

Luting of an aesthetic restoration with a light-cure cement, G-CEM Veneer

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The aesthetic treatment of a single anterior tooth is often a challenge. Many cases can be improved, sometimes solved by bleaching. If the colour is not sufficiently corrected or additional changes to shape or texture are required, a restoration becomes necessary. This is why feldspathic veneers are becoming increasingly popular. However, they remain a delicate treatment option because of their limited thickness and high translucency. Achieving a good colour match is therefore also influenced by the colour of the substrate and the used cement.

A 47-year-old, female patient was referred to our dental office by a colleague. She was bothered by the aesthetic appearance of her maxillary frontal teeth (Figure 1) and she wanted to have it restored.

The patient reported a trauma on element 11 about ten years before during a domestic incident and

increased darkening of this element over the years.

Intraoral clinical examination revealed a good oral hygiene, absence of caries and good periodontal conditions. Tooth 11 was severely discoloured (Figure 2), most probably due to the trauma that had occurred in the past. The soft tissues around the element

were well preserved and the tooth shape was intact.

There was no tenderness to percussion and no apical lesions were seen on the radiographic image. Tooth 11 did not respond to the vitality test. Therefore, the patient was first referred to a colleague for endodontic treatment.

After the tooth had been endodontically treated, the following therapies were explained to the patient:

In ascending order of invasiveness:

- 1) Non-vital "walking bleach" technique (First choice)
- 2) Non-vital "walking bleach" technique + veneer (Second choice)
- 3) Veneer (Third choice)

The patient opted out of internal bleaching because of her husband's bad experience with bleaching done by his previous dentist some years before. After having explained the increasing invasiveness and need for tooth tissue removal in absence of prior tooth bleaching, it was chosen to treat the case with a feldspathic veneer.

A 3-0 retraction cord was inserted into the gingival sulcus in a very delicate manner without administering anaesthesia.

The tooth was isolated with a split dam to obtain a discrete isolation, while maintaining a good brightness of the field, a visual control of the soft tissues and without unnecessarily stressing the gingival tissues, at least during the preparation phase (Figure 3).

Since no alterations in tooth shape were needed, no mock-up was



Figure 1-2: Initial situation. Tooth 11 is severely discoloured.

prepared. Vestibular and incisal depth orientation grooves were prepared with calibrated burs (Figure 4), following the three sagittal inclination planes of the incisor (cervical, central and incisal) and the cervical zenith placed slightly to distal. The depth of vestibular grooves was 1 mm to have sufficient space to

mask the discolouration. The incisal reduction was 1.5 mm.

The cervical and interproximal finish line were prepared in a chamfer. Incisally, the internal line angles were rounded to avoid stresses and finished in a sharp lingual butt-joint (Figure 5-6).



Figure 3: The field was isolated using a split dam technique.



Figure 4: Depth orientation grooves.



Figure 5-6: After sufficient reduction, internal angles were rounded and the entire preparation was finished with a hatchet.

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Figure 7: Immediate dentin sealing with G-Premio BOND.



Figure 8: Final polymerisation after application of GC GRADIA air barrier.



Figure 9: Impression showing the preparation in detail.

Before the impression was taken, the exposed dentin was treated (immediate dentin sealing, IDS) with the self-adhesive system G-Premio BOND. GC GRADIA air barrier was applied before the final polymerisation (Figure 7-8). After having taken the impression (Figure 9), an acrylic provisional restoration was made using a silicone key, and cemented with a drop of flowable resin cement after the finishing and polishing. The impression was sent to the dental laboratory of Donato D'urso for the manufacturing of the feldspathic veneer (Creation veneering ceramics, Creation Willi Geller). In the next session, the provisional

restoration was removed. The tooth surface was slightly smoothed with a scaler and polished with pumice to remove impurities. The colour was verified without rubber dam and with the tooth still hydrated using the dedicated try-in pastes (G-CEM Veneer Try-in Paste; shades Transparent and A2). A light-cured aesthetic resin cement in shade A2 (G-CEM Veneer) was selected for the cementation. Light-cured resin cements are suitable for aesthetic cases because of their excellent colour stability and because the limited thickness of the veneer enables proper light-curing. This cement in particular is easy to use due

to its thixotropic properties and the long working time.

The tooth was isolated with a rubber dam and clamps with a low retraction hook so the clamp could be seated without laceration of the gingival tissue (Figure 10). The dentin was sandblasted (30 µm silicatised sand) to roughen the surface that was priorly hybridised by IDS (Figure 11).

Next, an etchant was applied for 30 s (Figure 12) to create microporosities in the enamel and to remove the impurities from sandblasting, leaving a clean surface (Figure 13).



Figure 10: Isolation with rubber dam prior to cementation.



Figure 11: Sandblasting the tooth surface.



Figure 12: Etching of the preparation.

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Figure 13: Preparation surface after etching.



Figure 14: Application of G-Premio BOND.

G-Premio BOND was then applied to the entire tooth surface, left undisturbed for 10 s and air-dried with maximum air pressure during 5 s before light-polymerisation (Figure 14).

The feldspathic veneer was etched with hydrofluoric acid, rinsed and subsequently treated with phosphoric acid to remove residues and leave a clean surface after rinsing. The internal

surface of the veneer was then silanated with G-Multi PRIMER (Figure 15).



Figure 15: a) Restoration before treatment



b) Application of hydrofluoric acid



c) Rinsing off the hydrofluoric acid



d) Application of phosphoric acid to clean the surface



e) Rinsing off the phosphoric acid



f) Application of G-Multi PRIMER

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The cement was applied onto the internal surface of the veneer and the veneer was gently seated onto the tooth. Cement excesses were carefully removed with microbrushes. It was polymerised in a gentle way in small steps to avoid stress on the ceramic during the early stages of polymerisation of the resin composite cement (Figure 16). Glycerine gel was applied before the final polymerisation. The margins were carefully cleaned and smoothed by removing excesses with a scalpel blade (Figure 17) and Teflon tips mounted on a sonic handpiece in order not to damage the ceramic.

After one week, the patient came for a check-up. A good colour match was obtained (Figure 18-19) and the treatment matched the expectations of the patient.



Figure 16: Light-curing of G-CEM Veneer through the restoration.



Figure 17: Finishing the margins with a scalpel blade.



Figure 18: Final result, showing excellent colour match.



Figure 19: View of the smile one week after the treatment.