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RESEARCH ARTICLE

HOPE FOR A HOPELESS TOOTH – INTENTIONAL REIMPLANTATION- A CASE REPORT

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ABSTRACT

Aim: Maintaining the integrity of the natural dentition is the central goal of dentistry. Intentional re-implantation is defined as intentional removal of tooth and reinsertion into extraction socket before or after endodontic treatment. It aims at most conservative option that satisfies individual esthetic and functional requirements while retaining the natural teeth and smile.

Materials and Methods: The patient was examined and subjected to periapical radiograph. After completion of phase I therapy and root canal treatment, intentional re-implantation was done in a traumatized and grade III mobile right central incisor. Tooth was splinted with fiber reinforced resin splint and patient was placed in a maintenance recall program.

Results: The patient was clinically and radiographically monitored for 1year with follow-up radiographs showing the tooth in the alveoli without sign of ankylosis or re-implantation resorption.

Conclusion: Intentional re-implantation of the same tooth can be done when the patient want to retain natural dentition instead of going for artificial prosthesis. It provides an alternative treatment option, instead of extraction for a tooth with hopeless prognosis.

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INTRODUCTION

The goal of periodontal therapy is the morphologic and functional regeneration of lost supporting tissue. Sometimes, regenerative approaches may prove inadequate in patients with severe periodontal disease who have advanced bone destruction, and extraction of the periodontally involved hopeless teeth remains the only choice. In such patients, re-implantation can be an alternative treatment option to help maintain the tooth function and esthetic with the natural teeth instead replacing them with artificial prosthesis.

Case history

A 45 year old female patient reported to the Department of Periodontics, MGPGI with the chief complaint of loose tooth and pain in upper front region following trauma ten days back. On eliciting the history of the presenting illness, patient gave history of trauma in upper front region of mouth while playing with her child, following which she developed pain and mobility in the tooth. Patient was controlled diabetic with HbA1c value 5.5%. Patient has undergone phase I therapy six months back.

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On extra oral examination, there was no abnormalities detected and the regional lymph nodes were not palpable. Intraoral examination revealed pathologically migrated 11 with extrusion of about 2-3mm from the socket (Figure 1a). Grade III mobility with pocket depth of 4 mm and clinical attachment loss of 4-5 mm in relation to 11.Intra oral periapical radiographrevealed extruded 11 from the sock*et al*ong with severe bone loss (Figure 1b).

Figure 1a - Pre-operative photograph showing extruded 11
Figure 1b - Pre-operative IOPAR showing severe bone loss with extruded 11 from socket
Figure 1c - IOPAR after Root Canal Treatment

Patient being a female demanded to retain her natural tooth and denied for extraction of the tooth for esthetic reason. Considering the clinical situation, intentional replantation of 11 was planned after explaining the pros and cons of treatment to the patient. Phase I therapy was completed and root canal treatment was carried out in relation to 11 (Figure 1c). Replantation procedure was scheduled two weeks after the completion of the root canal treatment.

Atraumatic extraction was done in relation to 11 after achieving adequate local anesthesia (Figure 2 and 3). Extracted tooth was carefully root planed for removal of necrotic cementum and granulation tissue. Extruded tooth was put back in new position after drilling apical bone with proper sized implant drill (Figures 4 and 5a) and splinted with fiber reinforced resin splint (Figure 5b).

Figure 2. Extraction site after atraumatic extraction

Figure 3. Extracted tooth kept in saline

Figure 4. Reimplantation site prepared

Figure 5a. Tooth reimplanted into the extraction socket
Figure 5b. Splinting done and tooth immobilized

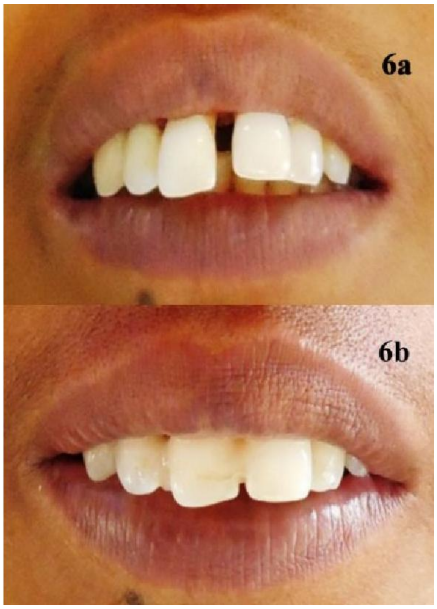

Figure 6a. Pre-operative photograph
Figure 6b. Post operative photograph

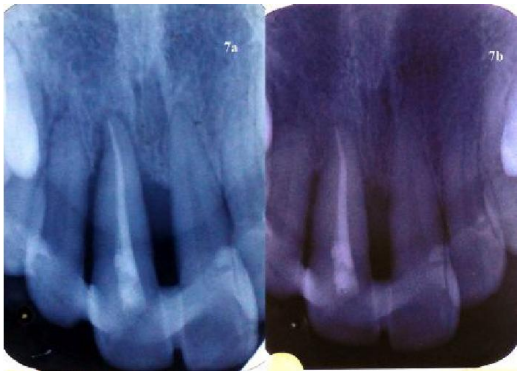

Figure 7a - IOPAR immediately after reimplantation
Figure7b - IOPAR after one year follow up

Post-operative instructions were given to patient to maintain proper oral hygiene. Patient was advised not to eat stiff foods using maxillary anterior teeth at least for 3 months. Patient was prescribed amoxicillin 500 mg tid for 5 days along with an analgesic and also recommended to use interdental brush at the replantation site. Chlorhexidine mouthwash 0.2% was prescribed twice daily for 14 days. Patient was placed in a maintenance recall program every month for the first 3 months and every 3 months thereafter. Patient is under continued supportive periodontal therapy and has not shown any untoward effects of root resorption or mobility at one year follow-up as per clinical and radiographic evaluation (Figure 6 & 7).

DISCUSSION

Although intentional re-implantation 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. (Grossman, 1966; Weine, 1980) 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 re-implantation technique is somewhat questionable as many patients tend to drop out from the post treatment clinical follow-ups suggesting failure of the treatment. The success of re-implantation of the avulsed tooth depends on the physiological status of the periodontal ligaments (PDL), the stage of root apex development, and the time spent extra orally. Anderson has reported that if the extra oral dry time is more than two hours, there is 95% chance of external resorption. (Andreasen, 1981) It is generally agreed that intentional replantation is contraindicated in teeth with moderate to severe periodontal disease and that a healthy periodontal status is a prerequisite for long-term success but there are reports suggesting that it can be a successful treatment alternative for periodontally involved hopeless teeth as a last resort. (Lu, 1986; Baykara and Eratalay, 1995) Ankylosis is a common complication of replanted teeth that leads to a gradual resorption of the dental hard tissues and their replacement by bone (Andreasen, 1980). Clinical and experimental studies showed that the vitality of the periodontal membrane has a critical importance in preventing ankylosis. Lindskog *et al*. (1985) concluded that chemical removal of the necrotic periodontal membrane prior to replantation of teeth rendered the cementum less vulnerable to resorption than if the necrotic membrane had been left intact prior to replantation. Mahajan & Sidhu (1982) also reported that the removal of the periodontal membrane raised the success rate of tooth replantation. Splinting of replanted teeth is not always considered to be necessary. (Kehoe, 1986; Wallace and Vergona, 1990) But in this case splinting was done with fiber reinforced composite resin splint due to the severe periodontal destruction and lack of sufficient periodontal support. Mobility may inhibit periodontal repair and bone gain during therapy and extreme mobility can interfere with speaking and eating. Therefore, splinting the excessively mobile teeth may restore occlusal stability and occlusion, improving function, comfort, and esthetics.

The replanted teeth must demonstrate healthy gingiva, significant decrease in pocket depth, and the evidence of new bone formation to be considered successful.

With one year follow-up period, the result of this case report can be considered a promising technique for retaining periodontally involved hopeless teeth at least for a period of time for esthetic reasons. In the present case, a one year follow-up showed positive results with no sign of ankylosis or re-implantation resorption. The tooth was asymptomatic and this procedure has resulted in continued retention of the natural tooth providing function and natural smile. It can also serve as a good model for future studies of the re-implantation of periodontally involved teeth that no other treatment approach except extraction could be considered.

Conclusion

Preservation of tooth in the mouth for as long as possible is the major goal of a dentistry. Intentional re-implantation thus helps maintaining the integrity of natural dentition. It provides a beautiful natural smile, esthetic and functions by retaining the natural teeth with hopeless prognosis.

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