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A Suggested Solution for Endodontic Provisional Challenges

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INTRODUCTION

While there are many challenges to placing an endodontic provisional restoration, they are identified in this study and a procedure that can avoid the most common endodontic provisional problems is suggested.

Provisional shortcomings ranked second among pain-related issues after the initiation of treatment.[1] Shortcomings include proper seal of the access cavity, ease of placement and removal, acceptable esthetics and protection of the remaining tooth structure.[2]

The provisional restoration must provide a seal that prevents the exchange of fluids from the oral cavity to the canal space, while maintaining any medications within that space. Anderson and others have shown that IRM coronal restorations had significant leakage after seven days.[3] This leakage was determined to be extensive under thermal stress.[4] Galvin and others conducted a study wherein the resins tested "all produced coronal seals superior to those produced by IRM."[5]

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DOI: 10.2341/08-62

Efficient replacement and removal of the provisional restoration is essential. The restorative material must be prevented from entering the canal space. By using materials common to the dental office, cost is reduced.

An additional concern regarding endodontic provisional restorations is the placement of a small cotton pellet over the canal orifice. Several challenges with this practice are noted in the literature. The thickness of the provisional material may be reduced.[6] By acting as a cushion during placement, the stability of the restoration may be compromised. Fibers of the cotton pellet may inadvertently adhere to the cavity walls and serve as a wick.[7] "Pilot studies have shown that no matter how meticulous cotton spacers are placed, fibers may still connect the spacers with the oral cavity."[8]

The following procedure is suggested to address the challenges presented.

PROCEDURE

1. Isolate the involved tooth.
2. Remove decay.
3. Perform a pulpectomy (Figure 1).
4. Insert a large gutta-percha point (Kerr Corp, Orange, CA, USA) into the coronal one-third of the canal, providing protection from restorative material entering the canal and a channel to eas-

Figure 1. *The tooth is isolated, decay and pulp are removed.*

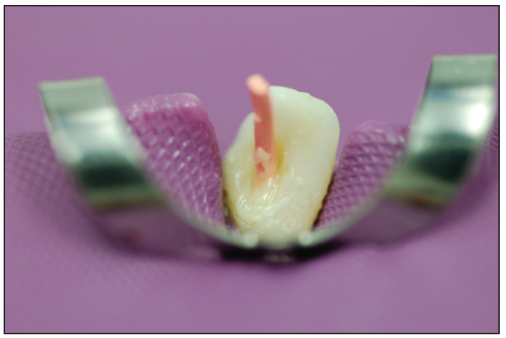

Figure 3. *The initial composite is placed around the gutta percha point and polymerized.*

ily re-enter the canal by insuring a snug fit of the gutta-percha point (Figure 2).

5. Etch the entire surface with 37.5% phosphoric acid (Kerr Corp).
6. Remove the etchant by rinsing with air/water spray.
7. Apply primer and bonding agent (Optibond, Kerr Corp), then thin with an air stream.
8. Polymerize for 30 seconds with a 1000 mW/cm^2 light-unit emitting wavelength with a range of 450 nm-470 nm (Demetron A.2, Kerr Corp).
9. Provide a seal for any medications placed within the canal by placing a resin composite (Point 4, Kerr Corp) restoration that surrounds the gutta-percha point (Figure 3).
10. Reduce the gutta-percha point until it is contained within the restoration. Place additional resin composite to seal the access.
11. Contour and polish the restoration with a combination of finishing burs (ET Burrs, Brasseler, Savannah, GA, USA), points (Enhance Points, Dentsply Caulk, Milford, DE, USA) and cups (Enhance Cups, Dentsply Caulk) (Figure 4).

Figure 2. *A large gutta percha point is inserted into the coronal one-third of the canal.*

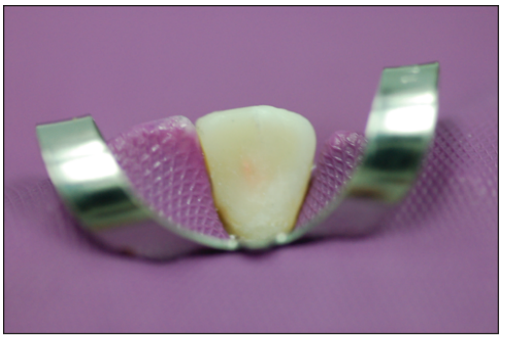

Figure 4. *The completed endodontic provisional, which allows for easy re-entry into the canal.*

12. Accomplish re-entry into the canal for completing the endodontic procedure by exposing and easily removing the gutta-percha point.

There are two important areas of potential problems with this technique. First, a dry field must be maintained during the entire procedure to prevent contamination of the canal space and to provide an environment for proper bonding of the composite. Second, the gutta-percha point must be of sufficient size to allow for a snug fit within the canal and provide easy access upon re-entry into the canal.

(Received 3 May 2008)

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