

Accidentally Broken Lateral Incisor Tooth at the Gingival Margin Treated by Endodontics, Cast Post and Core Finally Porcelain Jacket Crown: A Case Report

NS Nupur¹, MMM Rana², F Rashid³

Abstract

A successful treatment of a badly broken tooth in accidental case depends not only on good endodontic therapy but also on good prosthetic reconstruction of the tooth after the endodontic treatment is complete. In accidental case, sometimes it is found that there is very little or no clinical crown after root canal treatment. In such cases, additional retention & support of the restoration are difficult to achieve. In this case report endodontically treated tooth by using cast post is discussed to achieve additional retention and support.

Keywords: cast post, core, endodontics, retention.

Introduction

The goal of modern dentistry is to restore the natural teeth with their maximal function and aesthetics^{1,2}. Generally a successful treatment of a badly broken tooth in accidental case depends not only on good endodontic therapy, but also on good prosthetic reconstruction of the tooth after the endodontic therapy is complete³. The basic purpose of a cast post is to retain a core in a tooth that lost its coronal structure extensively. This case report describes the procedure to restore function and aesthetics of maxillary left lateral incisor with severe coronal destruction⁴. The crown lengthening procedure was done after endodontic treatment by using cast post fitted with glass-ionomer cement which was later came to an end by using metal ceramic restoration⁵.

1. Dr. Nahid Sharmin Nupur, Senior Lecturer, Department of Science of Dental Materials, Pioneer Dental College & Hospital, Dhaka, Bangladesh.

2. Dr. Md. Mehdi Masud Rana, Professor (CC) and Head, Department of Science of Dental Materials, Pioneer Dental College & Hospital, Dhaka, Bangladesh.

3. Dr. Fouzia Rashid, Professor (CC) and Head, Department of Prosthodontics, Pioneer Dental College & Hospital, Dhaka, Bangladesh.

Address of Correspondence:

Dr. Nahid Sharmin Nupur, Senior Lecturer, Department, of Science of Dental Materials, Pioneer Dental College & Hospital, Dhaka, Bangladesh.
E-mail: dentirana@yahoo.com

Case report

A 24 year male patient reported in my private clinic with a history of trauma to upper left lateral incisor. On examination it was found that there was fracture of upper left lateral incisor with extensive loss of crown portion involving pulp tissue. His chief complaint was pain and non aesthesis of the tooth, with no history of mobility or discharging sinus.

An intra oral periapical X-ray was taken, which revealed no periapical radiolucency and intact sound root portion. Medical and dental history also confirmed that he is free from any systemic disease.

Procedure

Under L.A. (Local Anesthetics) the pulp tissue was removed and the canal was irrigated with normal saline. A working length radiograph was taken and working length was estimated. Finally the obturation of the root canal has been done properly. During the next visit, both hand instrument and rotary safe ended post space preparation drills were used to remove condensed gutta-percha until the desired post space depth was achieved leaving the apical 4mm to maintain the hermetic seal. Copious irrigation was done not only to remove the obturation material but also to avoid any damage because of the heat production. The remaining coronal part was prepared by incorporating a ferrule design to encircle the external dimension of the residual tooth. A cast post was fabricated indirectly on a cast, which was obtained from an impression using silicon impression material. Finally the cast post and core were subsequently cemented and the preparation was completed for a full down coverage.



Figure 01: Accidentally broken left lateral incisor.



Figure 02: Tooth preparation and cast core fitted.



Figure 03: Finally tooth covered with acrylic jacket crown.

Discussion

The goal of modern dentistry is to restore satisfactory form, function and aesthetics as well as maintaining the physiologic integrity of the tooth with the adjacent hard and soft tissues.

In achieving the above specific restoration was accomplished by enhancing the retention and resistance form of the tooth by making a cast post and core, which ultimately provided the appropriate support for the specific crown or prosthesis.

Various occlusal and non-axial forces are acting upon anterior as well as posterior teeth. The teeth and associated restoration must resiliently absorb these forces to avoid the permanent damage like wear or fracture. In case of deep vertical overlap, maxillary anterior teeth are subjected to horizontal protrusive and lateral forces from the mandibular anterior teeth.

After the crown preparation of an endodontically treated tooth, the remaining amount of cross sectional sound dentine is not able to resist such forces, that's why a post and core build up becomes compulsory in such cases.

Conclusion

Conservation, proper functioning and aesthetics should be the final destination of a restoration dentist which can be achieved by appropriately restoring the fractured tooth by means of custom cast post and core restoration and providing the patient with satisfactory function and aesthetics.

References

1. Ingle j.l., Backland L.K Endodontics, 6th Ed. 2008; 913-950.
2. Moule A.J, Moule CA, Aus Dent. J. 2007 Mar; 52 (I suppl) s 122-37.
3. Weire F.S, Endodontic Therapy, Ed 6th , 2004, 546-584 Mosby.
4. Fosensteil S.F, Land M.F, Fujimoto J, Contemporary Fixed Prosthodontics, Ed 4, 2006, 336-374, Mosby.
5. Sharma, Vikram, Madan, N, Shinde V.T Arya. A, Journal of Innovative Dentistry Vol 1, Issue 1, Jan-April 2011.