



ESTHETIC CORRECTION OF MAXILLARY CENTRAL INCISOR WITH EVERSTICK POST AND ALL CERAMIC CROWN: A CASE REPORT

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ABSTRACT

The introduction of materials that can bond to dentine has created an alternative option for restoring endodontically treated teeth damaged and deteriorated due to fracture, decay, previous restoration or excessive wear. As bondable reinforcement fibres, they can be used to build up endodontic posts and cores; moreover, they adapt to the root canal walls without requiring additional enlargement of the root canal after endodontic treatment. This case report discusses the management of fractured non-vital maxillary central incisor using EverStick post and composite resin with all ceramic crown coverage.

KEYWORDS : EverStick Post, Esthetic rehabilitation, Crown Fracture, All Ceramic crown

INTRODUCTION

The most common type of injury within the permanent dentition is seen as fracture of anterior teeth which mostly occur among children and adolescent¹. The important role of anterior teeth in esthetics and function makes these teeth an important component in dentition. Root canal therapy (RCT) is effectively done after apexification but compromised dentinal walls particularly in cervical area, makes these teeth vulnerable to fracture². The fracture resistance of endodontically treated teeth mainly depends on the remaining dentine thickness around post and core systems³. Flared root canals are more vulnerable to fracture because the remaining walls are thin, and therefore the restoration of those teeth requires techniques which will not compromise the integrity of the remaining radicular tooth structure².

In recent years, an alternate to prefabricated metal posts, cast post for the restoration of endodontically treated teeth have emerged with various forms of fiber reinforced posts⁴. The reinforced fiber that is used to construct an intra-canal post offers superiorities over other systems, like relative easy manipulation, translucency, and resin composite crown reinforcement⁵. The technology evolution has enabled manufacturers today to produce fiber posts that-besides offering superior aesthetic and mechanical properties (which are the primary qualities to be appreciated compared with metal or cast post) are also radio opaque and available in a variety of shapes⁶.

A novel method introduced lately for restoring a mutilated tooth is through EverStick posts which can overcome the disadvantages (one such being its rigidity and root fracture) of using metal posts^{7,8}. The preparation required for this post allows root dentin tissue to be preserved as its fibers adapt to the outline of the root canal, and therefore the risk of dentin perforation may be prevented. Furthermore, it can be utilized in curved canals^{9,10}.

This article reports such a case treated with EverStick Post and

Core for the restoration of traumatically fractured maxillary left permanent central incisor & All Ceramic Crown.

CASE REPORT

A 29 year old male patient reported to the Department of Prosthodontics, Crown and Bridge, K. M. Shah Dental College and Hospital, Piparia, Waghodia, Vadodara, Gujarat, with the chief complain of fractured crown in relation to maxillary left central incisor. The patient had no significant medical history. The intraoral examination revealed fractured maxillary left central incisor with only 1/3rd coronal tooth structure remaining. Intra oral periapical radiograph showed root canal treatment done with no periapical pathology (Fig. 1). After examination and diagnosis treatment was decided to reestablish the crown fracture with EverStick post and core followed by All Ceramic crown.



Fig 1: Intraoral examination & IOPA

Post space was made with a peeso reamer till no #2 without enlarging far more than the canal, leaving 5 mm of gutta-percha apically (Fig. 2a). Then the canal was rinsed with normal saline and dried carefully using paper points. Post of 0.9 mm diameter was selected. The require amount of post was cut from the silicone strip using scissor. This uncured post with the assistance of tweezer was inserted within in the canal and its fit was checked. The post was then taken out and cured for 10 sec (Fig.2b). The hardened post was re-inserted to confirm its snugly fit. The canal was then filled with dual cure cement with an intraoral tip and post was slowly inserted. The post together with the core was light cured for 40 sec (fig2c).



Fig 2: a. Post Space preparation; b. Curing of adapted EverStick post; c. Cured Post intraorally

Core build up was done using Composite. Tooth preparation was done. Gingival retraction was done. Impressions were taken with Elastomeric Impression material. All ceramic crown (Ultra-Translucent) cementation was done (Figure 3).



Figure 3: a. Tooth Preparation; b. Final Impression; c. Final Cementation

DISCUSSION

Since a few years, post and core mainly custom-made were the restoration of choice for a mutilated endodontically treated tooth. In arrears to its disadvantages like multiple visits, technique sensitive laboratory procedure, risk of crown fracture and corrosion, technology has shifted to fiber reinforced posts that are successful in restoration of maxillary tooth¹¹. Fiber resin posts comparatively showed similar hardness to dentin and exhibited greater durability than the metal posts. Having coefficient of elasticity almost like dentin strengthens the remaining tooth structure and increases resistance to tooth fracture. The fiber-reinforced post offers clinical advantages with the flexibility of easy removal and being less traumatic. Like a cast or prefabricated post, fiber posts aren't retrieved in one piece but are removed from the canal by drilling down directly through them. Thus, fiber post was utilized in this case to revive the fractured teeth with composite resins^{12,13}.

Ever stick post is a flexible, resin impregnated, uncured glass fiber post which has an Interpenetrating polymer network (IPN) resin matrix which can be cured to the anatomic shape of the crown¹⁴. This makes them adapt well to the morphology of the root canal and attains high flexural strength after light curing. Also, these glass fibers can be reactivated even after polymerization to the desired shape of the core. Apart from that, it provides maximum support to the crown structure by filling the root canal space completely with fibers. After curing these fiber-reinforced posts exhibit high tensile strength and modulus of elasticity being same as the elasticity of dentin, thereby causing less root fracture. This permits the stress of occlusion to be evenly distributed throughout the root structure¹⁵.

The preparation needed for the EverStick post is a smaller amount as compared to cast metal and prefabricated metal/fiber posts. This permits root dentin to be preserved and causes less probabilities of root perforation¹⁶.

Olaide S Gbadebo et al. conducted a study to check the clinical performance of metallic and glass fiber posts within the restoration and concluded that over a 6 month time, the rehabilitation using prefabricated glass fiber posts and metallic posts showed comparable clinical results. The clinical performance of the glass fiber post was slightly better than that of metallic post in the 6 months study period though this wasn't found to be statistically significant. However a long term review of the restorations will be required for further assessment¹⁷.

Roshan Uthappa, Deepika Mod et al. compared the fiber post and metal post within the endodontically treated teeth

restoration and concluded less chance of failure was seen with fiber post retained restored teeth than that of the metal post¹⁸.

CONCLUSIONS

This technique provides the clinicians with a wonderful chance of giving good esthetic restoration with high flexural strength and bonding with composite while not compromising on the tooth structure in one sitting. Future follow-up of a lot of clinical cases is needed to see the ultimate success rate of the technique.

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