

# Expanding the width and height of the alveolar ridge or the alveolar section of the mandible with an allogeneic bone block

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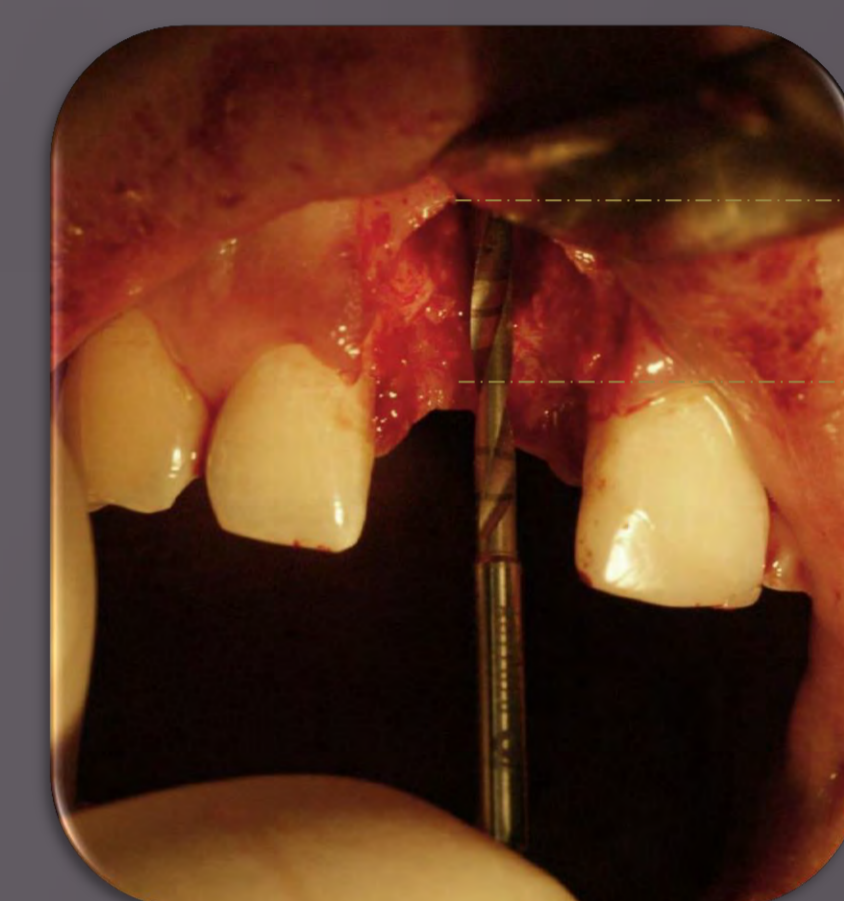
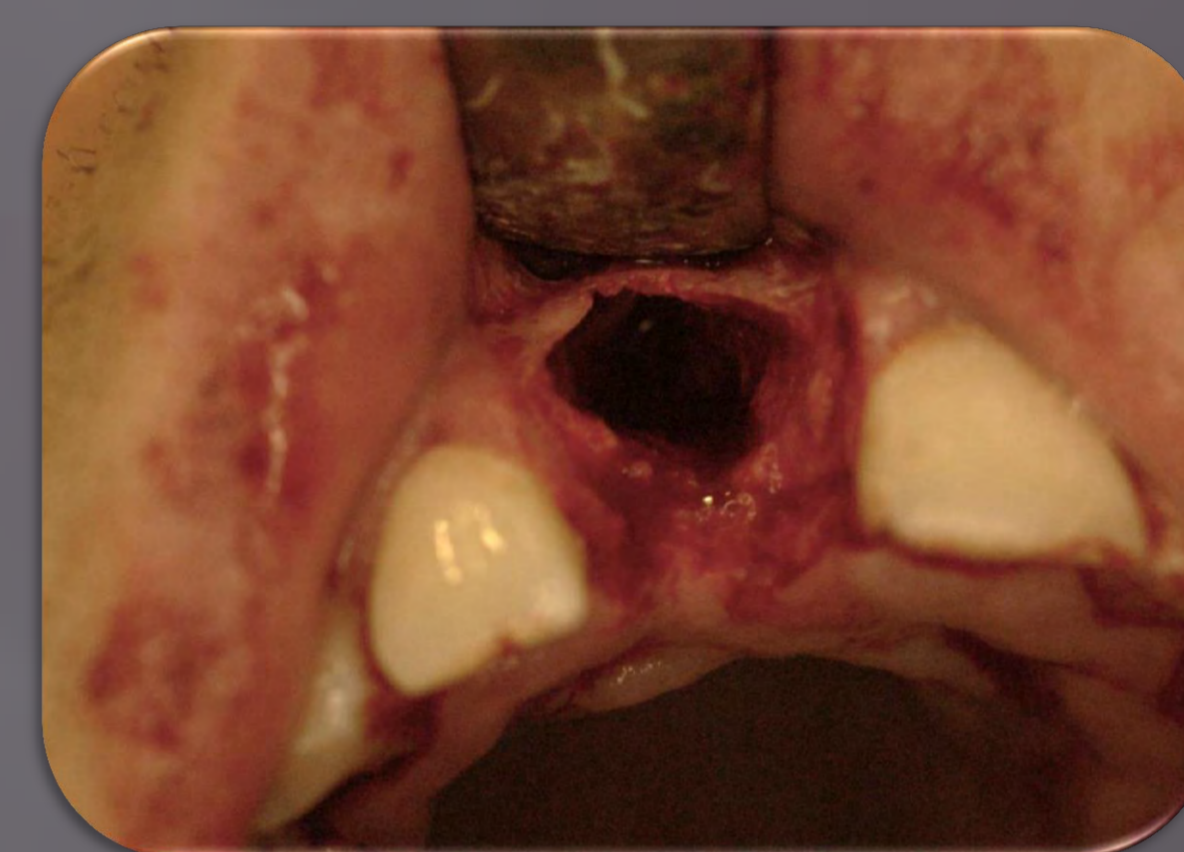
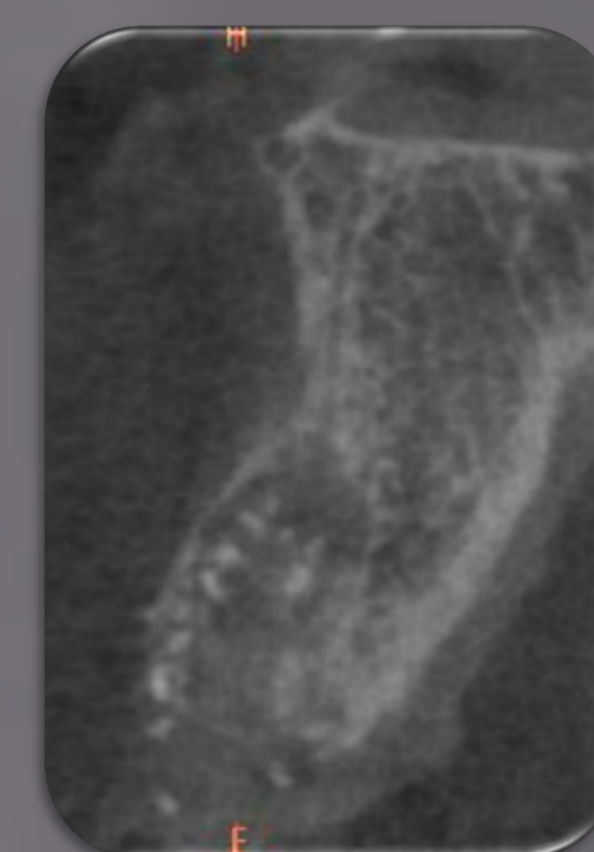
One of the common problems of implant treatment is the volume of the patient's own bone being insufficient to allow implant embedment to replace a missing tooth. Such cases require augmentation. Omission may lead to inadequate bone support for the implant or the functional and aesthetic outcome may be unsatisfactory or short-lived.

Bone regeneration procedure used frozen allogeneic bone blocks sterilised by radiation with 35 kGy and prepared by a tissue bank. Two adjacent walls of the graft were covered with compact bone.

Patients with significant atrophy within the transverse and vertical dimensions were qualified for the procedure. Bone blocks were shaped based on a CT so the lamina dura was directed outwards and towards the ridge apex, whereas the medial side reflected the recipient site accurately. Later the bone blocks were stabilised with titanium screws and covered with PRF membranes.

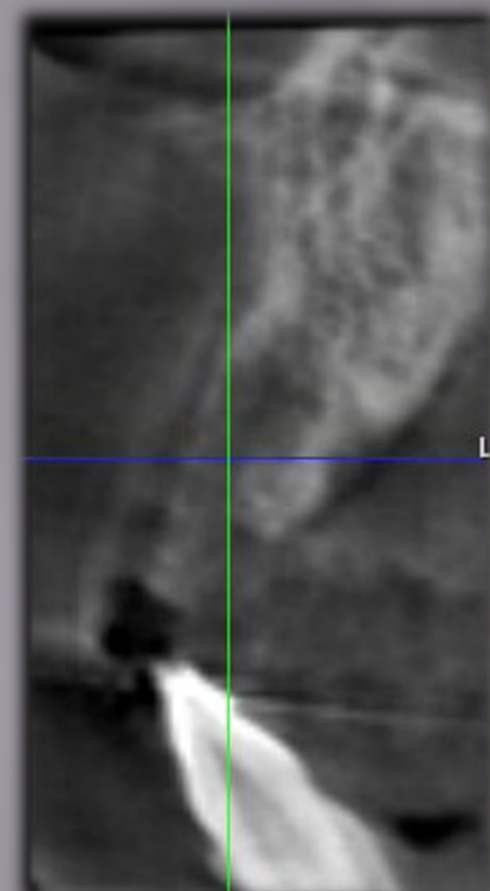


The area of tooth 11 (maxillary, right-side, central incisor). Pictures show considerable horizontal and vertical atrophy of the alveolar ridge. When smiling the patient revealed a significant part of the gingiva, which made high aesthetic standards necessary within this area.

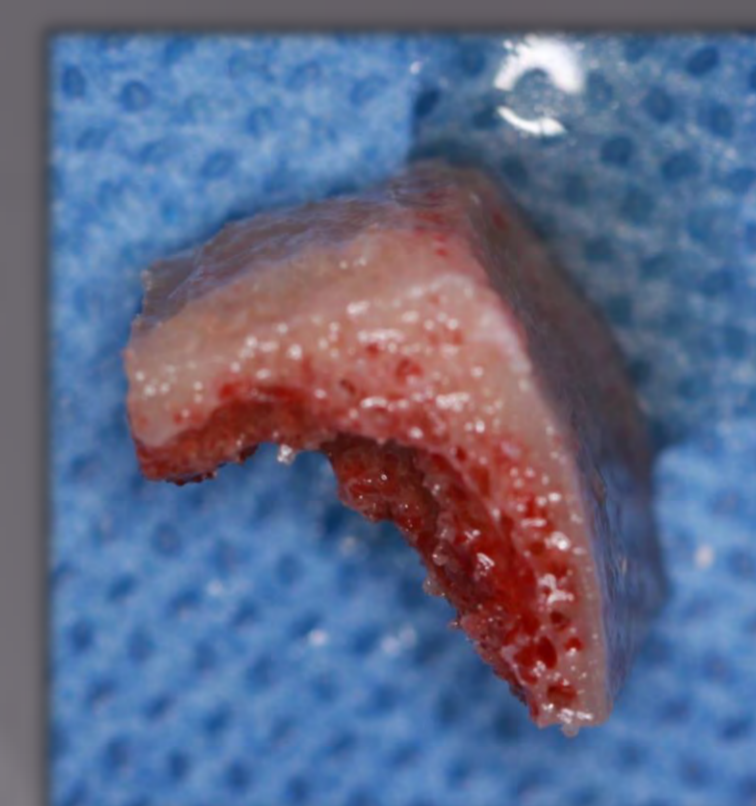


7mm

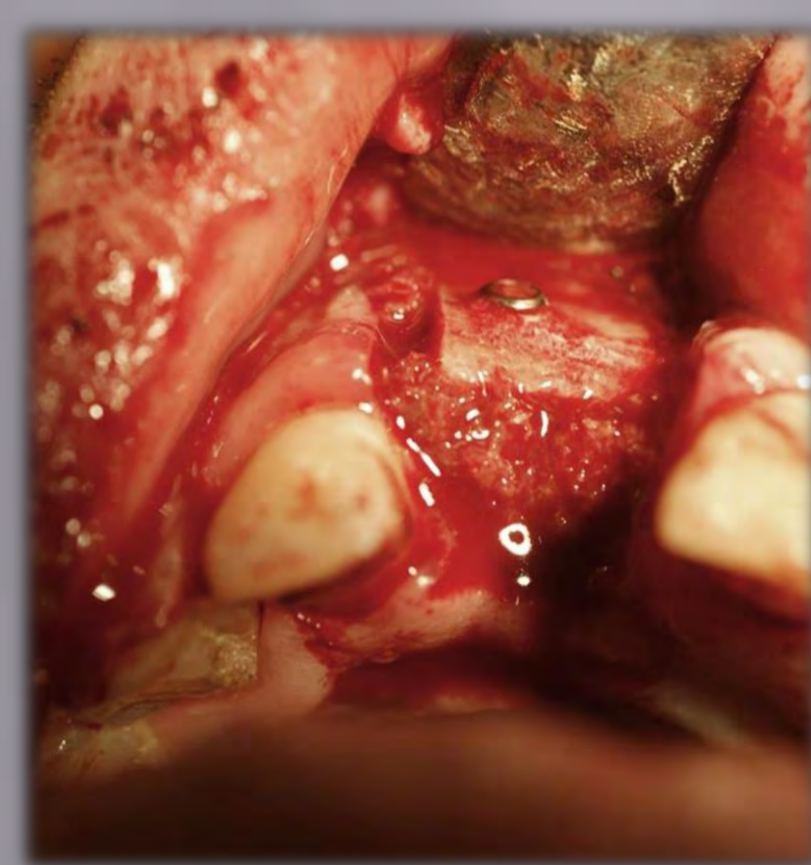
After the mucoperiosteal flap was detached inflammation was found as well as a significant bone defect with a 7 mm vertical atrophy of the alveolar ridge compared to the bone level at the adjacent teeth.



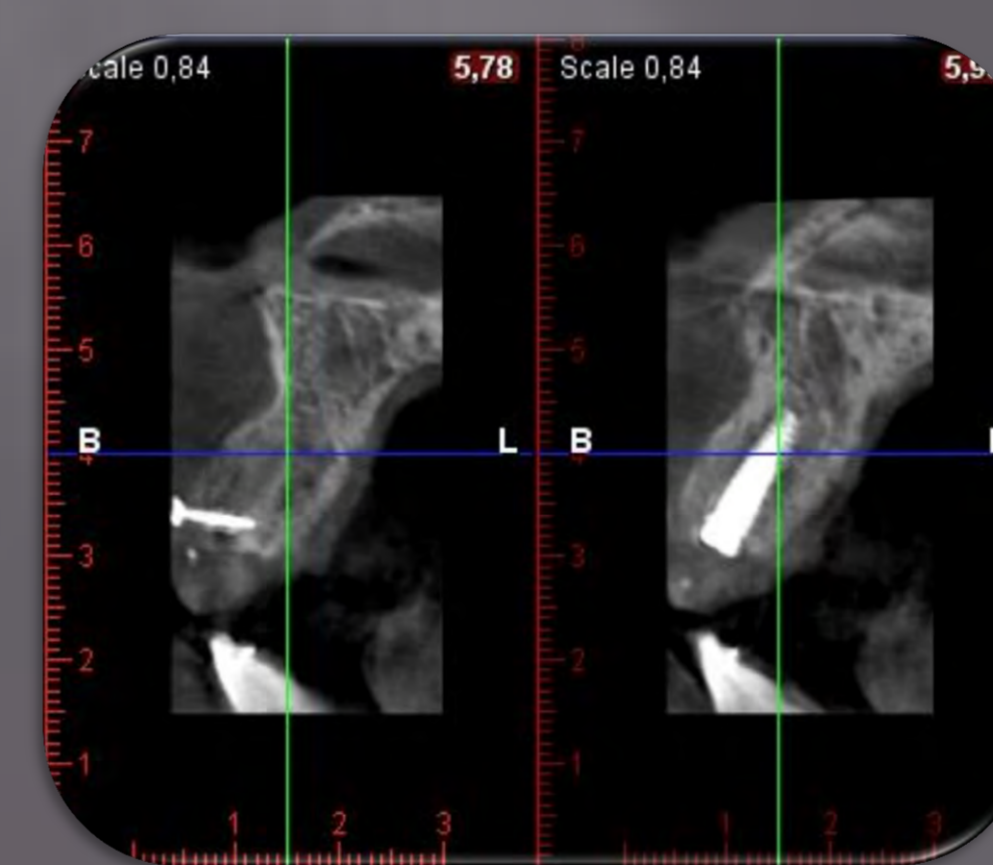
The status at 6 months after the inflammation was cured and the bone healed spontaneously. Visible significant reduction of the bone defect with unchanged 7mm defect within the vertical dimension.



The L-shaped, allogeneic bone block with lamina dura used for the width and height expansion within the alveolar ridge. The lamina dura forms a right angle.



After the implant was embedded in optimal position and primary stability was obtained the bone block was adjusted to the shape of the bone defect and the alveolar ridge. The graft was stabilised with a titanium screw and sealed with bone shavings. The entire area was covered with PRF membranes.



CT at 6 months after the width and height of the alveolar ridge were expanded. Normal shape of the ridge and stable amount of the bone were provided.



The status at 6 months after the implant-prosthetic treatment was completed. Soft tissues developed the final, normal contour and level.



With an allogeneic bone block the width and height of an alveolar ridge was expanded both, within its lateral as well as frontal section in X patients. In all the cases after 3 to 6 months of graft reorganisation the optimal ridge width was obtained, which allowed implant embedment or correct immersion of the graft in the bone tissue when implant embedment was performed simultaneously. Histopathological testing of the grafts confirmed normal bone nourishment and reorganisation. The final shape of the ridge allowed implant-prosthetic restoration of high aesthetic standards.

Several years of clinical observations confirmed that allogeneic bone in the form of a block constitutes adequate material for expanding the width and height of the alveolar ridge, particularly in difficult and complicated cases.

## Literature:

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3. Schlee M, Dehner JF, Baukloh K, Happe A, Seitz O, Sader R. Esthetic outcome of implant-based reconstructions in augmented bone: comparison of autologous and allogeneic bone block grafting with the pink esthetic score (PES). *Head Face Med*. 2014 May 28;10:21. doi: 10.1186/1746-160X-10-21.