TREATMENT OF PULP LESS TOOTH USING PREFABRICATED POST AND CORE AND FIXED RESTORATION

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ABSTRACT

This paper reports the management of a fractured maxillary lateral incisor with irreversible pulp injury by endodontic therapy followed by fiber post and direct resin composites restoration with functional and esthetic results.

Key words: Dowel Pin; Glass Fiber Post; Root Treated Teeth; Post and Core

Introduction

Restoration of endodontically treated teeth is an important aspect of dental practice that involves a range of treatment options of varying complexity. The increasing demand for esthetic, biocompatible posts and cores has led to the development of metal-free, post-and-core systems. The dowel and core is frequently used by practitioners to restore endodontically treated teeth with substantial loss of coronal structure. Prefabricated posts of different materials have been introduced to the market. Two groups of prefabricated posts exist: metallic posts, such as titanium alloy, and nonmetallic posts, such as glass fiber–reinforced resin composite or zirconia, which are intended to be adhesively bonded to the root canal. A prefabricated all-ceramic post with good mechanical and biocompatible properties, in combination with novel adhesive technology, will allow direct bonding of the post to the root and core buildup with composite. Composites offer several advantages and have therefore become popular for core reconstruction. These advantages include strength, bonding capability, ease of manipulation, and rapid setting time, as compared with silver amalgams. This paper reports the management of a fractured maxillary lateral incisor with irreversible pulp injury by endodontic therapy followed by fiber post and direct resin composites restoration with functional and esthetic results.

Case Report

A 35 year old male patient reported with a chief complaint of fractured upper front tooth. The maxillary right lateral incisor has an irreversible pulp injury and was endodontically treated (Figure 1). After root canal treatment, a fiber post was inserted. A direct resin composite restoration was placed after the bonding of a fiber post to the root treated tooth. Treatment options like root canal treatment followed by all ceramic crown or porcelain fused to metal crown, were discussed and explained to the patient, who selected porcelain fused to metal crown to improve the esthetics.

Procedure: Prepare the root canal with specific instruments in accordance with the manufacturer’s instructions from the D A denglass radio opaque glass fiber composite post kit. Clean and rinse the canal with NaOCl and dry with paper points. Develop a chamfer finish line and prepare the remaining coronal tooth structure for the ceramic core. Select an appropriately sized prefabricated glass fiber post (diameter of 1.20 mm). Insert the selected parallel side zirconium-oxide post into the prepared root canal. Seat the post in the canal and confirm the length and make adjustments as needed (Figure 2). Etch the tooth preparation for the post with 37% phosphoric acid for 15 seconds. Rinse and dry with paper points. Apply the primer into the post preparation and then on the restoration (Figure 3). Apply cement mixture onto the conditioned post. Seat the restoration and remove the excess Cement. Refine the tooth preparation if necessary with diamond burs. Prepare the core to receive the appropriate crown (Figure 4,5). Apply cement mixture to lute the porcelain fused to metal crown (Figure 6-8).

Discussion

Endodontically treated tooth is a unique subset of teeth requiring restoration because of several factors such as dehydrated dentin, decreased structural integrity and impaired neurosensory feedback mechanism when compared to a vital tooth. Prosthetic restoration of non vital anterior teeth often requires making a post and core to support a crown and restore the remaining tooth structure. A composite resin core and a prefabricated all ceramic post seem to be the esthetic treatment of choice for anterior. The bond between the zirconium oxide post and the composite material was achieved mechanically by roughening and sandblasting the surface of the zirconium oxide post, thereby increasing the retention of the luted components. All types of posts should be of an adequate length and strength and should fit well into the canal. Therefore, with direct systems, precision drilling and matching of the post can be carried out. Core fabrication using prefabricated posts and composite resin is a viable technique for endodontically treated teeth. Ferrule length significantly increased the fracture resistance of endodontically treated teeth restored with prefabricated posts and cores. Fracture of the composite resin core when occlusal force is applied may occur as protection of the supporting root. But in case of cast post and core, the most common failure was the fracture of the root.

Conclusion

In conclusion restoration of endodontically treated teeth with fiber posts and direct resin composites is an alternative treatment option. Thus, the procedure is less time-consuming than conventional procedures, and results in good esthetics. The clinical results are promising and a favorable prognosis can be expected.
Treatment of pulp less tooth using prefabricated post and core and fixed restoration

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