Aesthetic Rehabilitation of Anterior Incisor: Post and core treatment –A Case Report

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Abstract:

This case report describes the post and core treatment of a maxillary central incisor. An 18-year-old female patient reported to the Department of Conservative Dentistry and Endodontics with the chief complaint of pain in 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. Treatment was initiated with removal of carious region, canal was located, working length was established followed by chemo mechanical preparation and obturation. Post space preparation was done in the canal followed by post cementation and core build up.

Keywords: Post, core, ceramic, crown lengthening.

Introduction:

Endodontic treatment is the gold standard for treating teeth with necrotic/non-vital pulp. However, in some cases root canal treatment alone doesn't suffice to obtain the desired results. This is specially challenging in cases of trauma in the permanent dentition of anterior teeth which mostly occur among children and adolescent. Such cases not only render the pulp non-vital but may also lead to fracture of the coronal tooth structure. If the fracture also exposes the dental pulp, it is known as Class III fracture (Ellis and Davey classification).

In such cases, reinforcement of the tooth mandates the use of post and is an indication for post and core treatment, before crown restoration. The use of post provides strength to the root structure and also helps in proper build-up of the coronal tooth structure.

Case Report

An 18-year-old female patient reported to the Department of Conservative Dentistry and Endodontics with the chief complaint of fractured upper front teeth with a unesthetic appearance of face, after sustaining trauma due to accidental fall. On examination, there was no pain and swelling. Ellis class III fracture was diagnosed during intraoral examination. Radiolucency involving enamel, dentin and pulp was seen in radiographic examination. On vitality testing using cold test and electric pulp tester, the tooth tested non-vital. The patient was advised root canal treatment followed by post and core build up followed by crown cementation.

After administration of local anaesthesia, access cavity was prepared and canal orifices located. Working length was determined and canal was

prepared up to 25/0.06. The canal was obturated with mono cone technique using AH Plus sealer. After this, post space preparation was done in the palatal canal using peeso reamers size 1 and 2 leaving 3-4mm apical gutta percha intact.

Prefabricated fiber post was cemented using dual cure resin cement in the post space and the core build up was subsequently done. All ceramic crown cementation was done.

Preoperative

clinical and radiograph

Obturation

Post space preparation

Fiber post in position

Core build up **Post-operative**

Discussion

A pleasing smile with healthy teeth is an integral part of overall appearance and self-esteem. Anterior crown fractures lead to discomfort and serious psychological, esthetic, functional and phonetic problems that can affect social relationships.

In the restoration of anterior teeth, many factors are to be considered depending on the patient's expectations. Restoring such teeth using materials with a similar elastic modulus to dentin appears advantageous due to the reduced risk of root fractures. The fracture resistance of endodontically treated teeth is dependent mainly on the amount of remaining tooth structure, the quality of adhesion and the type of post as posts increase the fracture resistance of the root. Oliveira and colleagues

concluded that the greatest factor influencing the strength of endodontically treated teeth was the amount of remaining tooth structure^[1]. Because of these properties, fiber post was used in this case to restore the fractured teeth. Most fiber posts are relatively radiolucent and are ready to use whereas metal post requires more clinical and laboratory time.

Freedman stated that the main function of the post is to anchor the post-and-core complex within the radicular portion of the remaining tooth. A post that can be bonded to tooth structure improves its ability to retain the entire foundation^[2]. The use of post enables to reinforce the strength of the lost tooth structure. Posts placed in the canal subsequent to endodontic treatment increases the strength of the tooth and helps it to withstand the masticatory forces directed along the tooth.

Conclusion

Restoration of teeth after endodontic treatment is an important part of the restorative practice in dentistry. Preservation of coronal dental tissue, the use of posts with properties similar to dentin and effective post adhesion are the most important factors for the successful clinical performance of restored endodontically treated teeth.

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