



Salvage of Maxillary Central Incisor through Fiber Reinforced Post and Core and All Ceramic Crown

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ABSTRACT

This case report describes the post and core treatment of a maxillary central incisor. A 21-year-old male patient reported to the Department of Conservative Dentistry and Endodontics with the chief complaint of pain in his upper front tooth region. On clinical examination, there was Ellis class III fracture resulting in loss of significant tooth structure necessitating post and core treatment followed by crown placement. Treatment was initiated with post space preparation as the root canal treatment already been done, followed by post cementation and core build up and luting of all ceramic crown.

Keywords: Esthetic rehabilitation, ceramic, post and core

INTRODUCTION

The anterior teeth are frequently damaged in accidents involving young children and teenagers. Simple crown fractures to the permanent teeth have a significant impact on the patient's appearance, function, and ability to speak. A permanent incisor fracture is a painful experience for the young patient and has psychological effects on both the parents and the children, making him a target for taunts and mockery from other kids. The present case report describes management of a Ellis class III fracture in maxillary right central incisor. It is treated endodontically followed by placement of fiber post and ceramic crown.

CASE REPORT

A 21 year old male patient reported to the Department of Conservative dentistry and Endodontics with chief complaint of fracture in the upper front tooth region. Patient had given a history of trauma few years back. On clinical examination, an Ellis class III fracture was seen with respect to the right and left maxillary central incisors. On radiographic examination revealed root canal treatment was already done in 11 and access opening followed by calcium hydroxide dressing and temporary composite build was seen in 21. Oral prophylaxis was performed and patients occlusion was noted with no discrepancy. Treatment plan was explained to the patient for both 11 and 21. Patient desired treatment only in 11.

Since the Root canal treatment was already done in 11 so we started with post space preparation. Prefabricated fiber post was luted in the canal using dual-cure resin cement (Calibra, Dentsply) after the post area was prepared with Peeso Reamer. Core build-up was done by composite resin. Crown cutting was done and alginate impression was taken and shade selection done using Vita shade guide. When the all ceramic zirconia crown was fabricated it was luted by luting cement.



Fig 1 : Preoperative



Fig 2 :Post space prepared



Fig 3 : Placement of fiber post



Fig 4 : Cast after crown preparation



Fig 5 : Cast of the patient after crown cutting irt 11



Fig 6 : After crown placement (Post operative)

DISCUSSION

An attractive smile and healthy teeth are essential components of overall attractiveness and self-esteem. Anterior crown fractures cause discomfort as well as significant psychological, aesthetic, functional, and phonetic issues that may have an impact on social interactions.

Depending on the patient's expectations, a number of aspects need to be taken into account while restoring anterior teeth. Due to the lower possibility of root fractures, restoring such teeth with substances that have a similar elastic modulus as dentin seems favourable. The degree of surviving tooth structure, the strength of the adhesion, and the kind of post—posts increase the fracture resistance of the root—are the key factors influencing the fracture resistance of endodontically treated teeth.

Endodontic treatment is completed first, then the post is put in place. It provides mechanical support for the broken portion, allowing it to withstand occlusal loads. The length of the clinical procedure is shortened and made simpler by this. The advantages of fiber-reinforced posts over metal posts are greater. Because resin cement leverages the surface flaws for adherence, they only require minimal preparation. The surface area for adhesion is increased by surface imperfections ¹.

According to Freedman, the post's primary purpose is to secure the post-and-core complex inside the radicular region of the surviving tooth. The ability of a post to hold the entire foundation is improved when it can be attached to tooth structure ².

It is well acknowledged that luting fibre posts to root canal dentin can enhance the force distribution along the root, lowering the risk of root fracture and strengthening the remaining tooth structure.

CONCLUSION

For the treatment of anterior injured teeth, a fiber-reinforced root canal post and composite material or all ceramic crowns can produce excellent aesthetic and functional outcomes. When loaded, fibre posts distribute tension more uniformly than stiff metal or zirconium oxide ceramic posts. In comparison to metal or metal oxide post systems, fibre reinforced posts also have better optical characteristics. As a result, using fibre posts in combination leads in pleasing aesthetic outcomes and enhanced mechanical qualities.

REFERENCES

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