



Placement Of Anterior Richmond Crown To Restore A Fractured Anterior Tooth: A Case Report

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Abstract:

Trauma to the anterior tooth requires urgent care because of essentiality of preserving natural tooth. When complicated crown fracture occurs it necessitates endodontic treatment and restoration of fractured crown segment with post in the canal. Fabricating a restoration which can serve clinically long term without any sign of complication and fulfill the functional and esthetic requirement is very hard to achieve in excessively damaged tooth especially when it is in the esthetic zone. The Richmond crown can be a good treatment alternative for restoration of such teeth. The Richmond crown was introduced in 1878 and incorporated a threaded tube in the canal with a screw retained crown. It was later modified to eliminate the threaded tube and was redesigned as a one piece dowel and crown. This case report shows restoration of mutilated maxillary lateral incisor with Richmond crown which can fulfill the esthetic and functional demands of the patient.

Keywords: Esthetics, Richmond Crown, Cast Post, Dowel, overjet.

Introduction:

A major predisposing factor in dental injuries is overjet of the maxillary incisors.¹ The Richmond crown was indicated for a grossly decayed single tooth with excessive reduced crown height and with increased deep bite and decreased overjet.²

While the purpose of the post is to retain the external crown that is built on a core, the purpose of the core being to support the crown while itself being dependant on post for retention. While the present day post core crowns are essentially either a two or three unit system (Post, core, crown), they have essentially evolved from a single unit system called the Richmond crown which was introduced in the year 1878 as a single piece post retained crown.³ The Richmond crown was indicated for grossly decayed

single tooth with very much reduced crown height and with increased deep bite and decreased overjet.⁴ In this article we have discuss a case report of restoration of a fractured lateral incisor by using Richmond Crowns after endodontic treatment.

Case Study:

A 23 year-old man presented with a chief complaint of fractured upper right front teeth and want it to be replaced with artificial tooth [A]. On taking a detailed history, it was revealed that the patient underwent trauma 2 days back and his maxillary right lateral incisor got fractured. There was no discoloration of tooth with 12. The entire treatment plan was explained to the patient and consent was obtained from the patient. Root canal treatment was performed and Post space was prepared with the help of finger

plugger and finish line were made. An impression was made with an addition silicone impression material (Dentsply, Milford, USA), and cast was obtained [D]. The all ceramic crown was casted and checked on the cast, and try-in was done. A radiograph was taken to check the proper seating of the richmond crown. [J] Then it was cemented with dual cure resin cement. [B]

Discussion:

The Richmond crown is a castable customized single-unit post and crown system with ceramic layer over the crown coping.¹ This design has advantages such as they are custom-fitted to the root configuration, there was little or no stress at the cervical margin, and also they provide high strength and considerable space for ceramic firing with enough incisal clearance. The disadvantages with the Richmond crown are they are time-consuming, so more appointments are needed for the patient; cost is more and their modulus of elasticity is higher than dentine and in the case of ceramic fractures, it is very difficult to retrieve and may lead to tooth fracture.⁴

References:

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Such case should be managed using intraoral ceramic repairing kit. 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. Although any number of post designs may be used in a clinical situation, success is dictated by the remaining tooth structure available after endodontic therapy.⁵ Conservation of the tooth should be always first preference than extraction followed by crown and bridge/implant treatment modality.⁶

Conclusion:

Retention and resistance to fracture are two important factors that must be achieved with post-and-core retained restorations. When placing post the dentist must evaluate each tooth individually to determine the best approach for maximal fracture resistance. Custom made post and core restorations are a good treatment option for treating teeth fractured near the gingival margin or those with minimal tooth structure.

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