Simple chords of shades for harmonious restorations

Wallid Boujemaa[1]

Composite restorations set the rhythm of the daily life of our dental practices. Whether they are the final goal of a rehabilitation or an intermediate stage of the treatment plan, their implementation must be easy and reproducible. In anterior areas, the shape, colour and occlusal condition must be rigorously studied to achieve the desired aesthetic and functional requirements. In terms of posterior teeth, direct restorations will have to fulfill two major goals, biological and functional. While aesthetics are not to be left behind, respect for cusp morphology will certainly be of greater importance.

For more than a decade, composite resins have been used to fulfill these specifications. Their simplicity of application, their mechanical resistance, their polishing abilities and their optical properties allow them to integrate perfectly with natural tissues over time. Among these materials, GC's G-ænial range has proven itself for 10 years. Its youngest member G-ænial A'CHORD, has just been born and seems as promising as the former version. With a smaller number of shades, it can cover the same situations as its predecessor, with a markedly improved consistency and surface condition after polishing. The two cases presented here are examples of the possible applications of this material in a successful way.

Case 1: Anterior restorations using monochromatic & multi-shade techniques

A 40-year-old patient, in good general health, attended an emergency consultation. She had fallen on her coffee table, which caused a fracture from the mesial angle up to the middle third of tooth 21. The tooth responded positively to the pulp sensitivity test. Given the colour and textural characterisations to be reproduced, a stratification session was scheduled. The patient also wanted to improve the aesthetics of her smile by having the apparent black triangles between teeth 21 and 22 reduced. An impression for wax-up and a temporary restoration using a composite in single-mass technique are carried out during the emergency consultation. Periodontal remediation and endodontic treatment of the 11, which was necrotized following the trauma, were performed prior to the composite stratification session.

[1] Wallid Boujemaa
Lecturer, University of Bordeaux.
Private practice, Ondres, France

Fig. 1 and 2: Initial situation.

Fig. 3: Initial retro-alveolar X-ray.

Fig. 4 and 5: Shade selection using the composite button technique, with and without polarizing filters.

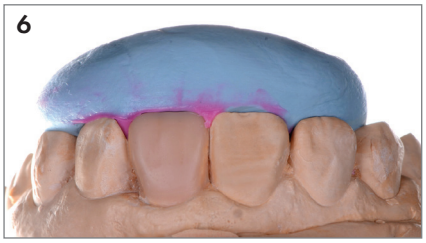


Fig. 6: The wax-up allowing the creation of a palatal silicone key.

Fig. 7: Teeth isolation with a rubber dam

Fig. 8: Enamel etching using 37% orthophosphoric acid for 10 seconds.

Fig. 9: Application of G-Premio BOND universal adhesive(GC).

Fig. 10 and 11: Creation of the palatal enamel shell using the Junior Enamel shade JE (G-ænial A'CHORD, GC).

Fig. 12 and 13: Elaboration of the mesial surface with an enamel shade using a proximal matrix (LumiContrast® Polydentia).

Fig. 14: Modeling of the dentin core in opaque dentine shade AO2 (G-ænial A'CHORD GC).

Fig. 15: Modeling of dentin mamelons using the A2 shade (G-ænial A'CHORD).

Fig. 16: Application of superficial enamel, shade JE.

Fig. 17: The distal cavity is blocked with a CORE shade of medium opacity A2.

Fig. 18: Use of a impregnated with an unfilled resin (Modeling Liquid, GC) brush making it easier to sculpt and adjust the composite.

Fig. 19: Macro-anatomy management with a red flame bur.

Fig. 20: Pre-polishing with the pink silicone disc Diacomp TwistPlus® (EVE).

Fig. 21: Polishing with a beige silicone disc Diacomp TwistPlus® (EVE).

Fig. 22: Surface condition after finishing and polishing.

Fig. 23 and 24: Reduction of the black triangle with a shade of medium opacity A2.

Fig. 25: Immediate post-operative situation.

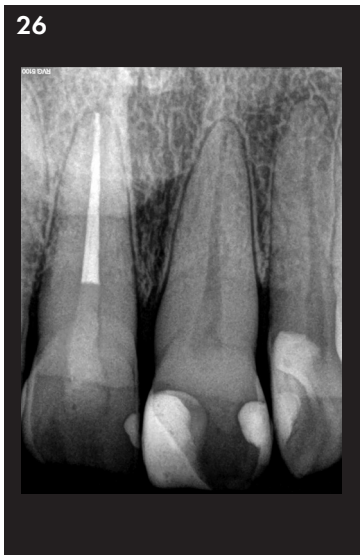


Fig. 26: Post-operative X-ray.

Fig. 27 to 32: Post-operative situation at one week.

Case 2: Posterior restoration using a cusp by cusp approach

A 15-year-old patient, in general good health, presented herself for a check-up. She reported localised sensitivity to sweet on tooth 36. The tooth responded positively to the pulp sensitivity test, and displayed an occlusal composite without morphology. Clinical and radiographic examinations revealed the presence of secondary caries under the composite,

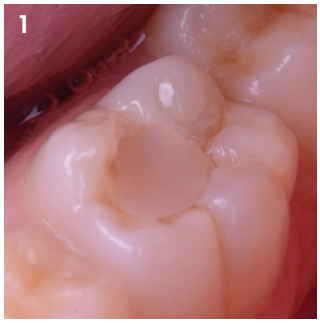


Fig. 1: Initial situation.

Fig. 2: Pre-operative retro-alveolar X-ray.

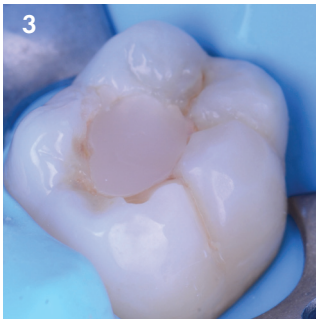


Fig. 3: Isolation of the tooth under rubber dam.

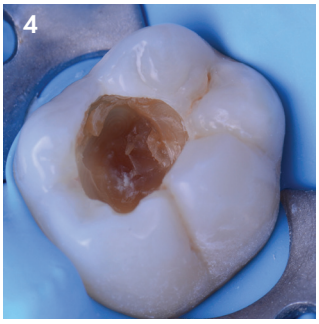


Fig. 4: Composite removal.

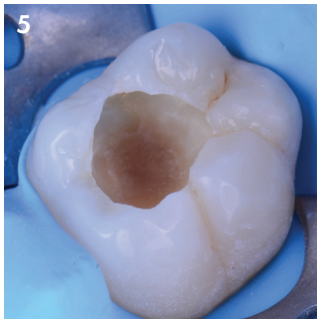


Fig. 5: The caries removal is carried out in a centripetal way.

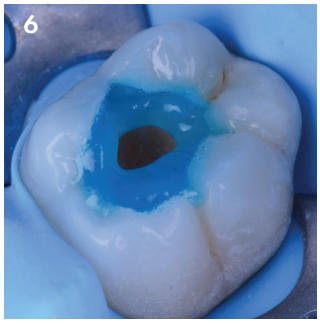


Fig. 6: Etching using 37% ortho phosphoric acid for 10 seconds. This is eliminated with an abundant rinse.

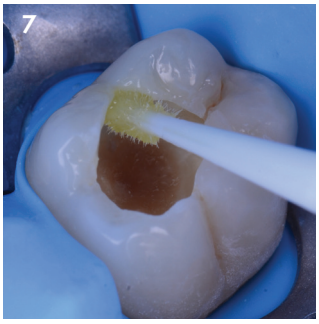
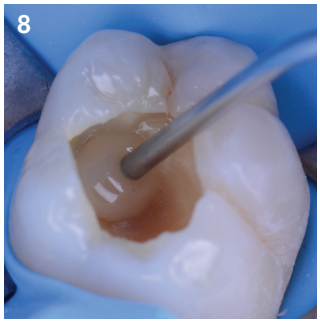


Fig. 7: Application of G-Premio BOND® (GC) universal bonding. This is applied and rubbed vigorously on dental surfaces, then dried strongly before light-curing.



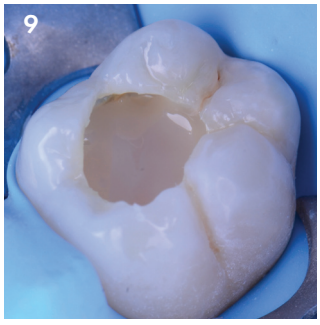
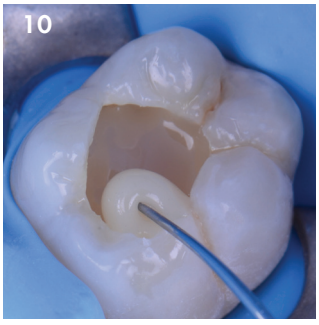


Fig. 8 and 9: Application of a 2-mm composite layer on the surface of the cavity, using an injectable composite (G-ænial Universal Injectable® A2, GC).



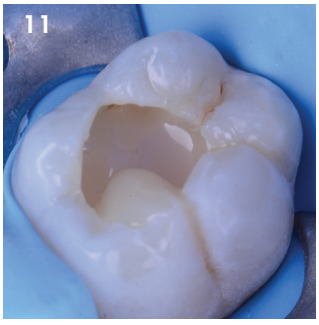
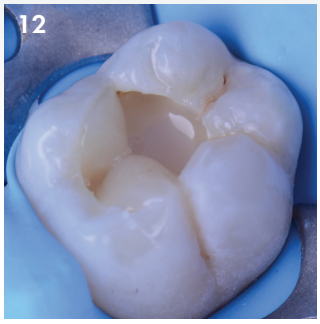


Fig. 10-11: G-ænial A'CHORD composite® A2 (GC) is easily shaped to create the cusps.



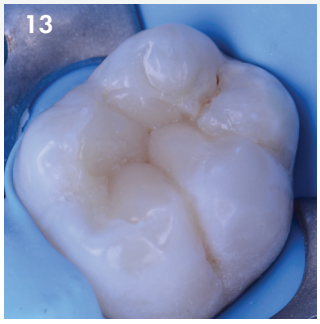


Fig. 12-13: The other cusps are built cusp-by-cusp in the same manner, creating the occlusal anatomy.

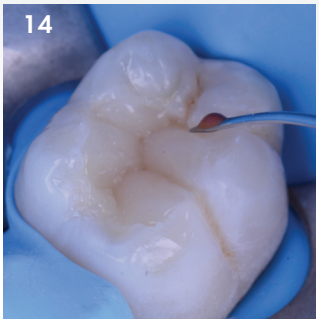


Fig. 14: The use of a composite stain (Brown Modifier®, Essentia Modifier Kit, GC) makes it possible to assess the morphology and ensure that there are no gaps.

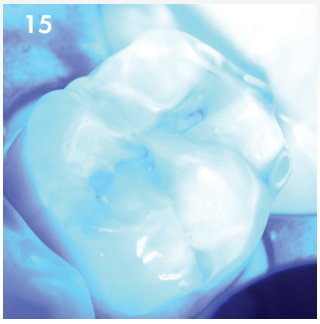


Fig. 15: 40-second photopolymerization on each side under glycerin gel (AirBarrier® GC).

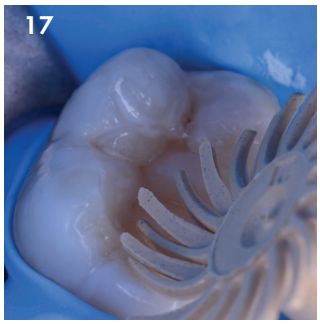


Fig. 16 and 17: Polishing with silicon wheels (Soft Lex®3M).

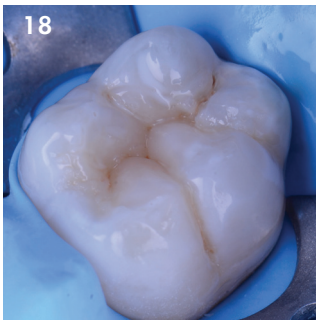


Fig. 18: Immediate post-operative situation under rubber dam.

Fig. 19: Post-operative retro-alveolar X-ray.

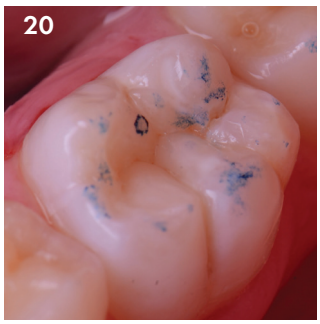


Fig. 20: Immediate post-operative situation.

Fig. 21: Post-operative situation at one month. Sensitivities are gone.

which showed micro-leakage at the margins. A session was scheduled to remove the composite and determine if a simple renewal of the composite with a direct technique was possible. At this stage, the cavity was disinfected with 2% chlorhexidine solution to reduce the bacterial load during caries removal, which could have lead to pulp exposure. After cleaning, the cavity was shaped. The pulpal wall appeared to be located away from the pulp chamber (0.5 mm). The thickness of the remaining walls enabled us to opt for a direct composite restoration.

Reprinted with permission from GC get connected