Lasting natural sheen

Tariq Bashir presents a recent case study where he created a natural smile with little preparation.

A 45 year old female was concerned with the appearance of her upper anterior teeth, which were butterflied and worn on the mesio-incisal surfaces (fig 1). Initially, the patient enquired about veneers and crowns. However, she was not suitable for this very invasive treatment option, as the misalignment of the central incisors was so severe. Preparation would have been extremely invasive and could affect the vitality of the teeth. She elected to have short term orthodontics and direct composite restorations.

Tooth alignment

The Invisalign system was used to align the central teeth, which took 16 months to accomplish. The patient had both upper and lower alignment to obtain the best result. Heraeus Kulzer Venus Diamond composite was used to create the attachments. Once the orthodontic treatment was completed, the patient asked for the missing tooth structure to be restored (fig 2).

Composite restoration

Heraeus Kulzer Venus Pearl nano-hybrid composite was selected to restore the teeth, due to the minimal nature of the incisal wear. I have used Venus Pearl since 2012, and have achieved fantastic results, due to its excellent handling properties and high lustre polish.

To ensure a close match, the natural tooth colour was compared to Venus Pearl shade tabs. Then composite buttons were placed on the tooth surface and the shades checked. The A2 enamel shade and OMC (opaque medium chromatic) dentine shade were selected. A composite mock-up was created with A2 shade, to show how the edges could be built up to a normal length. Having seen the potential result, the patient was happy to proceed.

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Fig 1: A 45 year old female was concerned with the appearance of her upper anterior teeth, which were butterflied and worn on the mesio-incisal surfaces.

Fig 2: Once the orthodontic treatment was completed, the patient asked for the missing tooth structure to be restored.

A palatal stent was constructed using a high viscosity putty to reproduce the incised edge levels agreed with the patient. The teeth were prepared using a fine diamond bur with a labial bevel at approximately 45 degrees to the tooth surface. Rubber dam was secured with clamps on the upper first premolars and with floss ties in the anterior region. The stent was checked in place with the rubber dam in situ to ensure accurate location against the palatal surfaces. The margins were then etched with 37 per cent phosphoric acid etch gel. A two-bottle total-etch bond was then applied to these surfaces and air dried before light curing.

The putty stent was positioned against the palatal surfaces and scored with a fine probe to mark the missing amount of tooth tissue. A thin layer of AM (Amber) composite was placed in the stent and spread out using a size 2 paintbrush. The stent was then located against the worn edges. Thin wetting resin was used on the paintbrush to move the composite onto the palatal margins, ensuring no gaps. This first layer was then light cured.

The missing dentine layers were➲

Fig 3: The final natural sheen was achieved using a fine goat hair wheel with the aluminium oxide paste.

Figs 4a and b: The patient attended recently for her six month examination. Although the retainer needed repair, no further adjustments or polishing were required to the restorations.

rebuilt with OMC dentine shade composite. Minimal mamelon structures were created, as these were not readily visible on the lateral incisor teeth. Small amounts of AM composite were used over the mamelons prior to placing A2 composite as the enamel layer. Very fine amounts of BXL (Bleach Extra Light) and white tints from the Venus Color range were added, just under the final coat of A2 shade enamel, to mimic the slightly streaked appearance of the anterior teeth.

Glycerin was placed over the labial and palatal composite surfaces and the last composite layer was fully light cured.

Polishing and finishing

The restorations were polished with fine burs, followed by discs with decreasing grades of coarseness. Venus Supra polishing points were used on the composite surfaces with glycerin as a lubricant. The surfaces were washed off and given a further polish with aluminium oxide paste on felt discs. The final natural sheen was achieved using a fine goat hair wheel with the aluminium oxide paste (fig 3).

The patient was extremely pleased with her new smile, which has given her more confidence. Very minimal preparation was carried out to restore these central incisors. The patient attended recently for her six month examination (figs 4a and b). Although the retainer needed repair, no further adjustments or polishing were required to the restorations.