

Prosthodontic Rehabilitation of Endodontically Treated Traumatized Anterior Teeth- A Case Report

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Abstract—Fractured endodontically treated teeth are often extracted and restored with implants or other prosthetic treatment options in many cases. However, dentists should carefully consider other treatment options for these teeth before deciding on extraction due to the risk of vertical and horizontal bone resorption subsequent to extraction as this resorption will result in an unaesthetic outcome especially in the anterior region. Introduction of post and core system gives the advantage of retention and regaining lost esthetics in the restoration of mutilated teeth. In this article we have discussed Prosthodontic rehabilitation of traumatized teeth.

Keywords— Esthetics, Fractured, Post and core, Rehabilitation.

I. INTRODUCTION

There is no consensus on the best procedure for restoring endodontically treated teeth. However, retrospective studies do identify factors that affect the success rate. Tooth location in the arch, type of occlusion, amount of remaining dentin and type of abutment affect the selection of a restorative approach that will produce a favourable outcome.¹ When the tooth is restored with a “permanent” restoration, bonded restorations should be used as much as possible to minimize microleakage. The quality of the restorative dentistry performed after root-canal treatment directly impacts the prognosis of the endodontically treated tooth.² If an endodontically treated anterior tooth is to receive a crown, a post often is indicated. In most cases, the remaining coronal tooth structure is quite thin after it has received root-canal treatment and been prepared for a crown. Anterior teeth must resist lateral and shearing types of forces, and the pulp chambers are too small to provide adequate retention and resistance without a post. The amount of remaining coronal tooth structure and the functional requirements of the tooth determine whether an anterior tooth requires a post.² This article aims to discuss a technique to rehabilitate traumatized anterior teeth.

II. CASE REPORT

A 26yr old male male was referred to the Dept of Prosthodontics for restoration of anterior teeth i.r.t 11, 21, 22. On brief case history it was revealed that patient had meet with an accident and had traumatized anterior teeth (11, 21, 22) two months before (Fig. 1), due to continuous complain of sensitivity and pain he visited the Dept of Endodontics where he underwent root canal therapy for 11, 21, 22, after which he was referred to us for crown placement.



Fig. 1. Traumatized anterior teeth.

Care evaluation showed that the crown structure was damaged till the middle third due to which conventional crown placement was not possible due to lack of tooth structure for retention and resistance form. So our treatment planned included fabrication of cast metal post to enhance retention and stability. Post space preparation (Fig. 2) was done i.r.t 11, 21, 22 followed by post space impression made with self -cure acrylic later a pickup impression was made with alginate impression material along with post in the place.



Fig. 2. Post space preparation.

Cast was poured with die stone, wax pattern fabricated and casting prepared. It was made sure that the ferrule was given while the preparation. After finishing try-in was done to check the fit and cementation done with resin cement (Fig. 3).



Fig. 3. cementation of the custom post

After cementation an over impression was made poured with die stone followed by shade selection for fabrication of the ceramic crown. Try-in followed by cementation the crown was done with GIC cement (Fig. 4).



Fig. 4. final crown cementation with GIC.

Post insertion instructions were given and follow was done after 1 month. Satisfactory results were obtained.

III. DISCUSSION

The loss of an anterior tooth is frequently caused by traumatic impact or iatrogenesis in young people. When an anterior tooth is extracted, the healing processes of a socket always involve a loss of tissue in the vertical and horizontal dimensions and has an adverse effect on the esthetic outcome. Furthermore, invasive treatment alternatives, like tooth extraction, may lead to complicated orthodontic, surgical and/or prosthetic treatments subsequently. Therefore, clinicians should consider to conserve these teeth in the mouth as long as possible for the potential maintenance of the esthetic on the anterior segment.³ The use of cast metallic posts and cores are recommended to restore severe loss of coronal tooth structure and to retain metal-ceramic crowns.⁴ A post-and-core restoration is placed in a badly broken-down tooth to restore the bulk of the coronal portion of the tooth to facilitate the subsequent restoration of the tooth by means of an indirect extracoronal restoration. Cast posts and cores have its own advantages, they include preservation of the maximum

tooth structure as the post is fabricated to fit the radicular space with a superior adaptation to the root canal.⁵ The main goal of the post insertion is to provide an optimum retention for the core which eventually supports the crown.⁶ Custom cast post and core can be shaped until satisfactory aesthetic is achieved.⁷ In this case report custom made cast post is preferred than prefabricated because cast post and core is customized to fit the root canal space, and both post and core are cast as a single unit with good compressive strength that withstands normal or para-functional occlusal forces and minimizes the possibility of separation. The angulation and the design of the core of the cast post can be modified to produce a more convenient shape for the crown of proclined teeth, particularly when multiple anterior abutments are prepared. The anti-rotational projection of the shape of the post for anterior wide, single-rooted teeth and the placement of multiple dowels at multi-rooted teeth provides the opportunity to control the design characteristics of a post and core build-up.

IV. CONCLUSION

The number of endodontic procedures has increased steadily in the past decades with highly predictable results. Therefore, restoration of teeth after endodontic treatment is becoming an integral part of the restorative practice in Dentistry. Selection of the most suitable post and core systems is challenging and should be guided by knowledge of their indications, advantages and disadvantages, as well as the amount and quality of remaining tooth structure and aesthetic requirements. The treatment described in the case report is an effective way of restoring the esthetic and function of traumatized anterior teeth.

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