

Perfect Provisional Restorations

Dr. Saraiva de Camargo presents a case where using modern temporary crown and bridge materials facilitate the fabrication of temporary restorations that achieve natural aesthetics and meet the highest standards of reliability



Fig. 1: Full face portrait of the patient



Fig. 2: Unharmonious upper anterior region, tooth #22 is missing

Patients have high expectations, particularly when it comes to the aesthetic results of dental restorations. This is because sub-optimal results are mostly visible straight away and, on the other hand, “beautiful teeth” are all-important to achieve that “radiant smile.”

Modern methods assist dentists in many ways, allowing them to achieve predictable results, especially in terms of aesthetics. In addition to the use of “hardware” such as x-rays, photography, and special software that can simulate various results on the monitor, the diagnostic mock-up is also important, as well as, of course, consultations with the patient, which also deal with the limits of dental restorations. The mock-up enables the result of the planned treatment to be assessed in advance and requires comparatively little time and effort. Moreover, the result can be realised on a temporary basis using the relevant materials without having to perform irreversible invasive measures straight away.

The temporary materials used in this process are of particular importance: They must be available in tooth shades and be able to withstand the high loads in the oral cavity to bridge the time required by the patient to accept or, as the case may be, reject the changes that are knowingly effected in conjunction with the temporary restoration.

This clinical case is an impressive example of the possibilities offered

when a wax-up and mock-up are combined.

Case Presentation

A 27-year-old female patient presented at the practice, wishing to improve the unsatisfactory situation in her maxillary anterior region, most especially due



Fig. 3



Fig. 4

Figs. 3&4: Close-up images of the clinical situation

to the fact that her wedding date had already been set.

The findings showed agenesis of tooth #22, marked palatal dislocation of tooth #12, the inhomogeneous course of the maxillary anterior arch, and clearly separated middle incisors, as well as further malpositions in the upper anterior region. The analysis of the posterior region showed clear Class II malocclusion.



Fig. 5



Fig. 7



Fig. 6



Fig. 8

Fig. 5: Right side

Fig. 6: Left side, tooth #22 is missing

Fig. 7: Unharmonious dental arches

Fig. 8: Dysgnathic tooth position

Next, the maxillary anterior teeth #13-23 were selectively conditioned for just 5-10 seconds using phosphoric acid. The acid was rinsed off and an adhesive compatible with self-cure composites was applied to the etched areas. After light polymerisation of the adhesive, the silicone impression was filled with "Structur" (VOCO) and reinserted on the dental arch. During the plastic phase, the excess material can be simply removed – thanks to prior careful adaptation of the impression, the right time for removal of the impression can be reliably determined based on the degree of polymerisation of the

To begin, impressions of both jaws were taken and models were produced. Following careful analysis of the models, a diagnostic wax-up was prepared in the upper anterior region with the aim of correcting the malposed teeth, replacing the missing tooth #22 and visually shaping the dental arch.

In the next step, a silicone impression was taken over the wax-up on the model and the resulting impression was then trimmed carefully: The course of the vestibular gingiva can just be recognised when the impression is in place. The incised markings enable precise intraoral positioning of the impression. This is followed by the careful selection of shades for the patient.

The method presented describes the fabrication of a restoration and simultaneous adhesion to the conditioned teeth in *one* step. Alternatively, the temporary restoration can be produced and finished in the conventional manner, that is, without simultaneous adhesion. Temporary adhesion is then carried out in a separate step.

material in the mouth. Due to the prior adhesive stage, the restoration remained in the mouth during this time.

Following complete polymerisation (after four minutes) the temporary restoration can be carefully finished intra-orally. Suitable instruments for this are a sharp scalpel and different-sized carbide rotary instruments. Should minor corrections be necessary, these are done using the material itself or the light-curing (flow) composite. The finished result is achieved using appropriate silicone polishers for composite materials.

Oral hygiene is of great importance here: Interdental space brushes, dental floss, and, as a further aid, a chlorhexidine-containing solution, were used on a regular basis.

A lot of time and effort...perhaps too much?

Not as far as the patient is concerned! When the forced smile prior to the treatment is compared with the smile after finishing the temporary crowns, the difference



Fig. 9: Frontal view of wax-up



Fig. 10: Detailed view of wax-up



Fig. 11: Right side of wax-up



Fig. 12: Left side of wax-up

is striking. No doubt the impending wedding also plays a big role here.

From a dental perspective, this first stage of treatment to visualise the end result proves to be a complete success. The patient and dentist were given the chance to “try out” the final result without the need for any invasive measures. In this case, the patient was in complete agreement with the subsequent measures required in order to achieve the end result. This also resulted in a high level of positive compliance with the necessary treatment steps.

Dental experience, the targeted use of diagnostic measures, manual dexterity, and the use of high-quality materials led to the impressive result that won over the patient even as a temporary version.



Fig. 15



Fig. 16

Fig. 15&16: Temporary restoration of the upper anterior region



Fig. 13: Filling of the silicone impression



Fig. 14: Reinsertion of the filled impression



Fig. 17

Fig. 18

Fig. 17&18: Close-up images of the temporary restoration

What are the next steps?

The temporary restoration was removed some time later. Given the solely punctiform conditioning of the teeth for adhesion, the restorations can be removed with a scaler, a suitable curette, or a strong probe. The restorations are normally completely destroyed during their removal. It is not uncommon for residue in the adhesion area to have



Fig. 19: Lateral view from the right

to be carefully removed with rotary instruments. The patient is currently undergoing orthodontic treatment. The goal is alignment of the maxillary anterior teeth and closure of the gap between the existing teeth. Furthermore, the dental arches are to be harmonised and stable occlusion is to be produced.

Following conclusion of the orthodontic measures, the missing tooth 22 will be replaced – the final course of treatment for this has yet to be decided. Both restorations with a mini-implant and an adhesive bridge are conceivable.



Fig. 20: Lateral view from the left

Summary

Model and photo analysis, diagnostic wax-up, mock-up, and temporary restorations are important tools for enlightening patients and anticipating the results that may be achieved. Using the method presented here by way of example, this can be accomplished without the need for irreversible treatment steps and only requires comparatively little time and effort. The prerequisites are a careful diagnosis and the use of high-quality products for the temporary restoration. **DA**



The final result: A happy bride on her wedding day

About the author



Dr. Irfêo Saraiva de Camargo works as a dentist in Belo Horizonte, Brazil. He specialises in implantology (Master in Implantology from the "Universidade Sagrado Coração" in São Paulo, and graduated as an implantology consultant from the "Pontifícia Universidade Católica" in Belo Horizonte). He also gives specialist courses at the "Universidade Federal de Minas Gerais" in Belo Horizonte. He may be reached through irfeosaraiva@gmail.com