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Management of a calcified tooth by intentional reimplantation: A case report with 1 year follow-up

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Abstract

Intentional reimplantation is a procedure in which an intentional tooth extraction is carried out followed by reinsertion of the extracted tooth into its own alveolar socket. In this article, intentional reimplantation is discussed as a treatment approach for discolored calcified maxillary central incisor. A 1 year follow up revealed the patient to be asymptomatic, the tooth to be functional and the radiograph showed no evidence of root resorption.

Keywords: IR, MTA, Root filling

Introduction

As defined by Grossmann intentional reimplantation (IR) is the purposeful removal of a tooth and its reinsertion into the socket almost immediately after sealing the apical foramina[1]. In endodontics, IR involves the atraumatic extraction of the offending tooth, root-end resection/preparation/filling and reinsertion of the extracted tooth[2] .It has often been regarded as the last treatment option[3]. Messkoub reported success rate in retaining replanted teeth vary between 52- 95%. The main reason of failure in replanted teeth is root resorption, specifically ankylosis or replacement resorption. This is directly related to the amount of time the tooth is out of the mouth during the procedure[1,4]. The manipulation and damage to the periodontal ligament (PDL), cementum and associated cells should also be kept minimum, in order to keep the cells viable/intact[5,6]. Dryden and Arens[7] described the histological perspective of intentional reimplantation and included indications, contraindications, technique, and an extensive review of the literature pertaining to this subject. There are case studies with long term successful follow-ups (as long as 15 years)[8,9]. IR of teeth that are hermetically sealed with a retro- or orthograde root-end filling is proved to be more successful. The biocompatibility of the filling material will also affect the healing process[10].

MTA has been used successfully in several clinical applications such as pulp capping, pulpotomy, perforation repair treatment of traumatized teeth with immature apices and for treatment of root resorptions[11]. It has excellent biocompatibility, favorable sealing ability, mechanical strength and a capacity to promote periradicular tissue healing.

The present article describes a case of intentional reimplantation done to manage a maxillary central incisor with calcified canal.

Case Report

A 20 year old female reported to the 'Department of Conservative Dentistry and Endodontics, I.T.S Dental College and Hospital, Greater Noida' with the chief complaint of pain in the left maxillary anterior tooth since 10 days. The dental history revealed trauma to the front teeth due to fall 5 years back. The patient had gone to a general practitioner for the treatment of the same. As per the patient, the doctor started the root canal treatment procedure but due to obliteration of the pulp chamber could not do the treatment and referred her to our department.

The clinical examination revealed slight discoloration of left maxillary central incisor (FIG.1). The tooth was tender on percussion. There was Ellis Class III fracture in right maxillary lateral incisor also. The radiograph showed calcification of the tooth and widening of PDL space (FIG.1).

We decided to go for conventional endodontic therapy. Local anaesthesia was administered and the tooth was isolated. After several attempts to negotiate the canal with lots of NaOCl and EDTA, we failed to negotiate it (FIG.2). Then we decided to open the canal with ultrasonics. While using ultrasonics we noticed blood coming out of the canal. We took an IOPA and what we saw was the file was deviating from its original path. The tooth had got perforated(FIG.3).

We discussed the whole thing with the patient and decided to go for intentional reimplantation of the tooth. The tooth was then extracted atraumatically (FIG.4). The perforation was located on the buccal surface of the root. During the extraoral period the periodontal tissue was frequently irrigated with sterile saline solution. The alveolus was irrigated with sterile saline solution. The root end was resected and after resection canal was negiotated by inserting #10K file retrograde into the canal. After the canal was negotiated the whole procedure of canal cleaning and shaping was done and perforation defect was sealed. The canal was obturated with gutta-percha and AH Plus sealer. Retrograde cavity was prepared and filled with MTA (FIG.5). This procedure took approximately 15 minutes. Thereafter tooth was replanted and secured with fibre splint. An intraoral periapical radiograph revealed proper repositioning of the tooth and proper root end filling (FIG-6). Augmentin 625 mg three times a day for 5 days; combiflam three times a day for 5 days and 0.12% chlorhexidine rinses three times for seven days were prescribed. The splint was removed after 2 weeks of reimplanatation. Patient had no pain or discomfort during postoperative period. After 6 months the patient was asymptomatic, percussion was negative and IOPA revealed healing and there were no signs of resorption (FIG.7). There was no pathological condition, good gingival health and no periodontal pocket. Ceramic veneering was done after 6 months to mask the discoloration (FIG.8). One year follow-up showed the tooth was doing well in its place.

Fig.1: Preoperative Picture and IOPA

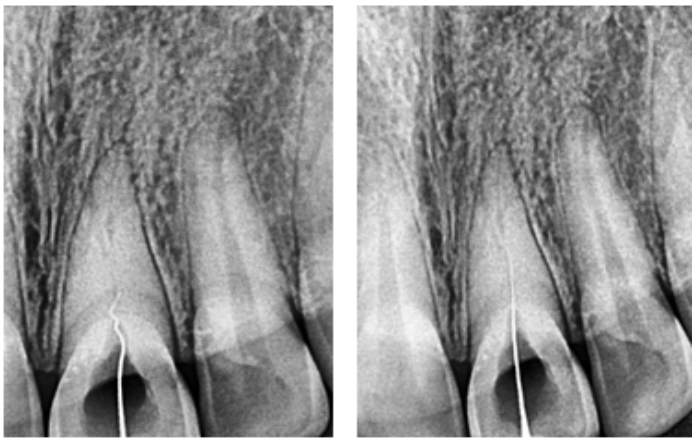

Fig.2: Canal Not Negotiated

Fig 3: Perforation

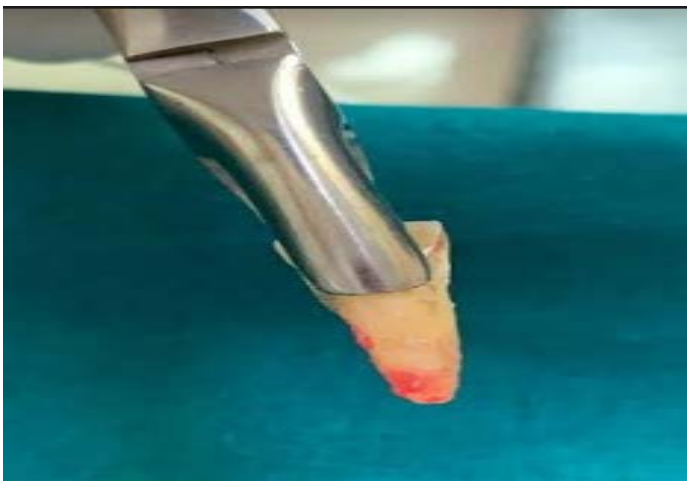

Fig. 4: After Extraction

Fig. 5: Root End Preparation

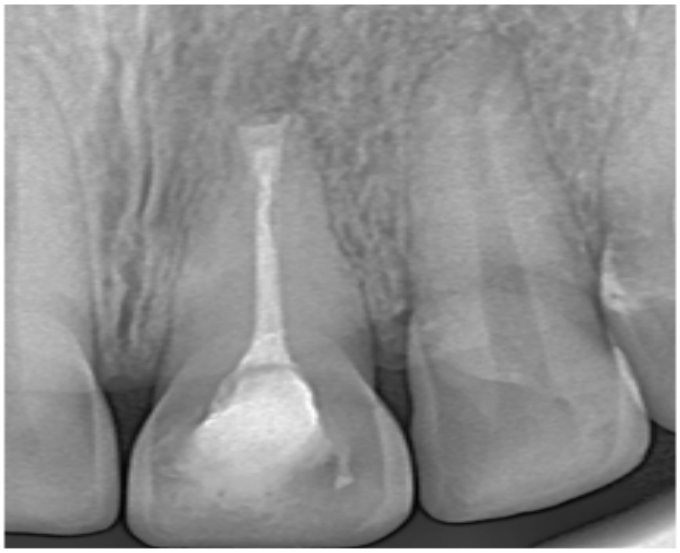

Fig. 6: Postobturation IOPA

Fig. 7: 6 Months followup

Fig. 8: **Ceramic veneers in place**

Fig.9 : 1 Year Followup

Discussion

Clinical comfort, absence of symptoms, return to function and radiographic resolution are all factors that indicate favourable treatment outcome for IR. Our results show 100% radiographic success rate for IR and extraoral endodontic root-end surgery with MTA cement. Factors that encourage healing, include reduction in extraoral time, atraumatic extraction/reinsertion, prevention of damage to tooth roots, adequate apical seal in terms of depth, material compaction and characteristics as well as suitable case selection. The first two features prevent dehydration and damage to periodontal ligament cells which are essential in the periradicular healing process and prevention of resorptive processes such as replacement resorption, ankylosis, internal and external root resorptions[10]. Traumatically extracted teeth are not good candidates for intentional replantation and that is the reason for careful case selection for IR so that their extraction and subsequent reinsertion would be straight forward (preventing damage to the buccal/lingual plates of the alveolar bone).

There are some absolute contraindications for example, in immune-compromised/suppressed patients, teeth with potential high risk of fracture/trauma (divergent rooted molars), poor patient compliance and oral hygiene. Periodontally involved teeth or fractured teeth may have lower prognosis with IR though the research for an excellent biomaterial is on-going for these cases [12] . Fortunately, the tooth in this case did not fall into any of these categories. Dryden and Arens[7] cited refusal of the patient for periapical surgery as a viable indication for the intentional replantation. The esthetic concern for the central incisor was another factor for performing intentional reimplanatation as the surgical procedure would lead to shrinkage of gingival margin. Also the considerable amount of bone would be removed to reach the apex of the tooth[13]. Patient compliance and lack of periodontal disease[14] in this area were also important factors in the decision to perform the procedure.

Certainly the risks of intentional replanatation were considered and acknowledged and conveyed to the patient. Her desire to save the tooth was made with all these issues in the mind, fortunately to date; this procedure resulted in the continued retention of the tooth.

Conclusion

Some authors consider Intentional Reimplantation to be a last resort; whereas others consider it as another treatment modality. This alternative treatment may be predictable and suggested for certain cases when routine treatment cannot be undertaken or has failed, where periapical surgery would either be impracticable or refused by the patient or unlikely to succeed.

References

1. Grossman L. Endodontic practice, 11th edn. Philadelphia: Lea & Febiger; 1988. p. 334-42

2. Bender I, Rossman L. Intentional replantation of endodontically treated teeth. Oral Surg Oral Med Oral Pathol. 1993;76(5):623–30
3. Raghoebar GM, Vissink A. Results of intentional replantation of molars. J Oral Maxillofac Surg. 1999;57(3):240–4
4. Messkoub M. Intentional replantation: a successful alternative for hopeless teeth. Oral Surg 1991; 71(6): 743-7.
5. Penarrocha M, Garcia B, Marti E, Palop M, von Arx T. Intentional replantation for the management of maxillary sinusitis. Int Endod J. 2007;40(11):891–9
6. Benenati FW. Intentional replantation of a mandibular second molar with long-term follow-up: report of a case. Dent Traumatol. 2003;19(4):233–6
7. Dryden J, Arens D. Intentional Replantation. A viable alternative for selected teeth. Dent Clinics North Am 1994; 38(2): 325-53
8. Sivolella S, Bressan E, Mirabal V, Stellini E, Berengo M. Extraoral endodontic treatment, odontotomy and intentional replantation of a double maxillary lateral permanent incisor: case report and 6-year follow-up. Int Endod J. 2008;41(6):538–46
9. Gonda F, Nagase M, Chen RB, Yakata H, Nakajima T. Replantation: an analysis of 29 teeth. Oral Surg Oral Med Oral Pathol. 1990;70(5):650–5.
10. Nasjleti C, Caffesse R, Castelli W. Replantation of mature teeth without endodontics in monkeys. J of Dent Res. 1978;57:650–8
11. Jacobovitz M., de Lima R.K.P. Treatment of inflammatory internal root resorption with mineral trioxide aggregate: a case report. International Endodontic Journal 2008; 41: 905-12.
12. Tozum TF, Keceli HG, Serper A, Tuncel B. Intentional replantation for a periodontally involved hopeless incisor by using autologous platelet-rich plasma. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2006;101(6):e119–24
13. Kratchman S. Intentional Replantation. Dent Clinics North Am 1997; 41(3): 603-17.
14. Dumsha T, Gutmann J. Clinical guidelines for intentional replantation. Comp Cont Ed Dent 1985; 6(8): 606-8.