure 1.

At the recipient site the maxillary bone thickness was 2,5 mm.

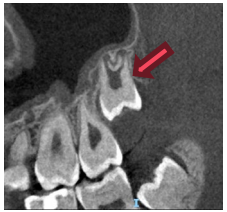

Figure 2.

The length of the root of the donor tooth was 7,5 mm and the width of the crown exceeded the width of the persisting deciduous tooth at the recipient site.

Case Presentation

An unerupted left maxillary wisdom tooth was autotransplanted to replace a missing right second premolar. At the recipient site (**Figure 1**), there was insufficient vertical bone volume under the maxillary sinus. First the donor tooth (**Figure 2)** was exposed and gently mobilized. Next a marginal incision was made in the recipient site and the buccal periosteal flap was elevated. A persisting deciduous tooth was extracted. The lateral window technique was used in the sinus lift procedure. After elevating the mucous membrane of the sinus floor, the bone was prepared to match the measures of the donor tooth. This caused a slight perforation in the mucous membrane. The donor tooth was then extracted and carefully moved to the recipient site. The buccal root partially lacked bony coverage. The transplanted tooth was fixated with sutures.

At one and four-year follow-up controls the transplanted tooth was fully erupted without any clinical or radiographical signs of pathology **(Figure 3).** Signs of pulp obliteration indicated that the pulp remained vital after transplantation. The tooth was in contact with the antagonist. It was evident from the x-ray that bone volume around the donor tooth below the maxillary sinus had increased **(Figure 4)**.

Figure 3.

During follow-up there was no sign of patology. The tooth had continued erupting and was in contact with the antagonist.

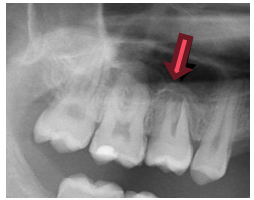

Figure 4.

It was apparent that maxillary bone volume increased between the sinus floor and the oral cavity.

Discussion

If the periodontal ligament of the transplanted donor tooth is delicately handled, it can preserve and facilitate growth of the alveolar bone. During follow-up it was obvious that new bone had formed around the roots of the donor tooth.

Conclusion and Clinical Relevance

It is possible to successfully transplant a developing tooth in the maxillary premolar region, although the initial bone volume is insufficient.

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