



Intentional Reimplantation; A Viable Treatment for A Separated Instrument- A Case Report

KEYWORDS

Intentional reimplantation, Instrument separation, Two year follow-up

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ABSTRACT *Success of treatment of a root canal with a separated instrument beyond the apex solely depends on removal of the instrument. In this paper, intentional reimplantation has been discussed and described as the treatment approach to instrument separation. A two-year follow-up case report is presented. The reimplanted tooth is now a healthy and functional tooth. However successful in this case; intentional reimplantation should be considered as a treatment option of last resort when other options are not viable*

Introduction:

Separation of endodontic instruments is a common procedural error. When an instrument fractures during a procedure in the root canal, the best option is to remove it.¹

Evaluation of endodontic recall radiographs indicate that the frequency of remaining fragments ranges between 2% and 6% of the cases investigated.^{2,3}

The orthograde removal of broken instruments in most cases is difficult and often futile. Nevertheless, an attempt to remove these fragments should be undertaken in every case.⁴

Intentionally leaving a fragment in the root canal may only be considered when non-surgical removal has been attempted without success.

In some clinical situations, intentional reimplantation is indicated as a method of removal of separated instruments. This procedure requires extraction of the involved tooth and extraoral endodontic therapy followed by reimplantation of the tooth.

However this particular procedure can be considered as a mode of treatment as the last resort; when no other treatment modality is viable for instrument retrieval beyond the apex.

The present article describes a clinical case wherein intentional reimplantation was chosen as a treatment approach to retrieve an instrument that had separated beyond the apex.

Case Report:

A 37 year old female patient reported to the 'Department of Conservative Dentistry and Endodontics Department'. On routine examination, a piece of separated instrument was seen in the periapical region in relation to 36. Pulp space therapy had been completed. However the tooth was asymptomatic.

The patient reported back to us after 8 months with pain in relation to the same tooth. The radiographic image revealed a separated instrument in the periapical region in relation to

the mesiobuccal root.[Fig.1] The resulting clinical situation had poor prognosis. The patient was advised periapical surgery. She refused yet wanted to retain the involved tooth. Re-implantation of the tooth after instrument retrieval was the patient's treatment of choice after the clinical procedure was explained to the patient along with the risks involved. She accepted this recommendation and was prescribed amoxicillin 500 mg three times a day for three days.

After three days the tooth was extracted without any complications. Using a sterile gauze piece, the tooth was held by the crown and the roots were beveled using high speed hand piece. Retrofill preparations were made and MTA was condensed into the preparations. The alveolus was curetted gently and the separated instrument was carefully taken out. [Fig.2]

Once the instrument was retrieved, the tooth was irrigated with sterile saline and reimplanted into the socket. A post-operative radiograph was taken. [Fig.3] The tooth was stabilized for 4 weeks using 0.7 mm orthodontic wire with composite from tooth 45 to 48. [Fig.4] The occlusion was adjusted. Post-operative instructions were given along with prescription for medication.

Discussion:

Although intentional reimplantation cases have a high percentage of success (52% to 95%), this procedure should be considered as the last resort. It should be indicated only when other methods for tooth preservation provide a poor prognosis for long-term success.^{5,6} Kratchman also listed contraindications of this procedure like pre-existent moderate to severe periodontal disease, curved or flared roots, a non restorable tooth and missing interseptal bone.⁷

However there are also many advantages in performing this procedure. This procedure is typically less time consuming and invasive as compared to periapical surgery⁷. With proper case selection, the procedure is simple and there are less chances of damage of vital structures adjacent to the teeth.

The success of intentional reimplantation technique is somewhat questionable as many patients tend to drop out from

the post treatment clinical follow-ups⁸ suggesting failure of the treatment. In the present case, a two-year follow-up showed positive results. No ankylosis or reimplantation resorption was seen.

The tooth was asymptomatic. This procedure resulted in continued retention of the tooth.

This procedure may not be the first choice of treatment, but it doesn't make this procedure less popular. With proper case selection, especially in those wherein routine treatment has failed or refused by the patient, this procedure has shown successful results.

Fig 1. Preoperative Radiograph



Fig 2: Removal of Separated Instrument



Fig 3: Post-operative Radiograph



Fig 4: Stabilization of tooth with orthodontic wires



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