

TIPS FROM THE TOP

POSTERIOR DIRECT COMPOSITE RESINS: KEEPING IT SIMPLE

Many posterior composite resin placement protocols involve complex layering techniques and numerous instruments – with unpredictable results. Jason Smithson describes a simple technique which will allow the practitioner to produce aesthetic, lifelike restorations in an acceptable time frame

Direct composite resin placement in the posterior dentition has now become a common, day-to-day treatment modality for the majority of general dentists practising in the UK. Media coverage of dental procedures has made today's patients more aesthetics conscious than ever before: they demand and expect the best cosmetic results within a shorter timeframe and at increasingly competitive fees.

Many posterior composite resin placement protocols suggest the use of complex oblique layering techniques using multiple shades of composite resin and numerous instruments. This is often followed by a polishing and finishing sequence that is similarly complex. Unfortunately, this often means that the aesthetic result is unpredictable in all but the most skilled of hands. In addition, the procedure can become time consuming, which may translate to high costs that are often prohibitive for the patient.

This article will explore a simple, easy, predictable technique which will allow the average practitioner to produce aesthetic, lifelike class 1 and 2 composite resin restorations which require very little finishing or occlusal adjustment and can be achieved using one or two shades of composite resin and only two instruments which are common to most dental practices. This technique enables the practitioner to produce an attractive, functional restoration in a time frame which is acceptable for most busy dental practices.

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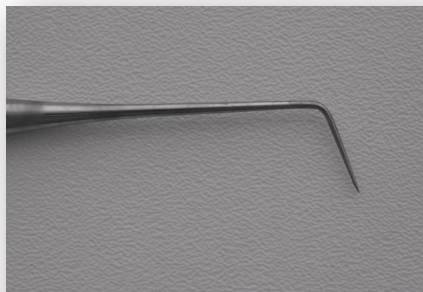


Figure 1



Figure 2

THE SIMPLIFIED TECHNIQUE: AN OVERVIEW

The instruments required for this technique are a clean, sharp Ash Number 6 probe (Figure 1) and a common or garden microbrush (Figure 2).

Composite resin selection may be monochromatic (typically A3 or A2 for 90% of the UK population) or bichromatic utilising an enamel and separate dentin shade. For the bichromatic approach a shade of dentin composite, which is one shade darker than the actual shade of the tooth, is selected alongside an enamel shade, which corresponds to the value of the tooth being restored.

Initially, dentin bonding agent (DBA) is applied to the cavity (Figure 3) in this case



Figure 3

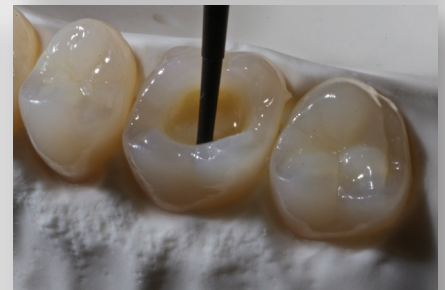


Figure 4



Figure 5

Optibond FL (Kerr), a fourth generation bonding agent, and polymerised. This is followed by a layer of flowable composite: this is applied as a small 'blob' on the cavity floor (Figure 4); the Ash number 6 probe is then used to drag the flowable composite out to the

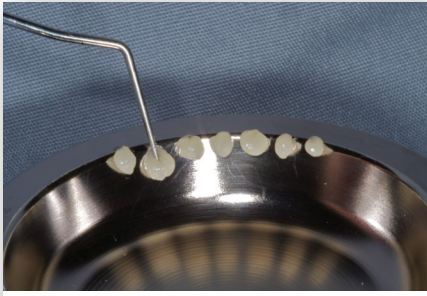


Figure 6

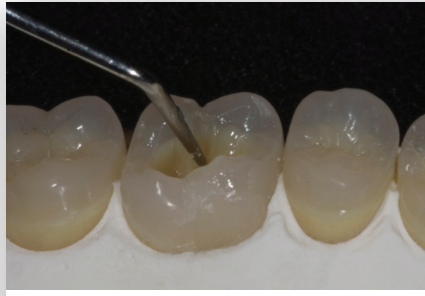


Figure 10



Figure 14

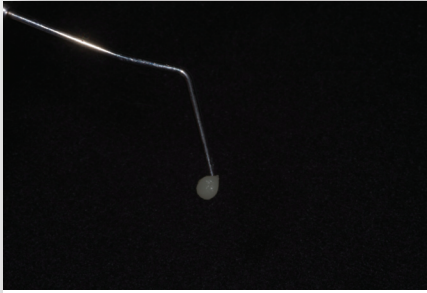


Figure 7



Figure 11

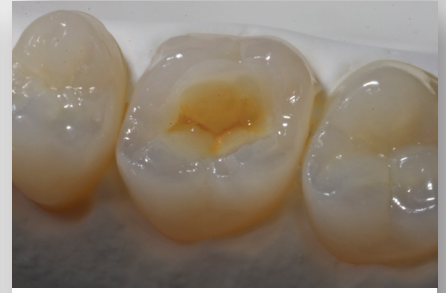


Figure 15



Figure 8



Figure 12



Figure 16



Figure 9



Figure 13



Figure 17

level of the ADJ so that it forms a meniscus less than 1mm in thickness. This flowable composite layer is then polymerised.

The composite resin is set up in small increments approximately 2mm x 1mm on a pad or tray with a light guard (Figure 5). The increments are then picked up with the Ash Probe (Figure 6 and 7). Since the pads tend to have a non-stick coating the composite is extremely easy to pick up. I prefer more 'putty-like' composite resins such as Renamel Nano (Cosmedent) or G-Aenial (GC) because they are easier to manipulate than other more 'sticky' composite resins. The resin is then carried to the tooth and placed in the position

of the appropriate cusp using a 'Stratified Layering' technique (Figure 8). The composite resin preferentially adheres to the cavity because the probe has a small surface area and is smooth, whereas the cavity has a large surface area and is coated with a bonding agent. The probe is then withdrawn and should be cleaned at this stage with an alcohol wipe to remove any composite residue. The composite increment is then lightly tamped into place with a microbrush (Figure 9) and the fissures defined with the probe (Figure 10). This increment is then polymerised as per manufacturers recommendations. Layers of dentin shade composite are then built up

on a cusp-by-cusp basis, polymerising each cusp individually in order to reduce the 'configuration factor' of the restoration and therefore the polymerisation stress. (Figures 11/12/13/14)

As an option, tints can be applied at this stage to give more definition to the occlusal fissures and cuspal inclines. The shades of tints are selected on a case-by-case basis (Figures 15/16). The tints are applied sparingly using the Ash number 6 probe.

Enamel shade composite resin is then also placed on a cusp-by-cusp basis, polymerising each segment individually (Figures 17/18/19/20). The enamel shades deliberately



Figure 18

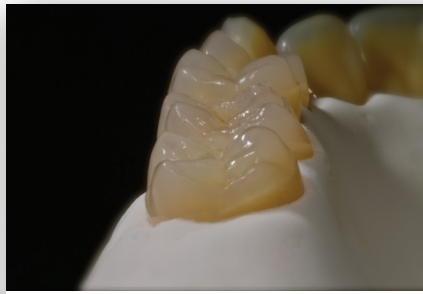


Figure 21



Figure 19



Figure 22



Figure 20

leave some of the dentin shade composite resin exposed which creates the illusion of secondary and tertiary anatomy and gives a sense of 'depth' to the restoration.

The cuspal inclines of the adjacent teeth are used as a guide and those of the restoration

should mirror that of their neighbours (fig 4937): this strategy reduces the amount of occlusal adjustment required in MIP (maximum intercuspation position). The occlusal fissures are placed fairly deeply to allow excursive movements of the opposing teeth in function (Fig 4938): again this reduces the potential need for occlusal adjustment in dynamic occlusion.

The entire tooth is then coated in a thin layer of KY Jelly and final polymerisation is carried out to remove the oxygen-inhibited layer.

The occlusion is then checked: adjustment should be minimal; and the patient dismissed. Often no rotary finishing is required at all.

CONCLUSION

The use of only two simple instruments

in this technique confers considerable advantages: both are inexpensive and easy to source, the microbrush being disposable is helpful given new sterilisation regulations. The main advantage however, is efficiency: since there are only two instruments involved in the procedure, four-handed dentistry becomes intuitive and can be carried out without verbal communication or looking up (reducing eye strain). This reduces stress and enhances the speed of the procedure resulting in increased profits and workflow.

It is an overall win-win for dentist, assistant and patient alike.

YIN'S TEETH; A CASE STUDY

Yin (Fig 0836) is an 18-year-old Chinese student who presented to the practice complaining of symptoms of reversible pulpitis localised to her lower right quadrant. Clinical examination revealed caries confined to her lower right first premolar and first and second premolars.

The teeth were isolated with rubber dam (Roeko) and Wave Wedges (Triodent) and the caries excavated with rotary instrumentation (Fig 0839). The dentin layers were restored with A3 G-Aenial composite resin (GC) and Dark Brown (Creative Color, Cosmedent) and White tints placed to accentuate the occlusal fissures and cuspal inclines (Fig 0854). The enamel was then restored with JE (Junior Enamel, G-Aenial, GC) which was modelled and sculpted with an Ash Number 6 probe alongside an number 1 sable brush and 'Brush and Sculpt' Modelling Resin (Cosmedent). No rotary polishing was carried out (Fig 4560). The rubber dam was removed and the occlusion checked with articulating paper: no adjustment was required (Fig 4563).

To ask a question or comment on this article please send an email to: comments@ppdentistry.com

Jason Smithson is giving a hands-on seminar: 'Direct Resin Artistry: Simple, Predictable, Easy' at Seminars@38 on 2 April 2011. www.seminarsthirtyeight.com; catherine@seminarsthirtyeight.com



CASE STUDY



Figure 23



Figure 24



Figure 25



Figure 26



Figure 27