Quick Tips

Using Luscent Anchors to Esthetically Restore and Reinforce Flared Root Canals

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Endodontically-treated anterior, immature teeth with flared, oversized root canals present a daunting challenge to practitioners. These teeth have root canals with thin walls that are susceptible to fracture.[1] Such large canals are also difficult to restore with posts, because a well-adapted cast post and cores lead to shadowing and graying of the root surfaces, which, in turn, leads to discoloration at the tooth's gingival margin.[2,3] Only recently has an esthetic, translucent, bondable, fiber-reinforced post system—Luscent Anchor (Dentatus USA)—become available (Figure 1).[4,5] These bondable posts have been demonstrated to reinforce thin-walled roots through resin bonding internal root splinting.[6,7]

When choosing an esthetic post system, there are a number of criteria the post must meet to guarantee clinical success. These include:

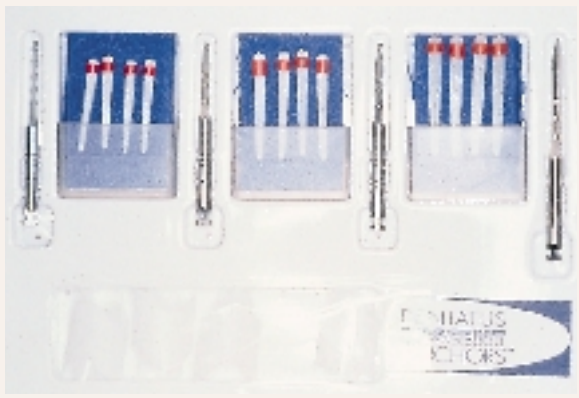

Figure 1—Light-transmitting, fiber-reinforced resin Luscent Anchor System.

Figure 2—Acrylic resin temporary crown on maxillary central incisor.

Figure 3—Radiograph of thin-walled, flared root canal.

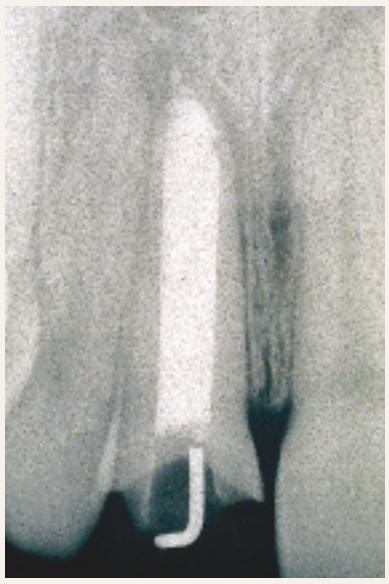

Figure 4—View with temporary crown removed. Note that at least one quarter of the crown remains.

1. Light transmission, which eliminates shadowing of the post within the tooth, maximizing the esthetics of the final restoration.
2. The ability to bond with the root canal for root reinforcement.
3. Impact absorption and dissipation, should the coronal portion of the tooth crown experience trauma.
4. Availability in multiple sizes, to fit different root canal diameters.

Case Report

A 12-year-old boy presented, having fallen 30 days earlier and fractured his maxillary right central incisor. The patient had seen another dentist, who treated the tooth with endodontic therapy and a temporary acrylic resin crown (Figure 2). A radiograph revealed that the majority of the coronal tooth structure was missing and the root canal was thin-walled (Figure 3). It appeared that the tooth had been

Figure 5—The gutta percha removal from the root canal is verified with a radiograph.

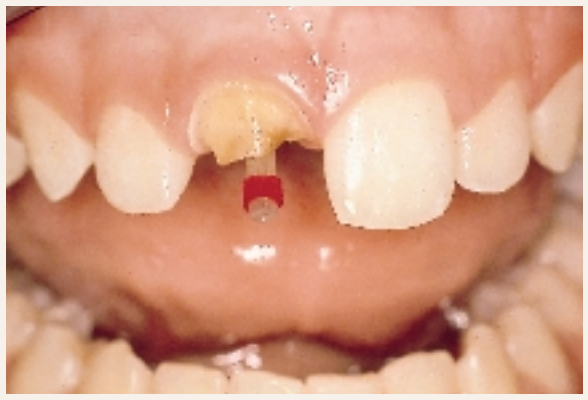

Figure 6a—The Luscent anchor is tried-in; facial view.

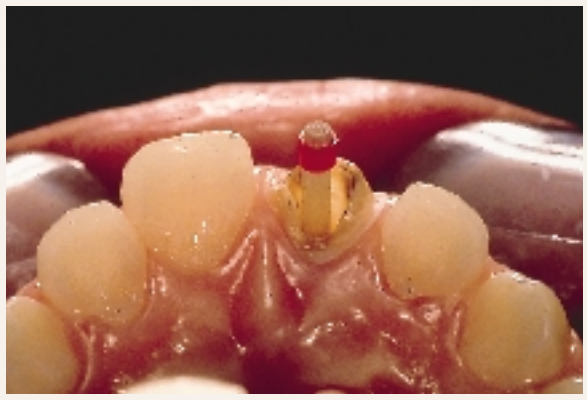

Figure 6b—The Luscent anchor is tried-in; lingual view.

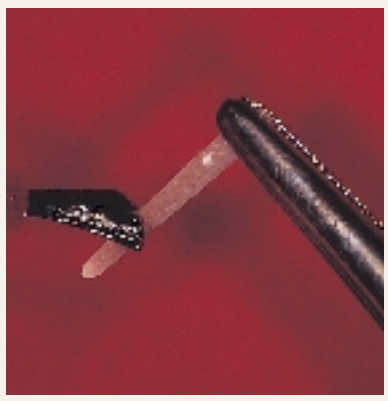

Figure 7—Resin adhesive is painted on the Luscent Anchor.

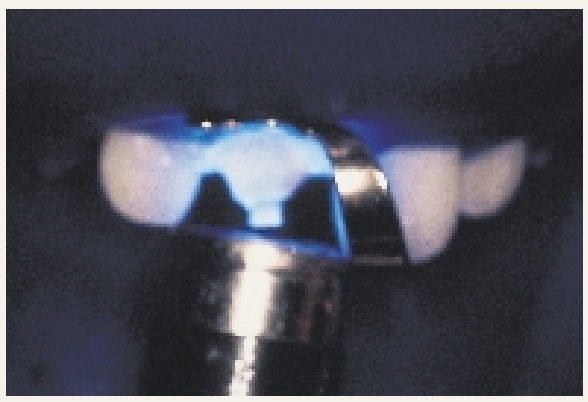

Figure 8—Post cemented in root canal and light-cured.

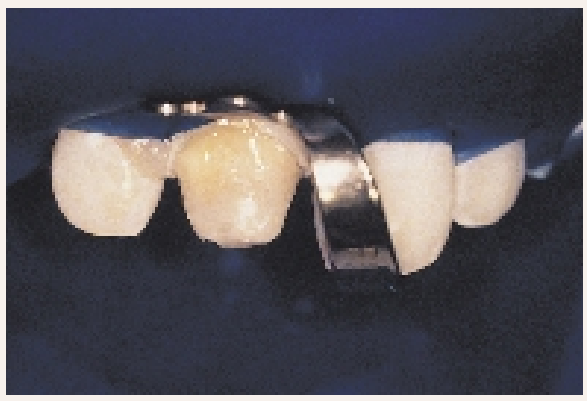

Figure 9—Composite resin core placed.

Figure 10—Completed crown preparation.

Figure 11—Cemented In-Ceram Spinell crown.

Figure 12—Translucency of all-ceramic crown with translucent Luscent Anchor visible transillumination.

nonvital before the recent accident, because of the large, flared root canal that was present. After a thorough clinical examination, it was determined that at least one quarter of the coronal tooth structure remained, and it could be restored with a bonded post and core and esthetic bonded crown to maximize tooth reinforcement.

The temporary crown was removed (Figure 4) and the gutta percha endodontic filling removed with reamers. A radiograph was made to verify the removal of the gutta percha and to assess whether the walls of the canal were clean and ready for the bonding procedure (Figure 5). The Luscent Anchor with the largest diameter, at 1.8 mm, was tried-in to verify placement within the root canal (Figures 6a and 6b). The root canal was etched for 15 seconds with a 35% phosphoric acid etching gel, and rinsed with water using an endodontic irrigation syringe. The canal was then dried with paper points. The light-cure adhesive (One Step, Bisco) was painted with several coats in the root canal, using a microapplication brush. The Luscent Anchor was then coated with the same bonding resin (Figure 7). A hybrid composite resin (Charisma®, Heraeus Kulzer, Inc.) was placed into the root canal. The post was inserted into the root canal and light-cured for 2 minutes (Figure 8). The light-cured composite resin core (Charisma®) was then placed (Figure 9).

Next, the central incisor was prepared with the final crown preparation (Figure 10). An impression was made and sent to the dental laboratory for fabrication of an all-ceramic crown. The all-ceramic crown (In-Ceram Spinell, Vita) was cemented using an adhesive resin technique (Figure 11). Note the esthetic translucency afforded by the Luscent Anchor when the ceramic crown is transilluminated (Figure 12). There is no

Figure 13—Radiograph of bonded Luscent Anchor within the root canal.

evidence of the shadowing that is typically seen with metal and opaque white posts. The final radiograph demonstrates the bonded resin reinforcement afforded by placement of the Luscent Anchor (Figure 13).

Conclusion

The innovative Luscent Anchor system is an esthetic post that is matched for the current generation of esthetic crown materials because of its translucency. Unlike other esthetic prefabricated posts that recommend specific adhesives and resins, the Luscent Anchor allows practitioners to choose the adhesives and composite resins they have previously used with success.

Acknowledgments

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