

Restoration of A Badly Broken Down Tooth with A Custom Cast Post

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Abstract

The goal of endodontics and restorative dentistry is to retain the natural teeth with maximal function and pleasing aesthetics. Endodontically treated tooth with little or no clinical crown can be restored with different post and core materials for additional retention and support but appropriated material and method depend on type, function and remaining tooth structure as well as tooth prognosis and economic status of patient. A case of structurally compromised, endodontically treated anterior tooth is discussed here, which was restored with cast post and core followed by porcelain fused to metal crown.

Keywords: Cast Post; Endodontics; Broken Tooth.

Introduction

It is generally agreed that the successful treatment of a badly broken tooth with pulpal disease depends not only on good endodontic therapy, but also on good prosthetic reconstruction of the tooth after the endodontic therapy is complete [1-3]. The primary purpose of a post is to retain a core in a tooth that has lost its coronal structure extensively. Options for restoration of badly-broken down and endodontically treated teeth are composite resin, pin retained amalgam, casting onlay, prefabricated post with composite resin/GIC and cast post and core with crown. The appropriate material and method depend on type, function, remaining tooth structure and prognosis of tooth [4-6]. In this article, a case of cast post has been discussed [7-8].

Case Report

A 28-year-old male patient reported to dental office with a complaint of fractured maxillary lateral incisor. Clinical and radiographic examination revealed

crown fracture extending till the junction of the cervical and middle 1/3rd (Figure 1 (a), (b) and (c)). All feasible treatment options were explained to the patient depending upon the remaining tooth structure of respective tooth. The proposed treatment plan included root canal treatment of the affected tooth and custom made post for 22, followed by porcelain fused to metal crown fabrication. The post space (Figure 2) was prepared using peeso reamers (Mani, Prime Dental), while preserving a required apical seal. A direct wax impression of the post space was taken for fabrication of custom post for 22. After fabrication of the custom post, its satisfactory adaptation was verified radiographically as well as clinically (Figure 3 and 4), the post was cemented in the root canal using dual cure paracore resin (Coltene, Germany) cement. Further core build-up and tooth preparation was done followed by porcelain fused to metal crown cementation (Figure 5).

Discussion

The rationale in selecting the treatment for a badly broken tooth is to restore satisfactory form, function and esthetics, while maintaining the physiologic integrity of the tooth with the adjacent hard and soft tissues. In accordance to these principles, definitive restoration was accomplished in our cases by enhancing the intracanal retention, resistance and stability by using posts made from different materials such as fibre glass, cast metal and dentin. These recent developments in restorative materials coupled with

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advances in adhesive protocols can be used depending upon the type, function & remaining tooth structure as well as tooth prognosis and economic status of the patient [6-8].

This case presented with extensive loss of natural tooth structure which makes retention of a subsequent restoration problematic and increases chances of fracture during functional movement. So cast post was made as high strength alloys were needed to restore the tooth [9-13]. The teeth with minimal tooth structure remaining for crown margins are subjected to flexion forces under function. As less cervical tooth structure is available, cervical stiffening from a more rigid post is needed to protect the crown margins and resist leakage. Cast metal post system was used because of its custom fitting to the root configuration; adaptability to large, irregular shaped canals and orifices; strength and support [14].

The clinician must judge every situation on its individual merits and select a procedure that fulfills the needs of the case while maximizing retention and minimizing stress. Different post designs may be used in a clinical situation and success is dictated by the remaining tooth structure available after endodontic therapy [15].

Conclusion

Custom cast post and core are recommended for non-circular root canals and when the coronal tooth structure loss is moderate to severe. The clinician should select the right type of post and core system

depending on the biological, mechanical and esthetic needs for individual teeth.

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