

A simplified approach to Class IV restorations using the press-mould technique



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Upper central incisors are the teeth that fracture most frequently in the early years of life. To restore these Class IV lesions can be stressful for the practitioner as they are in the direct view whenever the patient speaks or smiles. Any mistake in shade, shape or contour is easily noticed and may bother the patient in his daily life. Materials and methods that lead to a predictable end result are very valuable to any dentist and all the more for starting dentists.

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A 32-year-old male patient came to the dental office complaining of being dissatisfied with the appearance of his upper central incisors. Both teeth were several times restored in the last 15 years due to a skateboard accident. He did not want any alterations to the shape of the teeth, but he wanted to have the colour of the restorations adjusted to his original shade (Figs. 1-2). At the moment of consultation, tooth 21 had already undergone endodontic treatment.

Teeth 11 and 21 had shade A2 as base color and were not very translucent. The core shade A2 of the G-ænial A'CHORD™ composite system (GC) had sufficient translucency for this purpose and was selected for the final layer. This universal composite with simplified unishade system and natural fluorescence excellently mimics the tooth shade and makes shade selection less complicated, even when you are using this system for the first time. To obtain a lively result, it was decided to use JE (junior enamel) and AO1 at the back portion to create a subtle gradient in the translucency (Fig. 3).

To copy the existing tooth shape, an impression was taken with a non-perforated metal tray filled with vinyl polysiloxane (EXACLEAR, GC). This material is flexible yet firm enough to use for the press-mould technique and enables visual control and light-curing through the mould due to its translucency (Fig. 4).



Fig. 1: Situation before treatment. Two old Class IV restorations were present on the upper incisors.



Fig. 2: Palatal view before treatment.



Fig. 3: The selected shades of G-ænial A'CHORD (GC) composite (JE: Junior Enamel).

A second impression was taken with a silicone putty material (Optosil comfort Putty, Kulzer) to create a firm key to shape the palatal side (Fig. 5). Instead of using the palatal portion only, a window was cut out of the key,

exposing the central incisors with slight extension towards the distal sides. This way allows more support for a stable, better controlled repositioning of the silicone key in the arch.



Fig. 4: The original shape was copied with a transparent mould (EXACLEAR).



Fig. 5: Silicone putty key to create the palatal portion.

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The edges of the transparent silicone as well as the putty key were trimmed ensuring that the keys were supported by teeth only after repositioning them in the mouth and could be seated correctly in the presence of a rubber dam. These pre-treatment procedures take less than 10' and ensure control over the pre-existing tooth shape. Next, local anaesthesia was given and the tooth surfaces were cleaned to remove any remaining plaque and/or

dental calculus. The teeth were isolated with rubber dam and the clamps were placed on the premolars to avoid interference with the silicone key. Both keys were tried in to check interference with the rubber dam. Tooth 11 needed the largest restoration and was built up first. The old composite was removed, all sharp edges were rounded and a 2 mm bevel was created with a diamond bur (Fig. 6).



Fig. 6: Removal of the old composite and isolation.



Fig. 7: Silicone key in situ.



Fig. 8: After build-up of the palatal shield.



Fig. 9: Press-mould technique.

The neighbouring teeth were isolated with Teflon tape. Then, the tooth was etched with phosphoric acid gel and a universal adhesive (G-Premio BOND™, GC) was applied according to the manufacturer's instructions.

The palatal silicone key, separated with a small amount of Modeling Liquid (GC), was seated in the mouth (Fig. 7) to build up the palatal portion of the tooth in shade JE (Fig. 8).

Thereafter, because of the thickness of the build-up (approximately 1.5 mm), the core was built up with AO1 to block out the incident light in the middle of

the tooth. At the incisal edge, 1 mm of JE remained uncovered so this would give some extra translucency in this region.

For the final layer, the A2 composite was preheated in order to have a smooth spreadable texture (desired for this technique) and placed into the transparent EXACLEAR mould at the vestibular side of tooth 11. Then, the mould pressed over the upper front teeth (Fig. 9). Gentle pressure was applied to avoid overfilling and the composite was light-cured through the mould. Depending on the shade,

G-ænial A'CHORD can be cured in 10 (output >1200 mW/cm²) to 20 seconds (output >700 mW/cm²) in layers up to 2-2.5 mm. EXACLEAR has a high transparency, so curing through the mould can occur efficiently because there is little light attenuation. After removal, the restoration margins were finished to remove any possibly present overhang. The same procedure was repeated to restore tooth 21. The whole appointment including the polish time did not last longer than 90 minutes.

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The patient was pleased with the immediate post-operative result; because of the fast procedure, there was little dehydration (Fig. 10). He was still pleased after one year (Fig. 11).

This case is an example of how quite large anterior build-ups can be done in a fast manner without having to compromise on the aesthetic result. Using the press mould technique and the simplified shading system of G-ænial A'CHORD is not only efficient in terms of saving time but also cost-effective. And because of the excellent colour stability and wear resistance of G-ænial A'CHORD, the patient can enjoy his restored smile for a long time.



Figure 10: Post-operative result.



Figure 11: At follow-up after one year.