

One year of experience with "crown abutments" for single tooth restorations

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Topic: Implant therapy outcomes, prosthetic aspects

Abstract

With the CAD/CAM fabricated crown abutments it is possible to produce screw retained single crowns without any use cement. The dental ceramic is directly fired to the abutment in the supragingival area. With this technique the zirconia surface is inside the soft tissue area and there is no contact of the dental ceramic to the gingiva. Within the 1 year period there were no mechanical and biological complications.

Background and Aim

Surplus of cement is discussed as an etiological factor of early peri-implant diseases. To eliminate this risk factor CAD/CAM zirconia abutments are available since the EAO meeting 2011. These abutments are individualized with dental ceramic and fixed directly to the implant, using an occlusal access to the screw.

Methods and Materials

18 crown abutments with 4 different interfaces were used for the replacement for molars and bicuspid in the maxilla and in the mandible. 13 impressions were made using a closed tray, 5 with an open tray. Stone casts with flexible gingiva masks were manufactured as usual. The crown abutments were designed using a wax-up for all crowns and using a cut-back software to create the space for an optimal thickness of the individual dental ceramic. In the dental laboratory there was a special focus on the proximal contact point. The contact point is created step by step regarding the different indices of the implant systems. A guide splint was made for every restoration to place them exactly to the implants in the final position. Before the fixation of the screws all proximal contact points were checked clinically for the first time. The crown abutments were now directly screwed to the implant, using the recommended torque. The proximal contact point was now checked for a second time. Intra oral x-rays were made to control the precise fit before closing the access hole with composites using the right shade. All restorations were clinically checked in 3 months intervals.

Results

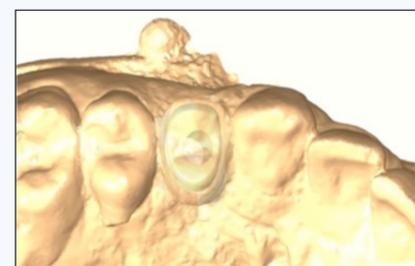
All crowns could be placed without corrections of the proximal contact point. After placement a light anemia disappeared after 5 to 10 minutes. Although the dental hygiene was not perfect in some patients, the soft tissue around these crowns showed no clinical sign of inflammation.

Conclusions

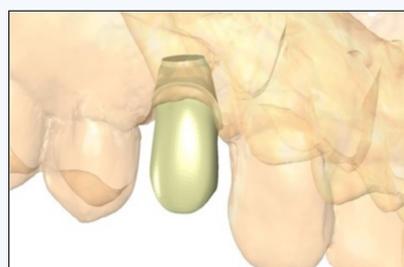
Due to the fact, that there is no need for any kind of cement, zirconia crown abutments seems to be an ideal way for single crown restorations on implants with a perfect axial position.



1. Wax-up occlusal view



2. WebOrder occlusal image with wax-up



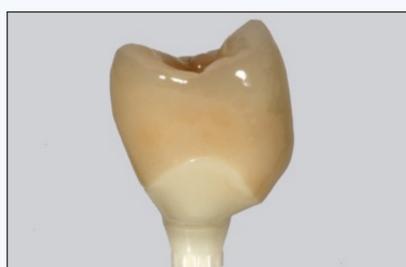
3. WebOrder buccal view



4. Crown abutment



5. Final restoration occlusal access hole



6. Crown abutment with ceramic veneer



7. Screw in key



8. Screw in key



9. Check proximal contact point



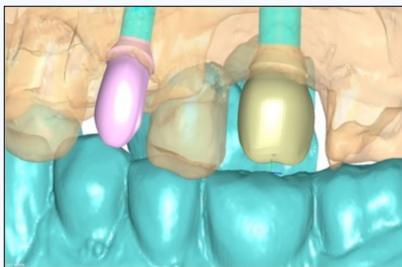
10. Close access hole with composites



11. Final restoration buccal view



12. Intraoral X-ray



13. WebOrder buccal view



14. Crown abutments



15. Final restoration



16. Final restoration occlusal access holes



17. Close access hole with composites



18. Final restoration



19. One year later



20. Intraoral X-ray

References

- Literature:
 1*Linkevicius T, Vindasiute E, Puisys A, Peciuliene V. The influence of margin location on the amount of undetected cement excess after delivery of cement-retained implant restorations. Clin Oral Implants Res. 2011 Dec;22(12):1379-84.
 2*Wilson TG. Relationship between excess cement and periimplant disease: a prospective clinical endoscopic study. J Periodontol. 2009 Sep;80(9):1388-92 The positive

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