Case Report

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Management of Avulsed Tooth Followed by A Root End Surgery (Apicoectomy) Using PRF and Bonegraft: A Case Report

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ABSTRACT

Background: Treatment goal of dental treatment in today's scenario directs at reducing the incidence of root resorption resulting from periodontal ligament devitalization or pulp necrosis. Hence; we present a case report of 12 year old female patient with avulsed tooth who was managed by a root end surgery.

Keywords: Apicoectomy, Avulsed, PRF, Bonegraft, MTA.

INTRODUCTION

Avulsion is a relatively uncommon type of traumatic injury to the permanent dentition. From a clinical perspective, since avulsions occur infrequently, the average practitioner will not instinctively know how best to treat each (rare) case that he/she encounters. It occurs most frequently between the ages of 7–14 years.[1] The majority of these injuries occur in the maxillary central incisors. When a tooth is avulsed, attachment damage and pulp necrosis occurs. The tooth is 'separated' from the socket, mainly due to the tearing of the periodontal ligament that leaves viable periodontal ligament cells on most of the root surface.[2] Replantation of avulsed incisors in young children is a successful treatment modality. Almost all replanted teeth exhibit ankylosis followed by inflammatory or replacement resorption, as immediate replantation is practically rare.[3] Hence; we aim to present the case report of management of avulsed tooth followed by a root end surgery (apicoectomy).

CASE REPORT

A 12 year old female patient reported to the department of paediatric dentistry with the chief complaint of broken tooth in upper front tooth region 1 year back. Patient gave a history of trauma due to falling on the road prior to one day before visiting the hospital. Patient also gave a history of pain in the same region. Clinically, lacerations were present on lower lip and chin area. Intraorally, laceration and intraoral swelling was present w.r.t 11 and 22. It was Ellis class V fracture w.r.t 11, Missing w.r.t 21, and Grade III mobility w.r.t 22 and 63. Treatment plan was made; Endodontic therapy w.r.t 11 and 22, Replantation w.r.t 11, Repositioning w.r.t 22 and Splinting w.r.t upper arch. Patient was kept on regular followup. After 2 months an IOPAR revealed replacement resorption which kept on increasing after every visit of the patient. So, therefore, Apicoectomy using PRF and bonegraft were used for accelerated and satisfactory healing insitu. Due to high labial frenum, labial frenectomy was done.

DISCUSSION

When the tooth is removed from its socket consequence of a trauma, and the surrounding structures as periodontal ligament and neurovascular bundle injure, the situation is named as 'tooth avulsion' in the World Health

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Fig 1: Preoperative Radiograph.

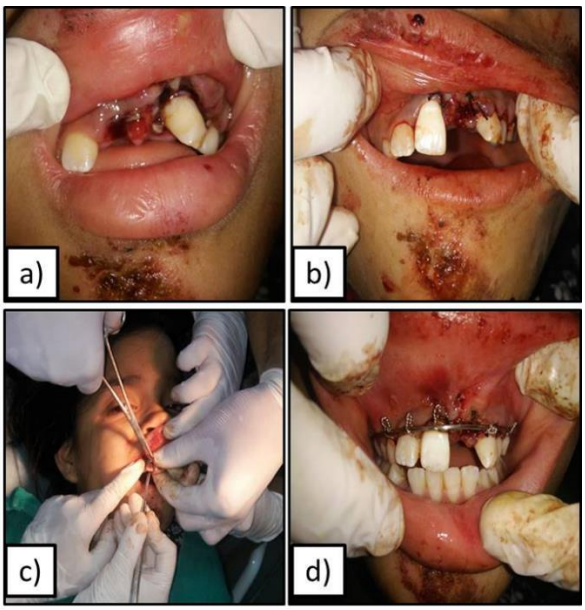

Fig 2: A.) Intraoperative. B.) Sutues placed. C.) Holding the arch. D.) Intramaxillary fixation done.

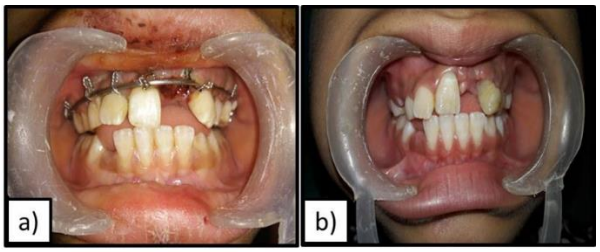

Fig 3: Postoperative a) 1 day, b) 4 weeks.

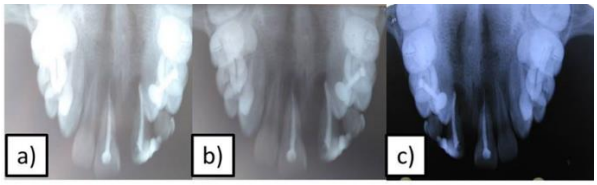

Fig 4: Postoperative radiograph after replantation a) 2 months, b) 4 months, c) 8 months.

Organization's classification system modified by Andreasen. Tooth avulsion is one of the most seen case of all traumatic injuries with 0.5% to 16% range in permanent dentition in conjunction with dental injuries can exist frequently at any time of life.[5, 6]

Dental practitioners encounter problems relative to the management of the avulsion. Esthetic appearance and chewing function of avulsed tooth can be restorated by replantation, which is defined as a rapid treatment method. Immediate replantation of the avulsed tooth is the best management, but the replantation in 20-30 min after the injury or keeping the tooth in an appropriate storage media until the patient can be seen by a dentist is also feasible. The optimal replantation time for the best prognosis has been declared as 5 min in clinical studies.[4 - 7]

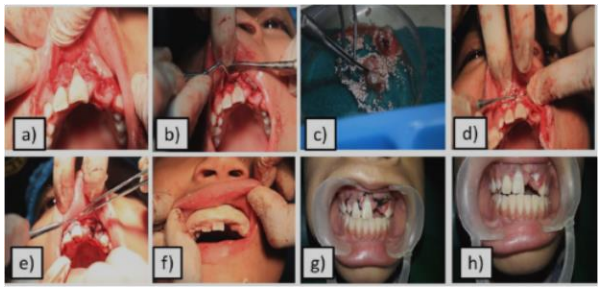

Fig 5: Figure 5: a.) Apicoectomy using PRF and bonegraft intraoperative. b.) Removal of apical granulomatous tissue and exposing root end area. c.) PRF and Bonegraft manipulation. d.) Sealing the root end with MTA and placing PRF along with Bonegraft. e.) Excision of labial frenum. f.) COE pack placed. g.) Post operative. h.) After 7 days.

Fig 6: Post operative radiograph.

It is necessary to splint the replanted tooth to the adjacent teeth flexibly during 7-10 days for periodontal healing and then to perform root canal treatment to prevent the inflammatory root resorption in cases with closed apex.[8] In the present case, the avulsed tooth had a closed apex and was kept in saline solution from the moment of trauma until its replantation. It was aimed to prevent the tooth loss, maintain aesthetic and functional properties and minimize inflammatory root resorption when performing the treatment. In order to achieve the goal of the treatment, the avulsed tooth was replanted back into its original socket, and then splinted to the adjacent teeth. During this period, the patient was recommended to avoid biting on the splinted teeth and continue to brush her other teeth, and keep the mouth and teeth as healthy as possible. Additionally, systemic penicillin was prescribed. The replanted tooth was endodontically treated and calcium hydroxide intracanal dressing was applied to prevent inflammatory resorption.[9- 12]".

It is known that infection control is essential for apical repair of immature teeth. In cases of delayed tooth replantation, endodontic treatment and systemic antibiotic therapy must be performed in order to control the contamination, as was carried out in the present case report. After treating the avulsed tooth, regular followup was done in order to observe the postoperative results. The patient had developed replacement resorption and was increasing after every followup. For long 8 months the followup was recorded, after 8 months Apicoectomy was planned to remove the periapical pathoses and mobility followed by extraction of 22 and 63 due to poor prognosis. Platelet Rich fibrin and bone graft were also used to promote the healing subsequently. The patient also had high labial frenal attachment which was then the same day managed by labial frenectomy respectively. [9-12]Therefore, all efforts and cautions to manage this case were conducted with the aim to improve the prognosis. After followup of 7 days, radiographic examination showed apical healing and no sign of external root resorption. However, it should be emphasized that in the long term ankylosis and replacement resorption can take place because of the loss of the PDL cells, as is common after performing a delayed replantation.[12]

CONCLUSION

The clinical procedures performed in the present case of an avulsed tooth, lead to replacement resorption which was managed by apicoectomy followed by labial frenectomy. Further long term followup is recommended and since the patients age is 12, and has missing [21, 22], prosthesis needs to be placed.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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