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Examination of the individual formation of the emergence profile with subgingival ceramic bevel after two years of function

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Introduction

With a castable abutment of the Astra Tech Implant System, after casting of a fuseable metal alloy, a ceramic step of individual colour and form was placed in the cervical area.

Objectives

Aesthetical aspects have become increasingly important especially for restorations of anterior teeth. Many patients do not like metal abutments shining through the gingiva.

Material and Methods

After three months of healing 30 patients had their implants exposed. Incision was made in the middle of the alveolar ridge, the soft tissue was minimally mobilized in vestibulo-oral direction. On the oral side, soft tissue was removed by a 4 mm punching machine. In 16 implants temporary Dentalon-lined Ion-crowns (3M) were installed on temporary abutments with a cross section according to the tooth to be replaced (case 1, fig. 1-2). In 30 implants prefabricated healing abutments were placed (case 2, fig. 7). Due to a temporary anemia, the soft tissue was suppressed by the temporary crown as well as by the healing abutment. After a healing period of 2 weeks an impression was made by an individual spoon. The round emergence profile produced by the healing abutment (fig. 7) was first formed with the pattern resin put on to the impression abutment (fig. 8) and then individual trimming followed after the impression abutment had been removed (fig. 9). For the final impression the impression abutment was again screwed in the implant. A impression of the individually modelated emergence profile through the temporary crowns was made right after removal of the temporary crown. The modelling was made with a gingival mask. After casting an alloy to which porcelain may be fused ceramic steps were fused in individual colours. The fused ceramic steps (fig. 4, 11) were isogingival in 19 patients with 31 restorations, in 11 patients with 15 restorations they were supragingival. All metal-free restorations were fixed by Giasionomer cement (Fuji). After placing the restoration intraoral x-ray images (Kodak Ultraspeed D) were made. The Burn-out-effect (fig. 15, 22) shows the different x-ray behaviour of the fused aluminiumoxid ceramic step and the the zirkonoxid ceramic of the metal-free restoration. After two years of function and three months of hygienic control the 30 patients were reexamined clinically and radiologically. The evaluation of the periimplant soft tissue was made by the gingival index (GI) according to Loe and Silness (1963) and the papillar bleeding index (PBI) according to Saxer and Mühlemann (1975). Intraoral x-ray images were made as described above. The evaluation of the x-ray images was made by the FRIACOM X-Ray Digitizer.

Results

The periimplant soft tissue situation was normal. The x-ray images showed stable bone conditions (max. -0,2 mm bone loss with a mean value of -0,03 mm). All patients were very satisfied with the aesthetic and functional results of the restoration.

Clinival examples

Case 1, Modelling of the emergence profile with a temporary crown



Fig. 1: Temporary crown

Fig. 2: Modelated emergence profile

Fig. 3: Impression abutment



Fig. 4: Fused ceramic step



Fig. 5: Restoration after fixation



Fig. 6: 2 years follow up

Case 2, Extraoral modelling of emergence profile



Fig. 7: Healing abutment



Fig. 8: Impression abutment with pattern resin



Fig. 9: Impression abutment with pattern resin after individual trimming



Fig. 10: The fused ceramic bevel



Fig. 11: Installation of the restoration



Fig. 12: 2 years follow up



Fig. 13: Abutment and metal free restoration



Fig. 14: Installation of the restoration

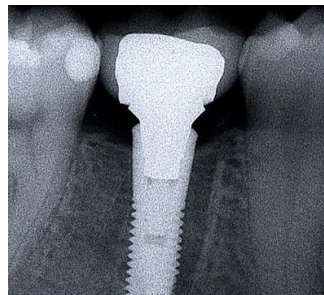


Fig. 15: Control after placement



Fig. 16: 2 years follow up



Fig. 17: 2 years follow up

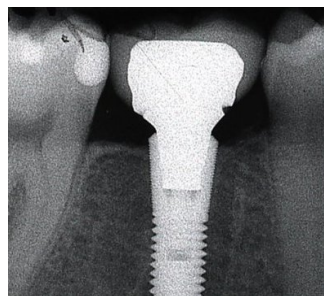


Fig. 18: 2 years follow up



Fig. 19: Model situation



Fig. 20: The fused ceramic bevel



Fig. 21: Placement of the restoration

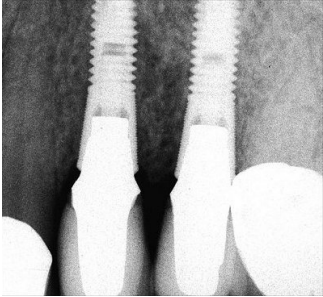


Fig. 22: Radiological control after placement



Fig. 23: 2 years follow up

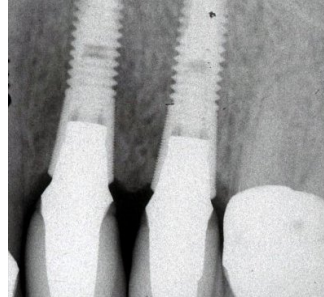


Fig. 24: 2 years radiological control

Discussion and Conclusions

A subgingival ceramic step shows no disadvantages regarding the periimplantological soft tissue situation. By adapting the emergence profile to the cross section of the tooth to be replaced, a significantly better hygiene is possible compared to a more round cross section, resulting in completely non-irritated soft tissues.

This Poster was submitted by [Luis Gallardo-Lopez](#).

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EXAMINATION OF THE INDIVIDUAL FORMATION OF THE
EMERGENCE PROFILE WITH SUBGINGIVAL CERAMIC BEVEL AFTER
TWO YEARS OF FUNCTION

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Introduction

Aesthetical aspects have become increasingly important especially for restorations of anterior teeth. Many patients do not like metal abutments shining through the gingiva. With a castable abutment of the Astra Tech implant system, after casting of a fusible metal alloy, a ceramic stop of individual colour and form, was placed in the cervical area.

Material and method

After three months of healing 30 patients had their implants exposed. Incision was made in the middle of the alveolar ridge, the soft tissue was minimally mobilized in vestibulo-oral direction. On the oral side, soft tissue was removed by a 4 mm punching machine. In 16 implants temporary Dentalon-lined ion-crowns (3M) were installed on temporary abutments with a cross section according to the tooth to be replaced (case 1, fig. 1-2). In 30 implants prefabricated healing abutments were placed (case 2, fig. 7). Due to a temporary anoma, the soft tissue was suppressed by the temporary crown as well as by the healing abutment. After a healing period of 2 weeks an impression was made by an individual impression tray. The round emergence profile produced by the healing abutment (fig. 7) was first formed with the pattern resin put on to the impression abutment (fig. 8) and then individual trimming followed after the impression abutment had been removed (fig. 9). For the final impression the impression abutment was again screwed in the implant. An impression of the individually modelled emergence profile through the temporary crown was made right after removal of the temporary crown. The modelline was made with a gingival mask. After casting an alloy to which porcelain may be fused ceramic steps were fused in individual colours. The fused ceramic steps (fig. 4, 11) were isoringival in 19 patients with 31 restorations, in 11 patients with 15 restorations they were supragingival.

All metal-free restorations were fixed by Glasioomer cement (Fuji). After placing the restoration intraoral x-ray images (Kodak UltraSpeed D) were made. The Burn-out-effect (fig. 15, 22) shows the different x-ray behaviour of the fused aluminiumoxide ceramic step and the the zirconoxide ceramic of the metal-free restoration.

Follow-up examination

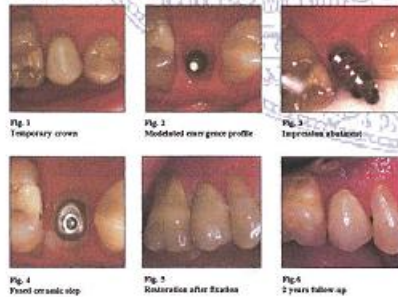
After two years of function and three months of hygienic control the 30 patients were reexamined clinically and radiologically. The evaluation of the perimplant soft tissue was made by the gingival index (GI) according to Loew and Silness (1963) and the papular bleeding index (PBI) according to Sexor and Mühlemann (1975). Intraoral x-ray images were made as described above. The evaluation of the x-ray images was made by the FRIACOM X-Ray Digitizer.

Results

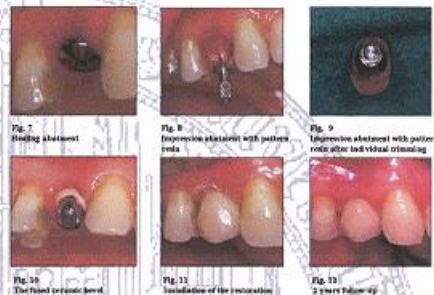
The perimplant soft tissue situation was normal. The x-ray images showed stable bone conditions (max. -0.2 mm bone loss with a mean value of -0.03 mm). All patients were very satisfied with the aesthetic and functional results of the restoration.

Clinical examples

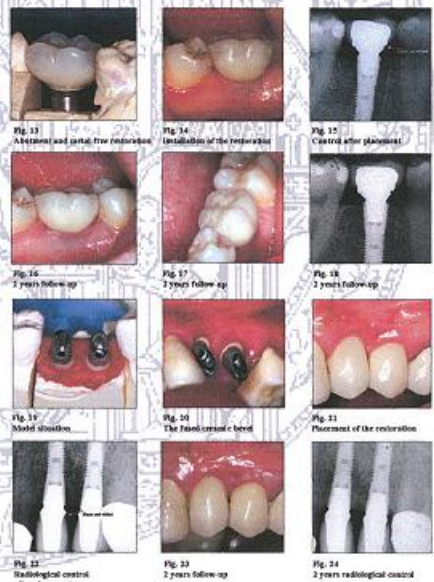
Case 1, Modelling of the emergence profile with a temporary crown



Case 2, Extraoral modelling of the emergence profile



Clinical and radiological control after two years of function



Conclusion

A supragingival ceramic step shows no disadvantages regarding the perimplantological soft tissue situation. By adapting the emergence profile to the cross section of the tooth to be replaced, a significantly better hygiene is possible compared to a more round cross section, resulting in completely non-irritated soft tissues.

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