

Predictable and esthetic

4-mm bulk fill in the posterior region

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Direct posterior composite resin restorations can be time consuming and technique sensitive, creating the need for a composite material that will simplify the procedure.

It has been accepted that achieving predictable and successful posterior direct composite resin restorations requires incremental placement and curing. This can be a taxing and difficult procedure because each layer presents an oppor-

Fig. 1 Preoperative view of old amalgam fillings and fractures in tooth structure



tunity for failure if inadequately placed [1,2]. With the development of Tetric EvoCeram® Bulk Fill, a procedure once fraught with complications has become significantly less complicated.

Bulk filled restorations require less chair time and are more predictable [3,4]. Due to specific material characteristics, Tetric EvoCeram Bulk Fill outperforms conventional composite resin and eliminates many of its disadvantages. Low polymerization shrinkage stress reduces microleakage, postoperative sensitivity and secondary caries [4-6]. Improved depth of cure eliminates the need for layering in 2-mm increments.

Specifically designed for bulk placement, Tetric EvoCeram Bulk Fill is formulated with two types of glass fillers with different mean particle sizes. Glass fillers tolerate posterior wear well and exhibit distinguished polishing properties [7]. The reactive polymerization booster enables dentists to place and cure the bulk-fill composite in a single increment of up to 4 mm in depth. Produced with a filler mixture consisting of glass fillers, ytterbium fluoride, mixed oxide and prepolymer fillers which features a refractive index coordinated with that of the shrinkage-reduced monomer mixture, Tetric EvoCeram Bulk Fill retains translucency and exhibits high radiopacity, achieving virtually invisible restorations indistinguishable from surrounding dentition.

The material and esthetic characteristics of the bulk-fill composite make it easy for today's dentists to achieve their goals of providing easy, esthetic and long-lasting posterior restorations.

latex rubber dam was placed, and the defective amalgam restorations were removed using a Sabre Cut #1557SC carbide bur (Fig. 2). The cavosurface margins were smoothed using a diamond bur, and the preparations were cleansed with an air abrasion system, then disinfected with a 2% chlorhexidine gluconate antibacterial scrub (Fig. 3).

Next, the completed preparations were measured with a periodontal probe, revealing a 5-mm depth (Fig. 4). A seg-



Fig. 2 A rubber dam was placed, and the amalgam fillings were removed.

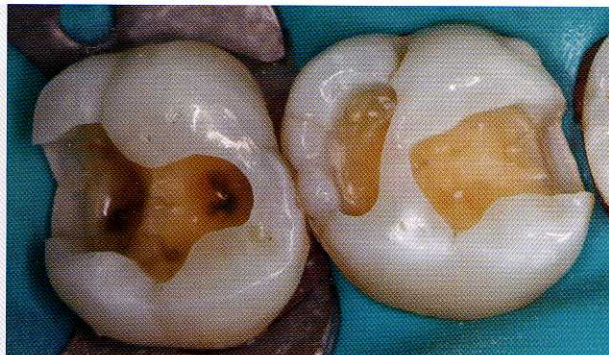


Fig. 3 View of the completed preparations after cleansing, micro-etching and disinfecting



Fig. 4 Utilizing a periodontal probe, the preparation was measured to a depth of 5 mm.



Fig. 5 A segmented band with G-Ring was placed interproximally and an acid etch was performed.

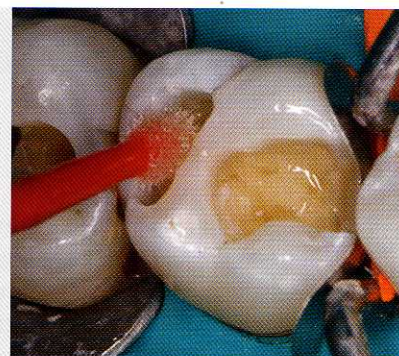


Fig. 6 An adhesive bonding system was applied, and the remaining ethanol solvent was evaporated using a warm air dryer.

Case presentation

A 50-year-old female patient presented with marginal leakage and a fracture in the tooth structure (Fig. 1), most notably the mesial marginal ridge of tooth 26 and the distal marginal ridge of tooth 27.

Shade IVB was selected for the dentin layer and IVW for the enamel layer, since the total preparation depth exceeded 4 mm. A single-component total etch adhesive was chosen as the adhesive bonding system (ExcITE® F), and OptraSculpt was the tool of choice for modeling and sculpting the composite material.

Clinical protocol

The patient was anesthetized with 2.5 ml of a prilocaine HCl solution with 1:200,000 epinephrine. A hygienic non-

mented matrix band with G-Ring was placed to ensure tight interproximal contact. The tooth was etched and bonded using a 37% phosphoric acid etch with an antimicrobial agent, re-wetted and disinfected with a 98% chlorhexidine diacetate hydrate for rehydration and inhibition of matrix metallo proteins (MMPs) (Fig. 5).

A fifth-generation adhesive bonding system (ExcITE F) was applied, and the remaining ethanol solvent was evaporated from the adhesive resin utilizing a warm air dryer for 5 seconds (Fig. 6). A second coat of ExcITE F was applied and air dried for 5 to 10 seconds, then light-cured with the Blue-phase® Style LED unit. Prior to placing the composite, the low viscosity resin Tetric EvoFlow® was used to seal the cleaned and etched grooves (Fig. 7).

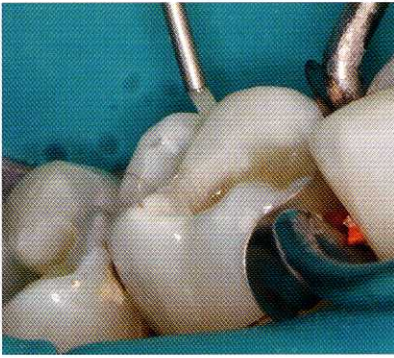


Fig. 7 After light-curing the adhesive, the grooves were sealed.

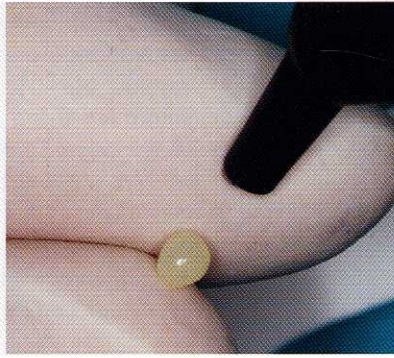


Fig. 8 A ball of composite was formed and placed in the preparation using the tip of a condenser instrument.



Fig. 9 The composite was moulded to cover the gingival seat of the interproximal box.

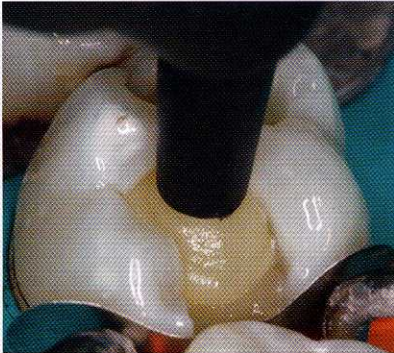


Fig. 10 The Tetric EvoCeram Bulk Fill composite in shade IVB was pushed into the uncured composite for bulk fill, after which the 4-mm increment was light-cured.

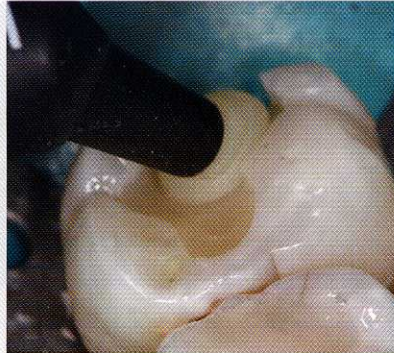


Fig. 11 Shade IVW of Tetric EvoCeram Bulk Fill composite was placed as the top 1-mm to 2-mm "enamel" layer of the composite.

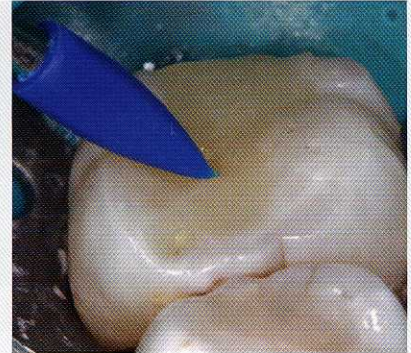
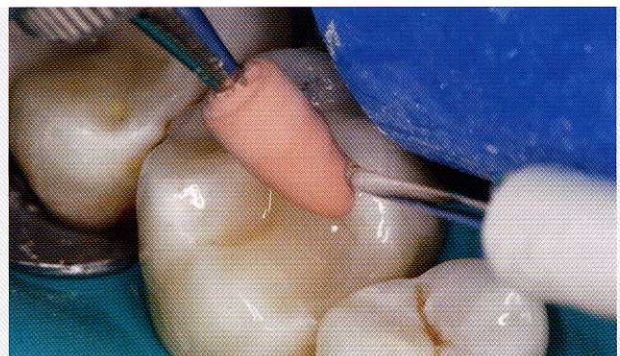


Fig. 12 View of the sculpted IVW bulk layer of composite

Due to the size of the preparation and the 4-mm indication for the composite material, the restoration was performed in two layers. A small ball of composite was formed (Fig. 8), carried on the tip of a condenser instrument and placed into the bottom of the interproximal box. This composite was fashioned into the gingival seat and left uncured (Fig. 9). To complete the 4-mm layer, Tetric EvoCeram Bulk Fill composite in shade IVB was pushed into the previously placed composite and smoothed with the OptraSculpt modeling instrument designed for use with composite materials (Fig. 10). This bulk increment was then light-cured

for 10 seconds using the Bluephase Style. Tetric EvoCeram Bulk Fill composite in shade IVW was placed as "enamel" into the top 1 mm to 2 mm remaining, sculpted with OptraSculpt, and then light-cured for 10 seconds (Figs 11 and 12).

The restorations were then finished with carbide burs, a smooth diamond finishing bur and a Brownie point. A final polish was performed using a series of grey, green and pink Astropol® polishing points and Astrobush polishing brushes (Figs 13 and 14).



Figs 13 and 14 After the top layer of bulk composite was light-cured using Bluephase Style, the restorations were finished and polished with a selection of carbide burs and polishing points.

Fig. 15 View of completed restorations with rubber dam still in place



Fig. 16 Close-up image of completed direct posterior composite restorations after 24-hour rehydration



Conclusion

The face of dentistry continues to change with the development of innovative materials. Tetric EvoCeram Bulk Fill has simplified a procedure dentists worldwide perform numerous times a day, and in turn has saved them and their patients time and money. Characteristics such as a mouldable consistency enable fillings up to 4 mm, eliminating the need for layering and the technique sensitive characteristics of conventional composite procedures. Its strength provides long-lasting success, and its availability in three universal shades contributes to highly esthetic restorations that blend with natural dentition (Figs 15 and 16).

A literature list is available from the editors on request.



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