



# Clinical considerations on the use of fiber post and composite core in the recovery of an endo treated tooth

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The use of fiber posts has increased considerably since their introduction in the early 90s. The concept of the composite fiber post is based on the individually formed build-up, which utilises resin-based adhesion, the post close to the dentin walls of tooth-restoration systems, and a composite resin medium embedding the fiber resin post. The retention of this is not only related to the friction of the post, but depends on the surface area available for adhesion, consisting of the remaining dental substance, namely the remaining coronal and radicular dental structure. The rationale of a fiber post is then to give support to the core build-up material, and to distribute bending stress to the entire remaining substance, to protect the remaining dental structure from catastrophic fractures.

This reconstructive approach has several advantages: it is time saving, requires no removal of sound tooth substance, is extremely reliable if properly performed, and quite inexpensive. We can use a fiber post in several clinical scenarios: after an endodontic treatment to give support to the build-up, preceding the placement of a crown, to reconstruct a lost abutment due to secondary decay under a preexisting crown, or to achieve an ideal pre-reconstruction for an endodontically treated tooth requiring an adhesive partial ceramic indirect restoration.

When we use the post and core approach to restore an endo-treated tooth we may wish for the following: firstly for the use of a dental adhesive system that can perform both in the intra radicular environment (with the scarce availability of curing light) and in the coronal area, secondly for a strong and well managed post with no voids or broken fibers, and finally for a unique cement-core composite resin material that can polymerise both chemically and by light curing with a tooth-like ideal consistency when the clinician uses it as build-up. This last point helps a lot when the clinician uses his rotary instruments.

## Clinical case

The patient came to our clinic reporting pain in tooth 25. After clinical examination and X-rays we reported a root decay that resulted in a painful pulpitis (Fig. 1). To treat the small cavity, we opened a little flap (Fig. 2–5). During the endo treatment, a space for a fiber post was achieved by removing the filling gutta percha until 5-6 mm to the apex (working length) (Fig. 6–8). A fiber post with a proper diameter (LuxaPost, DMG) was selected. The remaining tooth structure was cleaned and a universal dual curing dental bonding agent was used in the entire remaining tooth (LuxaBond Universal, DMG)(Fig. 9, 10). A matrix was placed and a dual cure composite (LuxaCore Z Dual, DMG) was chosen and used as cement in the root canal and for the core build-up in the coronal area (Fig. 11–13). Once LuxaCore Z was extruded, filling the root and the coronal space, the post was and the entire complex was light cured (Fig. 14, 15).

Finally, an overlay was prepped (Fig. 16) and an impression with PVS impression material (Honigum Mono on tray and Honigum Light as flowable syringeable material around the preparation, both DMG) was taken (Fig. 17).

At the next appointment, after the placement of a rubber dam, a Lithium DiSilicate ceramic overlay (Fig. 18) was luted using a universal bonding agent (LuxaBond Universal, DMG) with total etch technique and a dual cure resin cement (PermaCem, DMG) (Fig. 19–24).

After rubber dam removal and occlusal adjustment, the restored tooth was ready for service (Fig. 24–26).

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Fig. 1: Little decay penetrating to the channel causing acute pulpitis

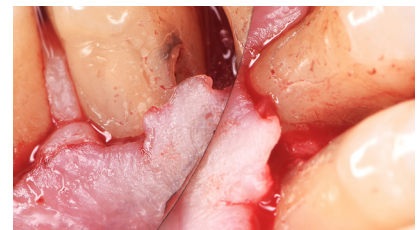


Fig. 2: Opening a flap



Fig. 3: Lesion filled with SE DBA and flowable composite



Fig. 4: Suture



Fig. 5: Endo treatment



Fig. 6: Ready for restorative procedures



Fig. 7: Rubber dam in place



Fig. 8: Cleaning of the remaining dental structure and placement of a Biaggi matrix



Fig. 9: Mixing LuxaBond Universal (DMG) Universal Adhesive



Fig. 10: Application of the adhesive on the root and on the coronal dentin

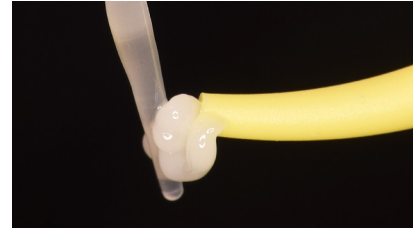


Fig. 11: Application of LuxaCore Z Dual (DMG) in the LuxaPost

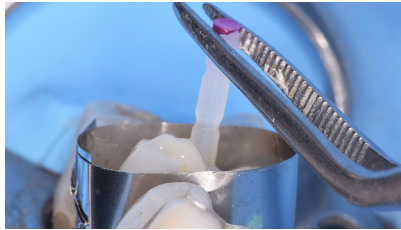


Fig. 12: Insertion of the LuxaPost (DMG) in the root canal

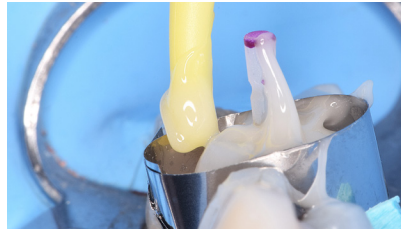


Fig. 13: Application of LuxaCore Z Dual (DMG) in the cavity



Fig. 14: Polymerisation of the core material in the LuxaPost



Fig. 15: Removal of post and composite excesses



Fig. 16: Preparation for a overlay



Fig. 17: Impression with Honigum (DMG)

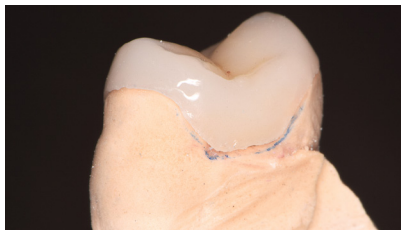


Fig. 18: Ceramic overlay



Fig. 19: Rubber dam in place



Fig. 20: Etching



Fig. 21: Rinsing



Fig. 22: Bonding application



Fig. 23: Cementation of the overlay using PermaCem 2.0



Fig. 24: Overlay in place



Fig. 25: Final-occlusal view



Fig. 26: Final, buccal view