Quick and efficient build-up of posterior teeth

Dr Nadeem Younis treats caries in a sensitive lower molar using composite

A FEMALE patient consulted for the restoration of her lower right first molar. She had previously had a tooth-coloured filling, but the tooth had been sensitive ever since.

The defective restoration was removed and a Sedanol dressing placed to alleviate the symptoms (**Figure 1**). Various options for replacing the filling were discussed with the patient. These included amalgam or a combination of either glass ionomer or Venus Bulk Fill composite finished with Venus Diamond. The patient opted to have the tooth restored entirely with composite and I chose to use corresponding products because this gives the best results.

I applied rubber dam and the temporary dressing was removed. Once the caries had been eliminated, the cavity was cleaned with ethanol. This ensures complete removal of eugenol, which can otherwise interfere with the polymerisation of composites. The medium-sized cavity had an uneven floor, which can cause problems with adaptability when stiffer composites are used (**Figure 2**).

The enamel and dentine were selectively etched with 35 per cent phosphoric acid for 20 seconds and 10 seconds respectively (**Figure 3**). This process ensures that the dentine is not over-etched; otherwise damage to the collagen fibres may result in an inadequate hybrid layer formation. After washing and drying (**Figure 4**), iBond Total Etch was applied to the entire cavity for 20 seconds. The bond was thinned with gentle air pressure and then light-cured for 40 seconds.

I like using iBOND Total Etch because it can rehydrate a cavity which has been over-dried inadvertently. It infiltrates deep into the dentine, creating an excellent seal with high bond strength.

Layered build-up of composite restorations is not necessary with Venus Bulk Fill. The material has low polymerisation shrinkage and a depth of cure up to 4mm. Even the pessimists need not worry about the C-factor and the cusp deflection. However, in this case, the dentine was built up in 2mm layers and each cured for 40 seconds. Cavit was placed on the lingual surface of the tooth to prevent saliva seeping through the rubber dam (**Figure 5**).

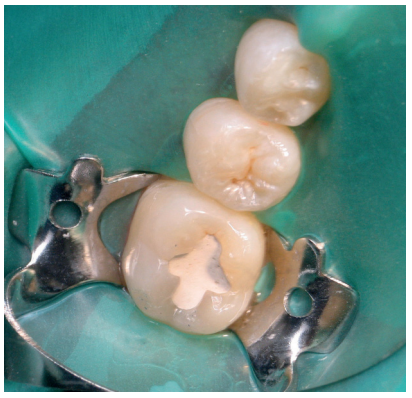


FIG 1

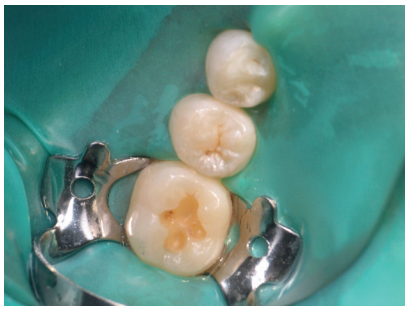


FIG 2

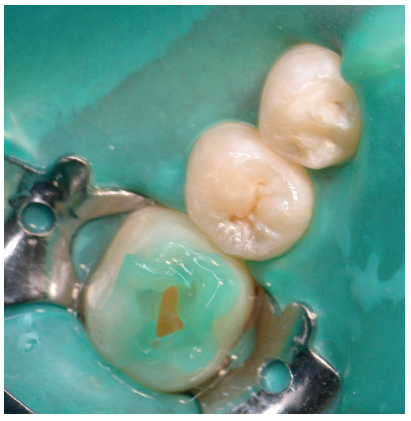
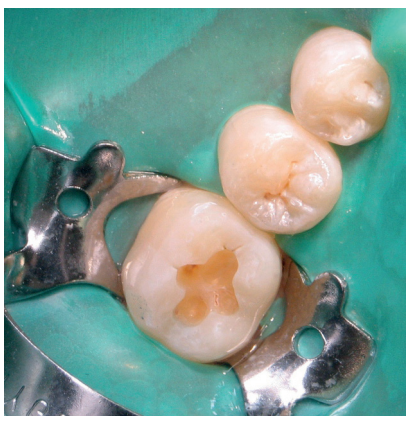


FIG 3



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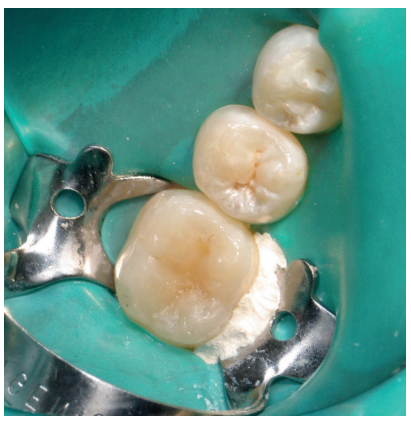

FIG 6

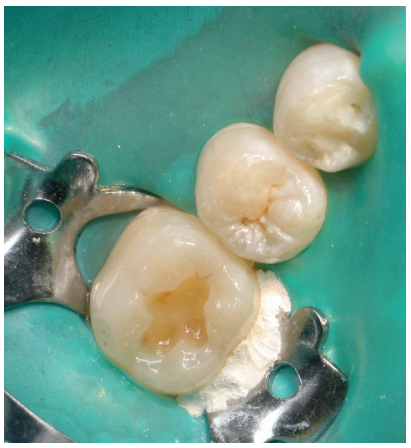

FIG 5

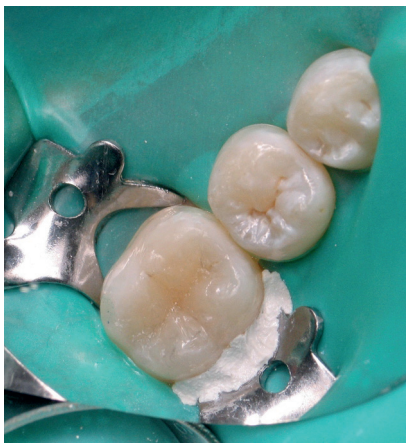

FIG 7

I use Venus Bulk Fill because it is a flowable composite. You get good adaptation of the material to the base and the walls of the cavity, even if the surfaces are uneven. It is more radio-opaque than conventional flowable composites and it has a greater depth of cure. The contraction stress is 3.4MPa, which is similar to that of glass ionomer cement and the compressive strength is similar to dentine (331MPa for Venus Bulk Fill, 250-350MPa for dentine).

A 2mm space was left coronally to allow definition of the occlusal anatomy of the tooth using Venus Diamond composite shade A2 enamel (**Figure 6**). The full contour of the occlusal surface was built up with wedge-shaped increments and each was cured for 20 seconds (**Figure 7**). Occlusion was checked and the restoration was polished with Venus Supra rubber cups and points.

I prefer Venus Diamond to build up the enamel layers because it has good chameleon effects, making the restoration virtually indistinguishable from the tooth. It has excellent handling characteristics and does not stick to instruments. This composite has low polymerisation shrinkage and excellent polishability with minimal effort.

Restoring posterior teeth can be time-consuming. Failures attributed to composites include post-operative sensitivity, secondary caries, marginal staining and fracture of the restoration. However, improvements to materials and clinical techniques now enable the practitioner to use composite restoratives to recreate teeth in a consistent and predictable manner.

In the featured case, there was no post-operative sensitivity and the patient was extremely pleased with the outcome (**Figure 8**). It was impossible to tell the restoration apart from the rest of the tooth.

Dr Nadeem Younis has a special interest in aesthetic and orthodontic dentistry. He runs hands-on composite courses for general dental practitioners and accepts case referrals. Dr Younis is a full member of the British Academy of Aesthetic Dentistry and is a partner in Bridge Dental Practice, Burnley. He qualified from Sheffield University in 1993

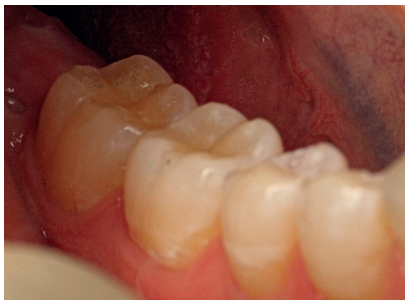

FIG 8