

Implant supported tooth by tooth restoration with limited abutment changes

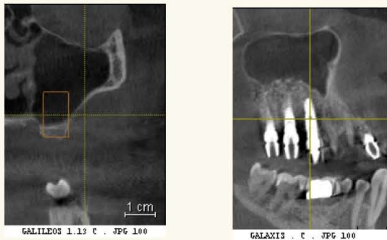
Bergmann-F, Wunder-A, Drews-DJ, Muller-U, Lucka-C
 Heidelberger Str. 5-7, 68519 Viernheim, Germany

Kindly supported by DENTSPLY Friudent

Introduction

A 55-year old, partially edentulous, female patient asked for a tooth-by-tooth full ceramic restoration, based on natural teeth and implants.

Due to a limited amount of residual bone, 3D-diagnostics were chosen for planning the augmentation and implantation.



Sinus lift and bone augmentation were conducted and simultaneously 4 XiVE® implants were selected and inserted in the upper jaw, to get a sufficient primary stability in the crestal bone.

Method

After the healing phase the implants were revealed.

An optimized teamwork between the dental technician and the dentist allowed to use the final ceramic abutments already for the temporary bridges. These abutments are manufactured as individual ZrO-abutments taking the emergence profile of the gingiva into account.

Bone training was performed with metal supported provisional acrylic bridges for 6 weeks. After the bone training phase the provisional bridges were replaced by the final full ceramic restoration.

Results

By the bone training the residual and the augmented bone were functionally loaded, thus it was possible to stabilize the residual bone and to support the bone remodeling.

The limited abutment changes provided a minimum of soft tissue irritation.



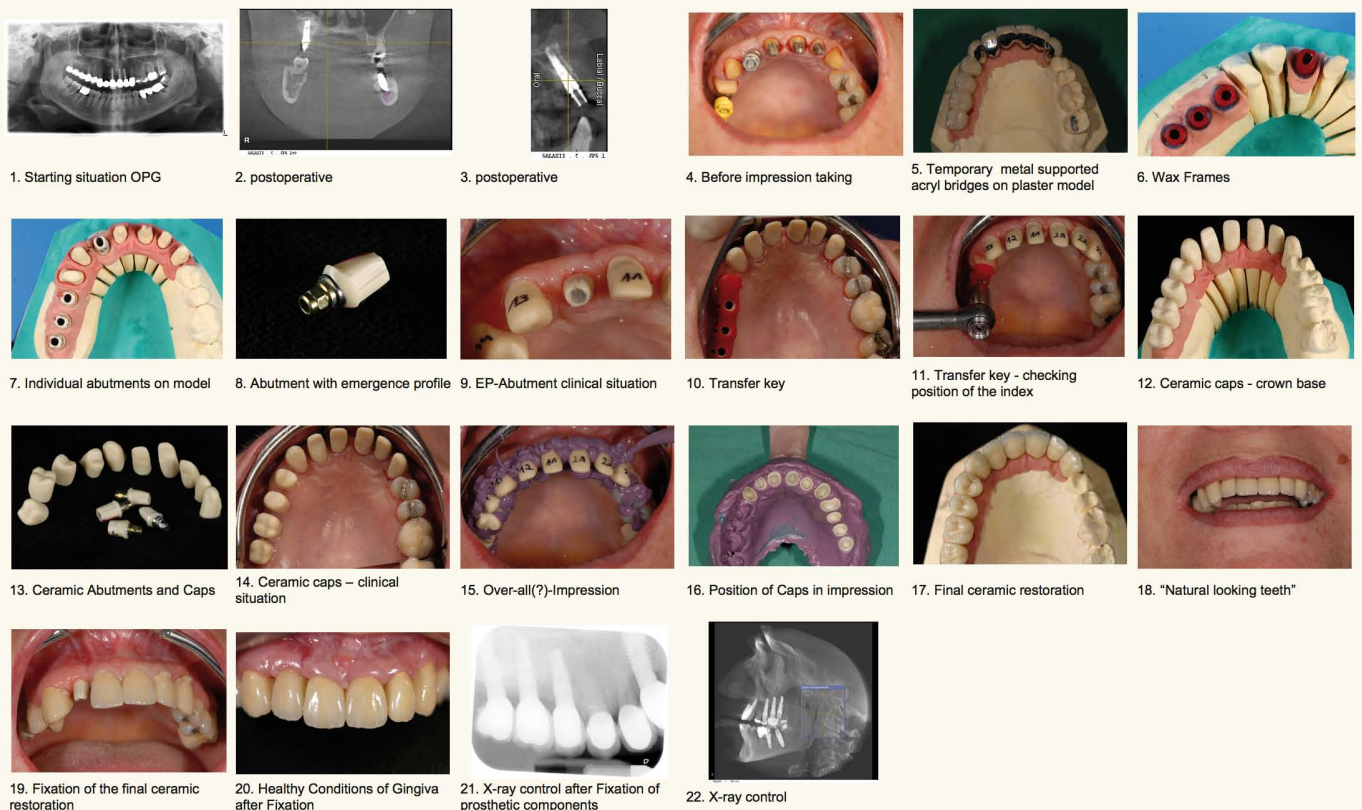
Conclusion

3D diagnostic supports the surgeon during planning phase in cases with limited bone volume efficiently.

A thorough preplanning of prosthetic components is necessary for a high effective tissue care treatment.

Bone training activates the periimplant bone tissue and provides a physiological adaption to the natural chewing forces in an early stage.

Individual ZrO abutments allow to take the emergence profile into account and thus to reduction of soft tissue irritations.



Single tooth replacement

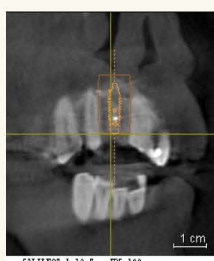
reconstruction and preservation of the buccal plate by block transplantation and palatinal positioning of the implant

Bergmann-F, Drews-DJ, Busenbender-R, Muller-U
Heidelberger Str. 5-7, 68519 Viernheim, Germany

Kindly supported by DENTSPLY Friudent

Introduction

Due to a fistula after several unsuccessful treatments the tooth 11 of a 44-year old, male patient was supposed to be replaced by an implant.



The 3D-diagnostics showed a great lack of bone in the vestibular area of region 11. Therefore the surgeon decided to augment the socket by a small block transplant.

Method

The bony defect of the buccal plate in region 11 was augmented with an autologous bone transplant, harvested from the lower jaw. An osteo-synthesis screw was used for fixation of the bone block.

A layer of non-resorbable hydroxy apatite was applied to prevent resorption of the bone block and a resorbable collagen membrane covered the site.

After a healing time of 15 months a XiVE® implant was inserted in a very palatinal position to leave a minimum thickness of 1.5 mm of the buccal plate untouched.

6 months later an individual ZrO abutment, which corresponds with the emergence profile (EP) of the gingiva and a full ceramic crown were placed on the implant.

Results

By transplanting autologous bone and selecting an optimal implant position a stable and vital buccal wall could be remodeled.

A bio-compatible ZrO abutment was able to establish a healthy gingival complex without any signs of inflammation.

Due to the defined subgingival placement of the border between abutment and crown just 0.5 mm below the gingival margin, cleaning and cement removal were safe and easy.

A good esthetic result could be achieved.

Conclusion

A sufficient palatinal positioning of the implant and the utilization of an individual, ZrO emergence profile support a perfect esthetic outcome, even in esthetically highly demanding zones.



1. Starting situation: persisting fistula at tooth 11



2. OPG showing the bony defect of the buccal plate of 11



3. Diagnostic model and wax-up



4. Intraoperative: the expanded bony defect



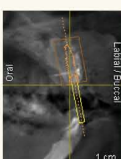
5. Block transplant fixed with a small osteosynthesis screw



6. Protective layer of hydroxyapatite bone substitute material



7. Covering collagen membrane



8. 3D-diagnostics and planning of the optimized implant position



9. Removal of the osteosynthesis screw



10. Palatinal position - sensitive drilling to harvest autologous bone chips



11. Inserting the XiVE implant - behind the vestibular tangent



12. XiVE implant and TempBase



13. Healthy gingiva tissue



14. Emergence profile in plaster cast



15. Individual ZrO abutment with well visible the "buccal balcony"



16. Full ceramic crown adjusted to the gingiva level



17. Situation before placing the crown



18. High esthetic result with stable and inflammation free soft and hard tissue



19. Implant and crown position matches the natural anatomic morphology



20. x-ray control: smooth crossing from abutment to crown