

Pre-endodontic treatment restorations

A modification of the 'donut' technique

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One of the most critical elements in endodontic treatment is proper tooth isolation. With the exception of teeth that have undergone a traumatic event and remain intact, teeth

requiring endodontic treatment fall into one of the following categories: previously restored, carious, fractured or a combination of the three (Figure, A). Before starting endodontic treatment, it is important to remove all caries down to the sound tooth

structure and remove any restorations showing marginal leakage, instability or both.

If these procedures are followed, the practitioner can be left with a tooth having little remaining tooth structure. Several techniques have been used to overcome this problem, including using a deep-reaching clamp; clamping adjacent teeth for multiple tooth isolation; placing clamp beaks on gingival tissue¹; cementing a preformed copper band, temporary crown or orthodontic band; or using pin-retained amalgam buildups, glass ionomer cements or composites.² Some practitioners may consider some of these techniques to be unstable, complex or time-consuming. Although opinions vary, most practitioners agree that a stable, pre-endodontic treatment buildup provides one less variable about which to be concerned before, during and after treatment, pending a definitive restoration.

The purpose of this article is to provide the reader with a rapid, stable, predictable technique for provisionally restoring

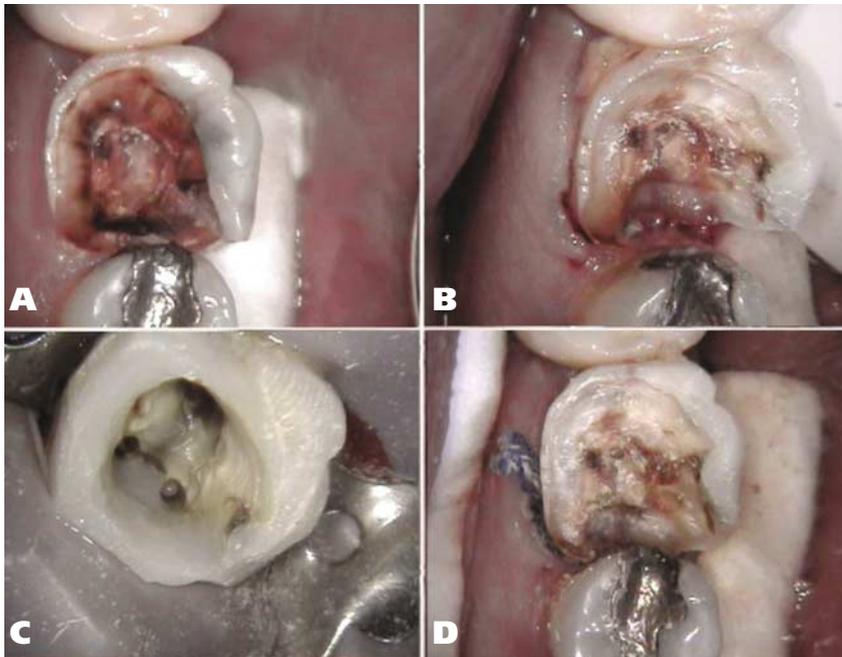


Figure. A. Broken-down mandibular molar. B. Broken-down mandibular molar after caries removal. C. Gingival retraction cord placed for hemostasis and access to subgingival tooth margin. D. Completed pre-endodontic treatment restoration that allows for proper isolation for endodontic treatment.

carious or fractured teeth before endodontic treatment using flowable light-cured composites. The technique described is a modification on the “donut” buildup technique.²

TECHNIQUE

First, remove all carious lesions and suspect restorations (restorations that appear to be unstable or that may fracture during or after endodontic treatment) (Figure, B). If during caries removal the pulp chamber becomes exposed, in the next step, place a cotton pellet in the area to prevent adhesive or composite from collecting there.

Next, place gingival retraction cord around the tooth in any area that is at or below the gingival margin (Figure, C). This step provides excellent hemostasis, in addition to providing visualization of any subgingival tooth margins.

Then, place a single-step, self-etching dental adhesive along any area of the tooth that you will restore and light cure. Using flowable light-cured composite, begin the buildup. Use the maxtrix band of your choice or create the buildup freehand. Incremental curing of the flowable composite is the best technique, as it allows for better control of the material.

Finally, use a football-shaped diamond bur to reduce the occlusal surface and contour the restoration. On completing this step, proceed with placing the rubber dam and begin the endodontic treatment (Figure, D).

When using restorative materials, follow the manufacturers’ directions to obtain the most predictable results.

CONCLUSION

In endodontic treatment, multiple variables can affect the

outcome of a case. The use of this technique will enhance endodontic treatment by preventing marginal leakage before, during and after treatment that is provided before a final restoration is placed; facilitating treatment by increasing tooth surface area for clamp stability; and preventing further breakdown of the tooth by caries or fracture. By planning with a stable pre-endodontic restoration, the clinician is taking the first step toward a successful result. ■

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1. Walton RE, Torabinejad M. Principles and practice of endodontics. 2nd ed. Philadelphia: Saunders; 1996:127.

2. Cohen S, Burns RC. Pathways of the pulp. 8th ed. St. Louis: Mosby; 2002:136.