Simple and effective haemostasis in crown and bridge work

A clinical case using Traxodent material

Dr Michael N. Mandikos
Australia

Preparing crown margins that are defined, continuous and of the proper depth and position is a significant daily challenge in fixed prosthodontics. However, once these margins have been formed, capturing the margins with high fidelity in an elastomeric impression can be just as challenging.

A survey conducted by Gordon Christensen that was published in the Journal of the American Dental Association reported that the most frequently reported problem encountered by laboratory technicians fabricating fixed prosthodontics was the poor quality of the impressions. Subsequent studies have shown that the poor quality of impressions for fixed prosthodontic procedures is prevalent and of significant concern. There are many factors that contribute to inaccurate impressions; however, the most observable problem would appear to relate to accuracy of capture of the margin finish line.

The margins of a crown preparation can be difficult to capture in an impression owing to inadequate soft-tissue retraction, to moisture or to poor control of bleeding. Traditionally, using retraction cord has been the preferred means of achieving both tissue retraction and haemostasis. A survey of over 1,200 members of the American College of Prosthodontists (all specialist prosthodontists) found that 98 per cent used retraction cord. Of those using cord, 81 per cent soaked it first in a haemostatic solution, and 55 per cent of those who soaked their cord used aluminium chloride.

Placing a retraction cord is a precise procedure that requires the placement of the cord at the level of the preparation and within the confines of the gingival sulcus. Finer, braided cords are easier to place, and, similarly, fine placement instruments are required. The cord should retract the tissue horizontally, not displace it vertically. Practice is needed to allow the clinician to rotate and roll the cord as it goes into the sulcus, and the cord must remain in the sulcus for longer than 10 minutes to achieve effective retraction and haemostatic control.

This complicated and time-consuming process has encouraged the development and adoption of alternative, cordless retraction techniques. Expanding polyvinyl siloxane and kaolin-based paste materials have been introduced to the market with the claim of faster, easier and more effective retraction. A recent study has hinted that these materials may be even more efficient, as they stimulated bleeding in the gingival sulcus less often either during placement or immediately after removal, compared with retraction cord.

The following case report describes the use of Traxodent (Premier). The material is a clay-based paste that contains 15 per cent aluminium chloride. The paste is delivered to the sulcus directly by syringe as an alternative to the use of a separate haemostatic solution and retraction cord. It can be used alone for haemostasis or in combination with Retraction Caps (Premier) if greater retraction is desired. It is recommended that the paste be left in place for two minutes before rinsing it off.

Clinical case

A patient presented with symptoms associated with gross caries in the distal area of the mandibular right second premolar (45). He was referred to an endodontist and the tooth was subsequently root-canal treated (Figs. 1–3). Following the root-canal treatment, the tooth was restored with a direct post and core, then prepared for a Lava Zirconia crown (3M ESPE). The extent of the caries meant that the distal margin was very deep and in a subgingival position. This resulted in significant bleeding because gingival curettage was performed with a preparation bur (Figs. 4 & 5).

Significant haemostasis was needed; therefore, Traxodent was syringed directly into the gingival sulcus and left in place for two minutes before rinsing it off.
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The Traxodent was then rinsed off, and the bleeding was observed to have stopped (Figs. 9 & 10). A retraction cord then was placed and the impression taken.

Approximately four weeks later, the patient returned for seating of the definitive crown. At this appointment, the soft tissue had healed very nicely, with no residual inflammation and no recession. The crown was adjusted and seated, and the procedure was performed in a healthy gingival environment (Figs. 11 & 12).

Conclusion

I have found this material to be invaluable in situations where there is excessive gingival bleeding. In particular, when necessity has meant margins are placed deep subgingivally or electrosurgery has been performed, I have observed Traxodent to work very quickly and effectively in controlling the bleeding in these instances.

The last six case images (Figs. 13–18) demonstrate a maxillary right first premolar that lost its palatal cusp through fracture nearly 3 mm subgingivally. A combination of electrosurgery and tooth preparation resulted in a significant amount of bleeding, which was arrested by the application of Traxodent for two minutes. Once the Traxodent had been rinsed off and the surface dried, the clean, dry tissue surface then facilitated an accurate impression for the fabrication of a gold post and core. The final crown was subsequently made and cemented in place.

Acknowledgement

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Editorial note: A complete list of references is available from the publisher.