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## Surgical Extrusion of Cervically Fractured Maxillary Central Incisor- A Case Report.

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### ABSTRACT

Dental trauma is one of the major causes for the emergency dental visit. Fractures involving the upper central incisors are more common. Fractures of the tooth can vary from enamel fracture to fracture of the crown, root or bony fractures. Crown fractures may or may not involve the dental pulp. Treatment of the cervically fractured tooth depends upon the location and extent of fracture. This article reports a case of cervically fractured upper central incisor tooth through the surgical extrusion method.

**Keywords:** Fracture, Trauma, Extrusion

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## INTRODUCTION

Traumatic injuries of the teeth are the most common cause of emergency dental visit. It can be varied from simple enamel fracture with or without pulpal involvement or bony fracture. Crown root fractures account for the 0.9 to 18% of all the dental injuries [2]. The treatment of the crown root fractures depends on the location and extent of the fracture. The aim of this clinical report is to describe the clinical management of cervically fractured maxillary upper central incisor.

### Case Report

A 25 year old female patient came to the department of conservative dentistry and endodontics with a fracture in the upper front tooth a day before. She reported being involved in the road traffic accident. On clinical examination, 12,11,21,22 exhibited grade I mobility and 11 was fractured cervically at the CE junction. Bleeding was observed surrounding all the involved teeth. Since the patient was in her second trimester of pregnancy, IOPA could not be taken. So a conservative approach was planned. Anesthesia given with 2% lignocaine and 1:80,000 adrenaline and the fractured fragment was extracted. The remaining tooth structure was examined for the extent of fracture and the restorative prognosis. The fracture line found to be extending subgingivally. The treatment plan included various options - orthodontic extrusion, surgical extrusion and extraction followed by implant. The patient opted for surgical extrusion of the fractured tooth 11. An interdisciplinary approach was planned and opinion was obtained from the oral and maxillofacial department.

Before surgical extrusion of 11, root canal treatment was initiated. Working length measurement was done with apex locator (Root ZX). Cleaning and shaping was done to master apical file size of #40 and filled with calcium hydroxide medicament and closed dressing given. After 4 days, surgical extrusion was done. Flap was raised without much trauma to the supporting tissues, with great care the periodontal fibers are relieved from the tooth circumferentially, the tooth is engaged and slowly extruded intraalveolarly till the optimal position, then Semi rigid splinting was done using orthodontic ligature wire and self etch bonding system from #13 to #23 for providing physiological tooth movement and periodontal healing [3]. Surgical extrusion was performed exposing 4 mm of sound coronal tooth structure. 2 mm of occlusal clearance was maintained. Sling sutures was placed around #11 with 3-0 silk. Occlusal premature contacts was relieved. Patient was advised to be under soft diet for a week. Review was done after 24 hours, patient was comfortable. Inflammation surrounding the gingival has reduced and the patient recalled after a week for further management.



Fig- 1



Fig-2



Fig-3



Fig-4



Fig- 5



Fig-6

**Fig-1 measurement of remaining crown structure, Fig-2 reflection of the flap, fig-3 extrusion of the tooth, Fig-4 sutures place, fig-5 splinting done, fig-6 post endodontic restoration**

Later obturation was done by lateral condensation method. Fiber post was placed and composite core buildup done and metal ceramic crown was given.

## DISCUSSION

Treatment of cervically fractured tooth involves a multidisciplinary approach. It should be based on the remaining tooth structure, periodontal status of the patient. Orthodontic extrusion is the more biological way of treatment of cervically fractured tooth. Surgical extrusion was considered in this case as it is not a time consuming procedure. And it gives predictable success if all the protocols are followed. Caliskan et al stated that the success of the surgical extrusion lies in the low incidence of root resorption, because the root is not totally removed from the socket and there is less damage to the periodontal ligament fibers. Care should be taken not to injure the surrounding tissues during intra alveolar extraction [1]. In this case surgical extrusion was planned because the patient needed immediate results. Since the patient reported to the hospital immediately after trauma the chances of bacterial contamination was less and the tooth expected to have a favourable prognosis. Orthodontic wire composite splinting was preferred since it delivers lowest stress surrounding the traumatized teeth. According to American association of endodontics (AAE) splinting is done for 7 to 14 days and upto 2 weeks by IADT [5]. Bleeding was controlled after repositioning, care was taken not to dislodge the repositioned tooth. Occlusion was checked and the repositioned tooth was

relieved from occlusion. Stabilization of the tooth was checked on the next postoperative day, mild swelling and discomfort was elicited by the patient, patient was advised to continue with the medications. Review done after the 7<sup>th</sup> postoperative day patient was comfortable. Splinting was removed at the end of two weeks. Then obturation followed by post endodontic restoration was performed. In surgical extrusion the root does not leave the socket so the remaining periodontal cells are viable so healing is accelerated [4]. Thus surgical extrusion of the tooth is a promising treatment option for a cervically fractured tooth that yields better results, with minimal or no post operative complications thereby giving clinically acceptable longevity for the badly mutilated tooth

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