

**DR ALLAN MATTHEWS**

BDS

Allan works in private practice as an associate dentist at Integrated Dentalcare in Edinburgh. His passion lies in orthodontic and restorative dentistry where he enjoys aligning and rebuilding the patient's dentition to improve function and health, enhancing the natural beauty of an individual's smile. Allan graduated from Glasgow University in 2013.

ENHANCED CPD

GDC anticipated outcome: C

CPD hours: one

Topic: Aesthetic dentistry

Educational aims and objectives:

To describe restoring a molar using a versatile and durable nano-hybrid composite. This article qualifies for one hour of enhanced CPD; answer the questions on page 100.



An important factor in tooth restoration is being able to demonstrate the high performance of the materials I select for a patient's treatment.

Reassurance for the patient that the materials selected and used will deliver predictability, aesthetics and long-term durability is critical.

In the following case report, the composite material used for the restoration provides high flexural strength and adapts perfectly to the colour of the surrounding teeth, resulting in excellent integration and a natural look that delighted the patient.

PATIENT PRESENTATION AND DIAGNOSIS

A patient in her early 50s attended Integrated Dentalcare in Edinburgh for initial emergency care prior to the first COVID-19 lockdown. Once the dental practice reopened, she continued treatment with me for restorative work.

On presentation, one of the issues identified was a historic composite restoration in the lower left first molar, which had ditched margins and was beginning to stain and decay (Figure 1).

In addition, we found the old LL6 class II restoration to be an inaccurate shade and lacked anatomical character.

While the tooth was not exhibiting any symptoms, we elected to replace the failing restoration at an early stage rather than wait for progression and potential loss of further structure.

The patient agreed with early intervention and her values aligned with my own in regard to the resolution of issues before they could worsen.

TREATMENT OPTIONS

Consideration was given to a ceramic onlay versus a replacement composite resin restoration.

The treatment plan would be decided after deconstruction of the old filling and assessment of the remaining tooth structure.

Isolation was achieved with rubber dam, which was placed with a clamp on the LL7 and stabilised with a latex cord between the premolars without causing obstruction of the working field (Figure 2). The existing restoration and the underlying caries were removed from the LL6 (Figure 3).

Air abrasion was carried out with 27-micron aluminium oxide to clean the surface and increase the bonding surface area.

No cracks were detected at this stage and the cusps were deemed to be of adequate thickness in the patient's existing occlusal scheme. Therefore, with the patient's agreement, we proceeded with the provision of a composite resin restoration.



FIGURE 1: The patient presented with a historic LL6 restoration with ditched and stained margins



FIGURE 2: Rubber dam was placed with a clamp on the LL7 and stabilised with a latex cord between the premolars

Allan Matthews describes restoring a molar using a versatile and durable nano-hybrid composite, which was endorsed by colleagues

Aesthetic and natural restoration





FIGURE 3: The existing restoration and the underlying caries were removed



FIGURE 4: The chosen composite was Venus Diamond Flow, Venus Pearl Opaque Medium Chromatic (OMC) and A2 shade



FIGURE 5: The incisal shade Amber (AM) was applied with an endodontic K-file



FIGURE 6: Rubber dam was removed, and the occlusion checked



FIGURE 7: Successful integration, shade and anatomy match



FIGURE 8: The patient was delighted with the natural-looking restoration

STRONG AND STABLE COMPOSITE RESTORATION

A Bioclear sectional matrix was used for interproximal anatomical accuracy. The chosen composite was a combination of Kulzer Venus Diamond Flow, Kulzer Venus Pearl Opaque Medium Chromatic (OMC) dentine shade and A2 universal shade (Figure 4).

After application of a total-etch, two-component dental adhesive, a base layer of Venus Diamond Flow was placed, immediately followed by compression of Venus Pearl A2 shade to form the mesial wall with complete adaptation of the composite in the margins.

OMC shade was used to replicate the missing dentine and A2 was placed on top for recreation of the occlusal enamel layer.

The incisal shade Amber (AM) was applied with an endodontic K-file into the anatomical fissures (Figure 5).

The amber resin was worked in with a microbrush before the use of a dry microbrush to soak up any excess. With characterisation such as this, less is always more!

The margins were adapted smoothly to the tooth using a combination of a flat plastic and a ball burnisher.

SEAMLESS ADAPTATION

The use of Kulzer products in this case made for a simple, straightforward workflow.

When using a Venus Diamond Flowable base layer, I know that the restoration will be very well

adapted to the walls and base of the restorative margins.

Venus Pearl is a staple in our practice due to its excellent handling properties and high conversion rate, which allows me to be confident of the structural strength and stability of the restoration.

FINISHING AND POLISHING

The composite filling was then covered with water-based K-Y Jelly and light-cured in accordance with the manufacturer's instructions, to set the oxygen inhibition layer.

Next, the rubber dam was removed, and the occlusion checked (Figure 6).

Careful adaptation of the fissures and inclines meant that there was little to no adjustment required in this case. Cusp and fossae contacts were maintained appropriate to the anatomy of the tooth.

Once the restoration was fully cured, finishing and polishing were completed using red banded diamond burs and polyester discs impregnated with aluminium oxide particles.

A final lustre was achieved using the Kulzer Supra polishing kit. The Supra polishers offer a long-lasting high gloss and the variation of shapes available are ideal to access and polish all surfaces thoroughly.

Figure 7 shows an 'across-the-tooth' view and demonstrates the integration of the restoration into the surrounding structure. It revealed a

successful shade and anatomy match to the adjacent teeth.

There was a further improvement in integration once the teeth rehydrated 72 hours later.

POSITIVE FEEDBACK FROM PATIENT AND PEERS

The patient was delighted with the natural-looking restoration (Figure 8). I also received positive feedback from fellow dentists after posting the case on social media.

While I feel the tooth anatomy could have been improved, I am pleased with how the composite has provided an aesthetic and integrated outcome.

I look forward to future review and am confident that the high flexural strength of the Venus products, combined with the techniques used, will reward us with a durable and stable restoration that will be in service for many years to come. ☺

CONTACT

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PRODUCTS USED

Bioclear sectional matrix Bioclear
 Venus Diamond, Venus Pearl Kulzer

