

Reimplantation of Impacted Lateral Incisor with Bone Graft PRF and Tetracycline Fibres

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Abstract

Avulsion of permanent teeth is the most common dental injuries in a road traffic accident. It's a boon that the patient's original teeth can be replanted provided the fracture of the tooth and socket are within limits. In this case report an impacted lateral incisor was reimplanted with bone graft, PRF, tetracycline fibres.

Introduction

Traumatic injuries have become more common these days and the incidences of dental trauma have become comparatively higher. Trauma might involve both the hard and soft tissues. The success of the treatment of traumatized teeth revolves around the status of periodontium since it is a vital structure. Hence treatment of traumatic injuries are quite complex and at times requires a multi-disciplinary approach.¹ An impacted tooth is one that is embedded in the alveolus so

that its eruption is prevented or the tooth is locked in position by bone or the adjacent teeth. Impaction of maxillary permanent incisors occurs in 0.2-1% of the population, early referral of patients in the mixed dentition is common due to concern of parents and general dentists regarding delayed eruption of the permanent maxillary central incisors.

As missing upper incisors are regarded as unattractive this may have an effect on self-esteem and general social interaction, and it is important to detect and manage the problem as early as possible.

The maxillary incisors are the most prominent teeth in an individual's smile, they are also the teeth that are on maximum display during speech in most individuals and the normal eruption, position and morphology of these teeth are crucial to facial esthetics and phonetics.²

Reimplantation refers to the insertion and fixation of completely or partly avulsed teeth that have been resulted from traumatic injury. The most conservative approach for managing the avulsed incisors is to replant them as soon as possible.³

The term replanting refers to the insertion of an extracted dental element into an alveolar with consequent temporary splinting. This procedure can be carried out following a trauma which causes the complete extraction of the element or as an intentional surgical operation. In the latter case, an atraumatic extraction is carried out on a dental element which is immediately repositioned in the previously prepared alveolar. In the year 1990, Andersson and Bodin have published a long-term clinical follow-up study.

In the years 1994 and 1996, Pitt Ford et al. and Bakland and Andreasen identified other influential factors such as postsurgical complications, endodontic healing, periodontal healing, and radicular reabsorption.

Barrett and Kenny demonstrated the possibility of success in long-term natural tooth reimplant.

Andreasen et al. have published the study of the effect of treatment factors such as treatment delay, repositioning, splinting type, and period and antibiotics. A minimally invasive surgery was proposed by Figliuzzi et al. for the management of impacted maxillary canines [4].

Case Report

A 20-year-old male patient reported to the department of oral & maxillofacial surgery, with the chief complain of missing teeth in the upper front tooth region since 10 years, the patient gave a history of trauma where he had fell from the second floor of a building, he had fractured his mandible and had undergone surgery for the same.

Clinical examination revealed missing left and right central incisors, left lateral incisor and root stumps irt right lateral incisor (fig 1).

On the panoramic radiograph (OPG) an impacted left lateral incisor and root stumps irt right lateral incisor with missing right and left central incisor. (Fig 2)

A mucoperiosteal flap was raised and right and left lateral incisors were extracted a traumatically. (fig 3) After extraction the left lateral incisor was kept in saline and root canal treatment was done with placement of MTA filling for internal resorption as it is biocompatible, antibacterial and resistance to leakage and fracture.

A new osteotomy site was made and the root canal treated lateral incisor was placed, where tetracycline fibres were placed at the apex of the root, PRF and bone graft was placed with the lateral incisor. (fig 4, fig 5)

The replanted dental element was suitably splinted with a bridle wire in order to keep it in place (fig 6), and the flap was repositioned and sutured with 3-0 vicryl followed by placement of perio pack on the reimplanted area. (Fig 7)



Fig. 1



Fig. 2

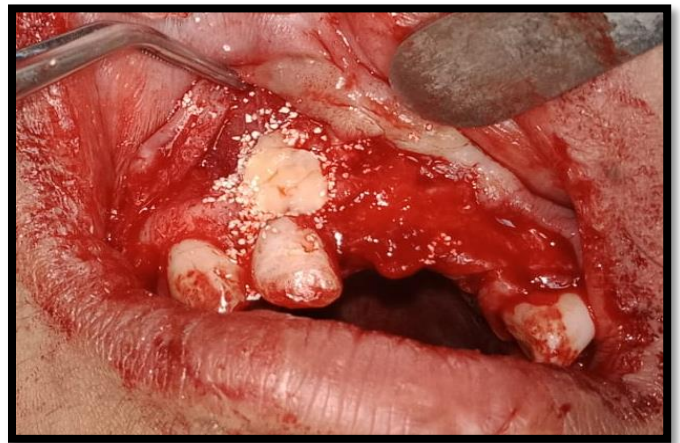


Fig. 5



Fig. 3



Fig. 6



Fig. 4



Fig. 7

After 3 months a OPG was taken which revealed bone formation around the reimplanted lateral incisor where

clinically there was no mobility with the lateral incisor. (Fig 8).



Fig. 8

Discussion

Traumatic injuries to the permanent incisors such as avulsions and intrusions often lead to subsequent ankylosis-related resorption and a poor long-term prognosis. Transplantation in such cases offers a biological replacement for the patients.

During extraction and handling of the donor tooth, care must be taken to minimize damage to the PDL close to the root surface and also to avoid compression of the PDL. Damage to these sensitive fibres during extraction of the donor tooth plus prolonged handling and extra-alveolar time during surgery can cause damage to the cementum, making it more vulnerable to osteoclastic activity.⁽⁵⁾

While there is no standard treatment procedure for impacted permanent teeth, this case report shows that reimplantation can be considered as a viable alternative to extraction.

It is, however, strongly recommended to inform the patient and parents about the possibility of failure. Progressive resorption of roots, ankylosis, pulp necrosis are commonly reported problems after reimplantation.⁽⁶⁾ According Chamberlin and Goerig,²⁰ the success of reimplantation should be verified using the following

- criteria: (1) the tooth is fixed in its socket without residual inflammation
- (2) masticatory function is satisfactory and without discomfort
- (3) the tooth is not mobile
- (4) a pathologic condition is not apparent on the radiograph
- (5) the lamina dura appears normal on the radiographs
- (6) the tooth shows radiographic evidence of further growth of the tooth and
- (7) the depth of the sulcus, gingival contour and gingival colour are normal.

Conclusion

Reimplantation of avulsed permanent tooth is a boon to dentistry. The prognosis of reimplantation depends upon the extent of trauma, minimizing the extra oral dry time, material of choice of splinting, duration of stabilization and occlusal factors. Composite splinting is the traditional method of stabilization from past to present. Reimplantation of one's natural tooth with utmost care will build up self-confidence and psychological wellbeing.

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