A successful single anterior tooth restoration

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Patient background

The patient previously attended regularly with a colleague who has now retired, and I saw him for the first time as an emergency appointment. He presented with a broken upper right central incisor (Fig. 1);

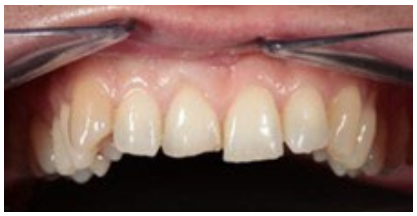

Fig. 1: Initial situation

he couldn't remember how it broke, but his records showed that the tooth was last restored in 2015. Overall, his oral health was adequate, with a mildly restored dentition, notable attrition, and mild anterior crowding.

Assessment and diagnosis

The occlusion was checked (Fig. 2),

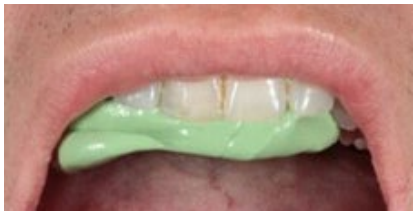

Fig. 2: Occlusion check with putty

and it was noted that the UR1 was slightly palatially tilted and, in protrusive and lateral excursions, there was sufficient space to place a direct composite restoration to recreate the correct height and bring the facial surface into alignment with the UL1. A simple visual assessment of the tooth made it clear that the previous restoration had only been bonded to the incisal edge, as there was no evidence of beveling or bonding on the facial surface. Vitality testing was completed and the UR1 was consistently positive to COLTENE Endo-Frost with no pocketing or tenderness.

Treatment planning

Treatment options from very simple to more complex were discussed. These included a single tooth restoration, which would be challenging to match perfectly to the neighbouring tooth, as well as orthodontic treatment to address the anterior crowding followed by aesthetic composite restorations to restore the worn anterior teeth. The patient was not interested in anything beyond a single tooth repair, so a composite restoration was agreed. The patient also expressed that he was keen to have the facial surface brought into alignment and, since this would also increase the restoration's overall strength, I was happy to oblige.

Treatment provision

- The tooth was isolated using the COLTENE HySolate rubber dam (Fig. 3),

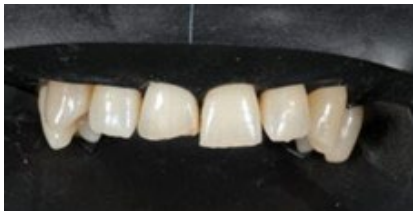

Fig. 3: Tooth isolation with COLTENE HySolate rubber dam

extending to the premolars to ensure there was sufficient space to reach the UR1 unimpeded. Excellent retraction and moisture control was achieved thanks to the heavy latex COLTENE HySolate dam.

- The enamel was beveled for the sake of aesthetic blending, air abrasion was carried out with a micro-etcher (Fig. 4)

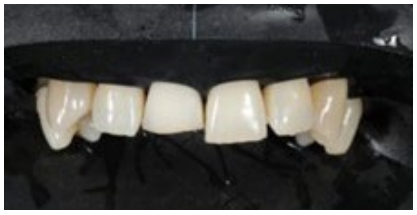

Fig. 4: Air abrasion was carried out with a micro-etcher

to remove any biofilm (neighbouring teeth were protected with mylar strips), and etched for 30 seconds with 37 % orthophosphoric acid. The tooth was then rinsed for over 60 seconds to ensure the clearance of any precipitates for the etching process.

- COLTENE ONE COAT 7 UNIVERSAL Bond was applied to the tooth, scrubbed for 20 seconds, and gently air dried until evenly thinned out, and light cured for 30 seconds.
- COLTENE BRILLIANT EverGlow in shade BL Trans was used to build up the palatal shell in the stent made using a mock up prior to treatment (Fig. 5).

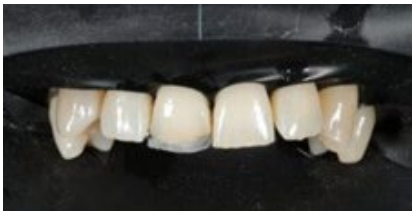

Fig. 5: Composite build-up with BRILLIANT EverGlow BL

The shell was kept reasonably thin, and stabilised with BRILLIANT EverGlow Flow (COLTENE) in shade A2/B2. At this stage, it was noted that the palatal shell was too long, so this was taken into account in the following steps.

- Proximal walls were built up with BRILLIANT EverGlow in shade BL Trans using mylar strips and the 'pull-through' technique (Fig. 6).

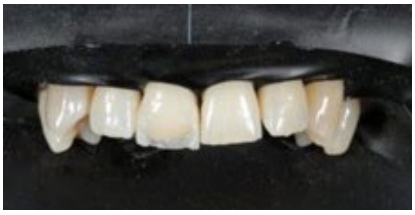

Fig. 6: Proximal walls built-up with BRILLIANT EverGlow BL

COLTENE

- Body shade BRILLIANT EverGlow A2/B2 was placed (Fig. 7),

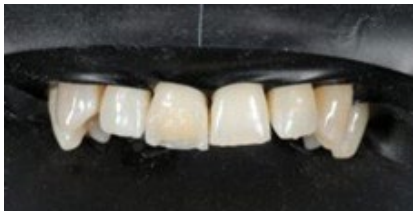

Fig. 7: Body shade placed with

leaving space for blue tints to run along the incisal edge and up the inside of the proximal walls.

- MIRIS2 blue tint (COLTENE) was applied to the incisal edge and the inner aspect of the proximal walls to mimic the translucency in the neighbouring tooth (Fig. 8).

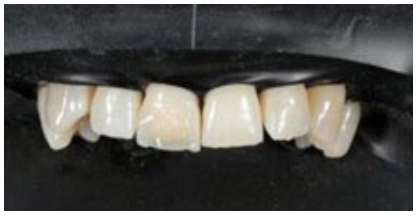

Fig. 8: MIRIS2 blue tint applied to mimic translucency in the neighbouring tooth

- A final layer of BRILLIANT EverGlow in shade BL Trans was then applied, blended, and cured (Fig. 9).

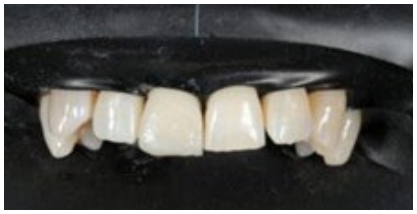

Fig. 9: Final layer of BRILLIANT EverGlow BL was applied, blended and cured

- The restoration was trimmed using polishing burs and discs. The occlusion and excursions were checked, and then polished to near high-gloss using DIATECH ShapeGuard polishers (COLTENE) (Fig.10).

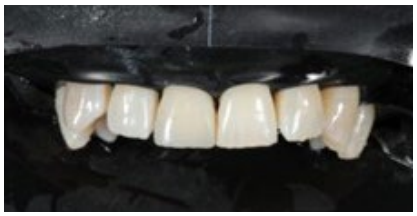

Fig. 10: Polishing with DIATECH ShapeGuard

The patient was very happy with the immediate result (Fig. 10-11),

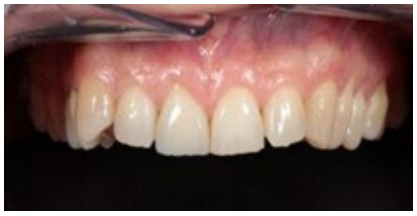

Fig. 11: Immediate result

but we agreed that he would return after two weeks to see how the restoration had blended. The neighbouring teeth were dehydrated following treatment, making the restoration appear too dark immediately afterwards. At the two-week review, it was noted that the colour had blended well as the neighbouring teeth had rehydrated. A final polish was completed using DIATECH ShapeGuard polishers to achieve a high lustre.
The handling properties of BRILLIANT EverGlow products, and the variety of shades and opacities available make achieving an aesthetic outcome easier. The DIATECH ShapeGuard polishers also make it very straightforward to achieve a high lustre when finishing.

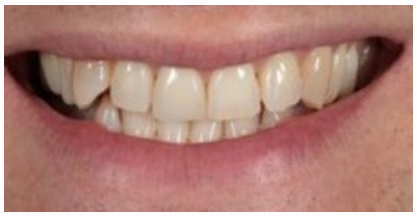

Fig. 12: Result of restoration after a week of rehydration

Case reflection

The patient was very happy with the result, and felt it was an improvement when compared to the previous restoration on the same tooth. We agreed that the colours had blended well and that, in his everyday life, the restoration looked just like a natural tooth.
In hindsight, I wish I had spent an extra minute making sure that the composite mock-up was as accurate as possible because the process would have been easier had the palatal shell been the correct height to begin with. Additionally, on reflection, I could have been less heavy-handed with the MIRIS2 blue tint, specifically around the incisal area. The proximal areas look great, but I feel that the incisal area is a little too blue. Less is clearly more when using tints, and practice makes perfect.

ABOUT THE DENTIST

Dr. Kevin Huynh

Dr Kevin Huynh graduated from King's College London Dental Institute and has completed a postgraduate certificate in Primary Dental Care. He has a passion for providing comprehensive and high-quality general dentistry, and takes pride in his holistic approach to patient care. Kevin works very well with anxious patients who may be apprehensive about receiving dental treatment. Kevin takes a keen interest in highly aesthetic and functional dentistry, whether that's a single tooth all the way up to a full mouth reconstruction.

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