

# Surgical and prosthetic restoration of a horizontal resorbed edentulous mandible

- a case report -

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## Introduction

There is probably no other treatment method that turns our patients' quality of life for the better so critically and predictably as the restoration of the edentulous jaw using implant-supported dental replacements [1]. Independent of the prosthetic concept the adequate bone volume is important for the possibility to insert dental implants. So developing of prosthetical and surgical concepts showing high success rates even for patients with poor bone conditions is important.

## Case report

For augmentative surgery the presented case was treated with a mixtures of bovine hydroxylapatite (BioOss, Geistlich Biomaterials, Switzerland) and particulated autologous bone scraped from the linea obliqua. Two collagen membranes (BioGide, Geistlich Biomaterials) were adapted with seven absorbable pins (Inion Tacks, Inion OY, Finland). On both sides, one pin was placed distal and cranial from the foramen mentale and another one caudal and mesial. A fifth pin was used to adapt both membranes median. The bone mixture was adapted and the membranes were pinned lingual on the left and the right side.

The implants (XiVE-S, Dentsply Implants, Germany) were placed full guided in a separate surgery 4 months later (EXPERTease, Dentsply Implants). To realize a wider support for the bar the distal implants were inserted with an angle of 30°. By reopening the implants a vestibuloplasty was conducted by using a Mucogarft Matrix (Geistlich Biomaterials). Multi unit abutments (MP-Abutments, Dentsply Implants) were inserted to the Implants (mesial 0°, distal 30°) to generate optimal conditions for the impression with parallel impression posts.

The bar was central milled (Atlantis-Isus, Dentsply Implants) and the reconstruction was manufactured as published before [2][3].

## Discussion

For such cases, we used autologous bone blocks, allogeneic bone blocks and mainly mixtures of bovine hydroxylapatite (BioOss) and particulated autologous bone adapted with absorbable pins and collagen membranes.

The shown surgical procedures allow a relative easy and predictable way to reconstruct the strongly horizontal resorbed mandible. Because of the easier and therefore faster adaption and shaping of the bone material and the resulting shorter duration of the operation particulated mixtures of bovine hydroxylapatite and autologous bone seems to be the material of the first choice. Furthermore the reconstruction with a central milled titanium bar ensures a tension free fit of reconstruction which avoids loss of the reconstructed bone.



Figure 1: Central manufactured titanium bar



Figure 2: Denture



Figure 3: Situation before treatment

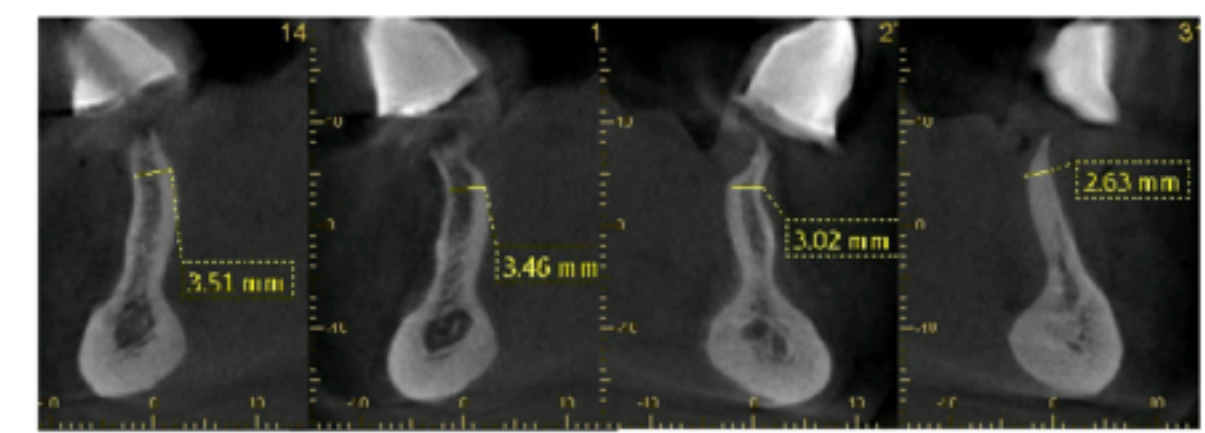


Figure 4: DVT before treatment

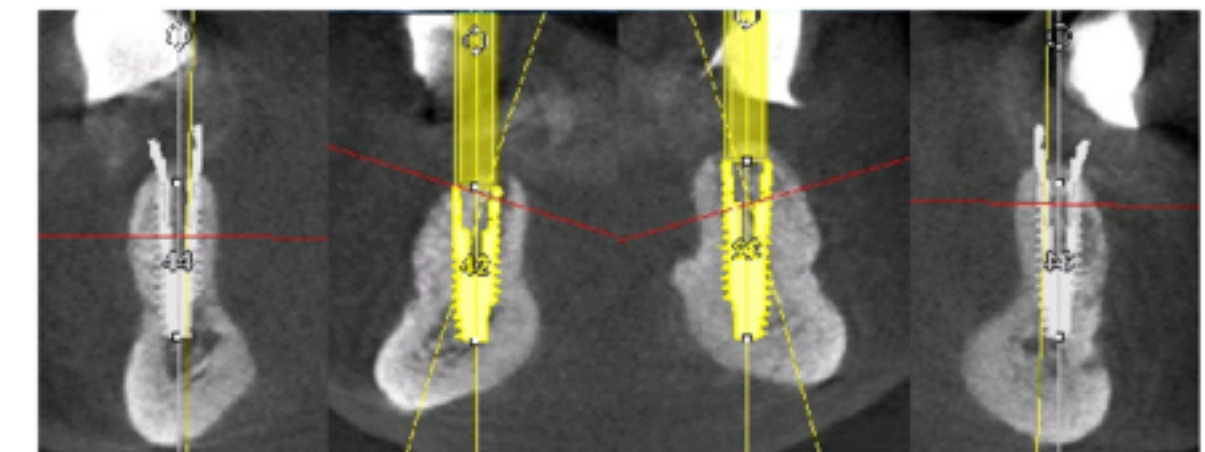


Figure 5: DVT after augmentation



Figure 6: Grafted situation 4 months after augmentation

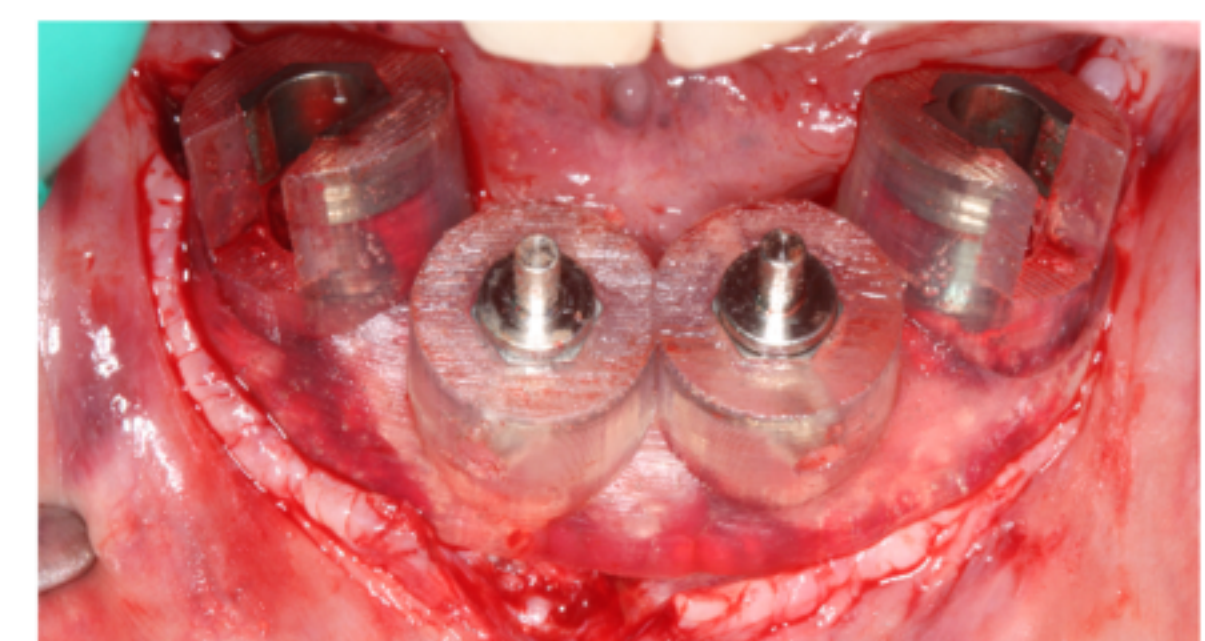


Figure 7: Surgical guide

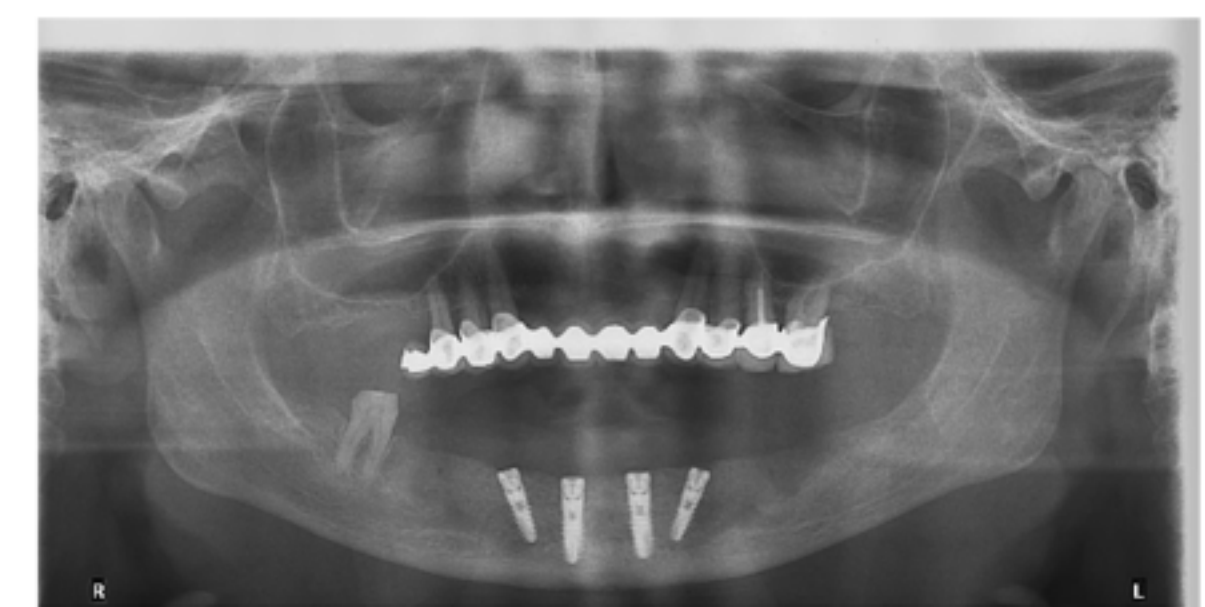


Figure 8: OPG after implant placement

[1] S. A. Alfadda, N. J. Attard, and L. A. David. Five-year clinical results of immediately loaded dental implants using mandibular overdentures. *Int J Prosthodont*, 22(4):368-73, 2009.

[2] A. Lohmann. Cad/cam-basierte versorgung eines zahnlosen oberkeifers. *Identity*, pages 38-41, 2011.

[3] A. Lohmann. Patientenindividuelle teleskope und stege in kombination - mehr als cad/cam. *DENTSPLY Implants Magazin Deutschland/Schweiz*, (2), 2015.



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