

Placing bulk-fill composites in the creation of esthetic posterior restorations

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Introduction

For some time now, all dental manufacturers of note have been offering composite resins suitable for the bulk-filling technique. Nevertheless, the compositions and working properties of some of these materials vary quite considerably. To me, the concept behind Tetric EvoCeram® Bulk Fill, the composite highlighted in this article, seems to be highly plausible and very well implemented. As the material allows sculpting of the occlusal anatomy, the placement of a capping layer using a conventional composite is not required. Moreover, it exhibits wear resistance similar to that of conventional Tetric EvoCeram and is excellently suitable for use in occlusal load-bearing areas due to its flexural strength of 120 MPa. The special filler composition makes Tetric EvoCeram Bulk Fill easy to adapt and contour and allows for excellent polishability.

The two case reports presented below are testimony to the wide range of indications covered by Tetric EvoCeram Bulk Fill.

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Case 1

Tooth 16 showed a fractured mesial marginal ridge that was undermined by caries (Figure 1). Following the placement of a rubber dam, the tooth was prepared and a medium-sized Class-II cavity resulted (Figure 2).

In order to achieve optimum adhesion to enamel, it is essential to prepare the enamel margins in such a way that the enamel prisms are obliquely cut. This entails bevelling of the vertical proximal margins and the gingival shoulder.¹⁻⁵

After a sectional matrix band had been placed (Figure 3), a dentin/enamel bonding agent was applied. My preferred technique is a combined one,⁶ consisting of the selective etching of enamel for 30 seconds and the subsequent application of a two-bottle self-etch adhesive (AdheSE®) (Figures 4 and 5). One increment of shade IVA Tetric EvoCeram Bulk Fill was sufficient to fill the entire cavity (Figure 6). Figure 7 shows the completed restoration after polishing it with Soflex discs and OptraPol® Next Generation.

Case 2

Preoperatively, tooth 36 displayed a fractured lingual wall and cracked buccal cusps (Figure 8). Figure 9 shows the situation after placement of the rubber dam and preparation of the tooth. Merely the mesio-buccal cusp remained intact. However, it had to be shortened by 1.5 mm to ensure sufficient stability. Adhesion was again achieved by selectively etching the enamel for 30 seconds and



Figure 1: Preoperative situation: mesial caries with fractured marginal ridge.

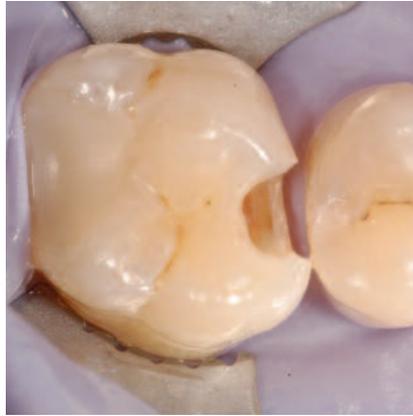


Figure 2: Situation after tooth preparation.



Figure 3: Placement of a sectional matrix band.



Figure 4: Selective enamel etching for 30 seconds.



Figure 5: Application of AdheSE Primer and Bond.

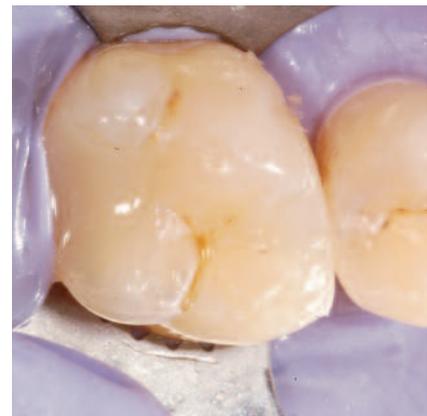


Figure 6: The cavity was filled with a single increment of Tetric EvoCeram Bulk Fill (shade IVA).

subsequently applying AdheSE Primer and Bond (Figures 10 -12). Following the placement of sectional matrix bands (Figure 13), the tooth was built up in stages using Tetric EvoCeram Bulk Fill. Only six increments were needed to rebuild the entire crown (Figures 14 - 19). Each individual increment was light-cured for 20 seconds using the Bluephase® Style curing light. Even though this is twice the time recommended by the manufacturer, I believe that this length of time is necessary in view of the clinical variables that may influence polymerization (distance to the restoration surface, irradiation angle, undercut areas), particularly when restoring occlusal loadbearing teeth. The failure mode most frequently observed in conjunction with composite resin fillings is filling fracture,⁷ which is most



Figure 7: The completed restoration.



Figure 8: Preoperative situation: Fracture of the lingual wall of tooth 36, cracked buccal cusps.

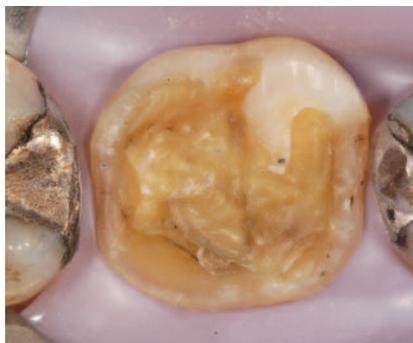


Figure 9: Situation after preparation of the tooth.



Figure 10: The enamel was selectively etched for 30 seconds.



Figure 11: AdhesSE Primer was applied to all cavity surfaces for 30 seconds.



Figure 12: Application of AdhesSE Bond.



Figure 13: Matrix bands and wedge were placed.



Figure 14: The first Tetric EvoCeram Bulk Fill increment was placed. The size of the increment was slightly smaller than would have been admissible, as this amount of material was sufficient to appropriately reconstruct the marginal ridge.

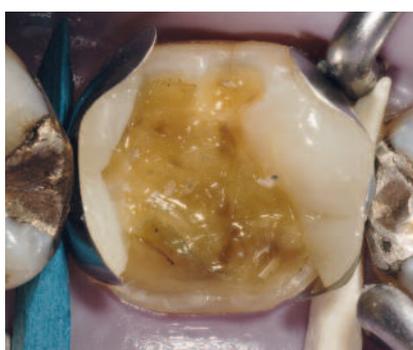


Figure 15: Second increment: Each increment was cured for 20 seconds with the Bluephase Style curing light.



Figure 16: Third increment.

probably due to the fact that the restorations tend to be less than properly cured and thus do not demonstrate ideal physical stability.

Coarse finishing was performed with Soflex discs and fine diamonds (Figure 20). After the occlusion had been adjusted (Figure 21), the restoration was polished to a high gloss with OptraPol Next Generation. Figure 22 shows the restoration

immediately after having been completed.

One year postoperatively, the restoration was found to be unchanged clinically (Figure 23).

Conclusion

Tetric EvoCeram Bulk Fill considerably facilitates the placement of all types of composite fillings, from small to



Figure 17: Fourth increment.



Figure 18: Fifth increment.



Figure 19: The build-up was completed with the sixth increment.



Figure 20: Sculpting of the occlusal surface anatomy.



Figure 21: The occlusion was checked and adjusted.



Figure 22: Postoperative view.

large ones. Due to the material's non-slump consistency and excellent sculptability, even large restorations that involve the reconstruction of cusps can be fabricated in an efficient manner. The limited range of shades has proved completely unproblematic in practical use. For the restoration of anterior dentitions and esthetically sensitive cases I normally use IPS Empress® Direct. Thus with Tetric EvoCeram Bulk Fill, Tetric EvoFlow® and IPS Empress Direct I can cover the entire spectrum of indications in the direct restoration of teeth with composite.

References

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Figure 23: At the recall after one year, the restoration was found to be unchanged clinically.

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