



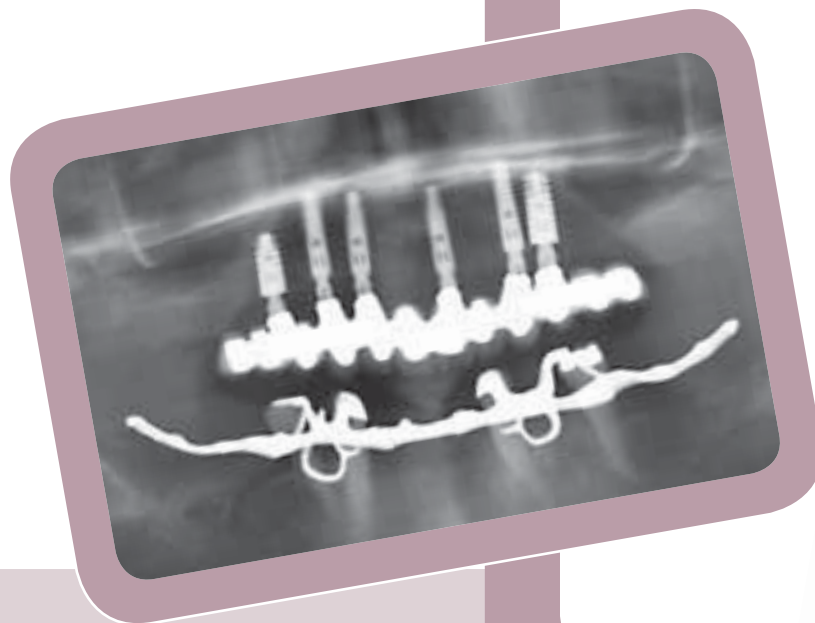
dress rehearsal for new fixed teeth

Two-stage temporary restoration for complete maxillary bridge on Ankylos implants

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Loosened and hence protruding teeth are a problem. A new, fixed restoration is often only possible with the use of implants. If necessary, the relationship between red and white, in other words between visible gingiva and tooth material, can be corrected in the process. This article shows how the transition to an implant-supported bridge in such a case can safely be achieved in a cost-saving and patient-friendly way.

When patients come into the dental practice wanting complete dental rehabilitation, they have often put off dental treatments for many years. This can result in esthetic, functional and phonetic problems. To avoid disappointment and discussions with patients, the corrections to tooth position and occlusion planned for the new restoration should already be incorporated into the temporary components. If implants are planned, this can be done with a fixed temporary bridge, which can be fixed onto remaining natural teeth, temporary or definitive implants, depending on the initial situation.



If, however, an immediate fixed solution is not possible because of a lack of anchorage possibilities or for economic reasons, the only option for the transitional period remains a mucosa-supported interim complete denture. The only purpose of this “provisional” solution is to meet fundamental demands in terms of function and esthetics. The Royal College of Surgeons in London accordingly defines this as a “provisional restoration”.

This contrasts with the temporary denture that has a diagnostic and therapeutic purpose, which is defined as a “transitional restoration” by the Royal College of Surgeons. In the Glossary of Oral and Maxillofacial Implants, a “transitional restoration” is defined as a restoration that “facilitates the transition from one restorative phase to another”. As it anticipates the definitive restoration as accurately as possible, it might also be described as a “dress rehearsal”. Provisionals and diagnostic restorations will be discussed below.

1_ A 69-year-old patient with advanced marginal periodontitis and protruding anterior teeth wishes to have a new esthetically attractive restoration.

2_ To prevent further spreading of the anterior teeth in the maxilla and mandible, they were splinted with composite.

3, 4_ The class II/1 dentition can be seen on the lateral view. As the patient would like to show less red and more white with her new restoration, reduction of the gingival proportions was planned.

5_ The orthopantomogram, together with the clinical findings, shows that only four teeth can be retained in the mandible. The rest of the teeth have to be extracted.

6_ The surgical guide fabricated with the aid of the duplicated interim prosthesis pre-defines the surgical "corridor" for immediate implant placement. The position of the implants is clearly displaced palatally in comparison with the extracted teeth.

7_ The definitive abutments are already chosen using Ankylos Standard try-in abutments. A short gingiva former is fitted to the implants, which heal submergedly.

8_ After suturing of the soft tissues, both jaws are first fitted with removable interim (provisional) prostheses.

9_ After the healing phase, esthetics, function and phonetics are checked with the set-up for the definitive bridge. Based on the set-up, a fiber-reinforced temporary bridge (diagnostic denture) is fabricated in the dental laboratory.

10_ Day of uncovering: the basally ground back temporary bridge provides enough space for the polymerization of the plastic copings, which are placed on the abutments.



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CASE REPORT: IMMEDIATE IMPLANT PLACEMENT

At the start of the treatment our patient was aged 69 and had neglected her teeth for a long time (Fig. 1 to 5). As well as caries and defective fillings, she consequently had profound marginal periodontitis (Fig. 5), which had led to 8–10 mm deep pockets and extremely loose teeth. In addition, the patient had Angle class II/1 distocclusion with corresponding protrusion of the maxillary anterior teeth. This was probably further exacerbated by the periodontal disease (Fig. 3 and 4).

To halt this development, the former dentist splinted the front teeth in the maxilla and mandible using composite (Fig. 1). The periodontitis had not caused exposure of the necks of the teeth in this patient. However, she felt that the large proportion of visible gingiva was unsightly and wanted less red and more white for her new restoration.

In view of the problems outlined above, all the remaining teeth had to be extracted, with the exception of 35, 33, 43 and 44. We planned an implant-supported, fixed metal-ceramic bridge for the maxilla but, for reasons of cost, only a clasp-anchored partial denture was possible in the mandible. The previously fabricated interim maxillary denture (provisional) was duplicated and a surgical guide was produced from it.



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ABUTMENT SELECTION AND PROVISIONAL RESTORATION

The surgical guide predefined the position of the six Ankylos implants in the three spatial planes (Fig. 6). As a result we were already able at this stage to choose the definitive Ankylos Balance Posterior abutments with the aid of try-in abutments (Fig. 7). These were then customized (maximally reduced) in the dental laboratory and fitted with individual acrylic caps.

As bone resorption had reduced the height of the alveolar process, the bone margins of the alveolar cavities did not have to be additionally contoured with milling tools. The alveolar process had been suitably etched on the cast for the interim prosthesis. We screwed in a short gingiva former before suturing in order to aid uncovering of the implants. However, the healing process was submerged (taking about four months). We also used the surgical guide in conjunction with silicone material for registration. Finally we fitted both jaws with the interim prostheses (Fig. 8).

SET-UP AND FIXED TEMPORARY RESTORATION

In the meantime the dental technician produced the definitive set-up with the aid of the registration. After healing of the soft tissues, we used this to carry out the esthetic, functional and phonetic try-in (Fig. 9). In the dental laboratory, the set-up



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was then stabilized with a fiber-reinforced acrylic base and thus reworked into a fixed temporary (diagnostic) bridge (Fig. 10). So that they do not come into contact with the abutments when lining the bridge in the mouth, the fibers used for reinforcement must be placed as far incisally and occlusally as possible. The base is generously ground back. Furthermore the base of the bridge should be supported broadly enough on the mucosa to ensure the correct vertical position.

On the day of uncover, we removed the gingiva former lying subgingivally, screwed in the customized definitive abutments and aligned them in parallel (Fig. 11). The possibility of non-indexed positioning of the Ankylos abutments in the dental arch is a major advantage in this regard. Before insertion of the diagnostic bridge, we placed plastic copings onto the abutments and checked whether the bridge came into contact with them. We lined the bridge with composite. The plastic copings placed onto the abutments were polymerized at the same time (Fig. 12). We finally cemented the bridge with temporary cement (Fig. 13 and 14).

FINAL REGISTRATION AND BRIDGE

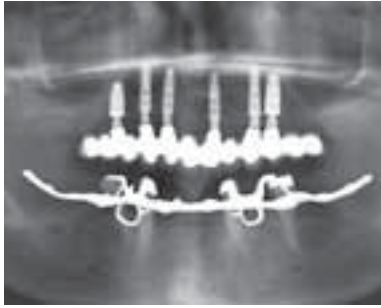
Six weeks after insertion, the patient was satisfied with the esthetics, function and phonetics of her diagnostic bridge. The dress rehearsal had been a success.



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11_The implants are uncovered, the gingiva former removed and the definitive abutments are screwed in and aligned in the dental arch.

12_The lined temporary bridge with acrylic copings “gathered together” is ready for cementing.

13, 14_The fixed temporary bridge in the patient’s mouth. The diagnostic denture already gives the patient a very good impression of the definitive restoration.

15a, 15b_Six weeks after insertion of the temporary bridge, an impression is taken of the implants at the abutment level.

16_The jaw relation and dentition are transferred to the dental laboratory by means of the midline-divided temporary bridge.

17, 18, 19_The finished metal-ceramic bridge esthetically and functionally fulfils the patient’s expectations.

20_The radiograph taken after insertion of the definitive restoration shows the stable bone conditions around the Ankylos implants.

We placed retraction cords and took a silicone impression of the situation, as described by Sethi, at the abutment level (Fig. 15a and 15b). Red acrylic has to be used when preparing the cast because of the very delicate abutments.

We carried out another registration with the aid of the midline-divided temporary bridge and silicone (Fig. 16). So that the anterior guidance worked out with the provisional restoration could be transferred to the definitive bridge, we took an impression of the temporary bridge and the technician produced a customized anterior guide plate. The inserted metal-ceramic bridge is shown in Figures 17 to 19.

DISCUSSION

The patient and the treatment team were very pleased with the outcome. Esthetically speaking the clamps on the mandibular denture are not ideal (Fig. 17) but the patient had no problems with them. The stepwise procedure presented in this article, involving a provisional component and a fixed diagnostic bridge (“dress rehearsal”), also proved successful. Admittedly our method is not fixed throughout because of the provisional phase with interim prostheses. However, it is practical, time-saving, relatively economical and extremely reliable in terms of outcome. ■

Literature available on request from the author.