

Management of Unhealed Mandibular Fracture Caused by Endodontic Infection: A Case Report

Endodontic Management of Teeth in Mandibular Fracture Line

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ABSTRACT

Teeth within fracture line pose a clinical dilemma whether to extract or retain them. While extracting them remove any potential source of infection and helps in fracture healing, retaining healthy teeth provide stabilizing effect and act as occlusal reference. This case report present successful management of periapical infection of mandibular anterior teeth in line of mandibular parasymphysis fracture, diagnosed with necrotic pulp and apical periodontitis with conventional endodontic treatment. Endodontic treatment in this case was successful in resolving signs and symptoms associated with pulpal and periapical disease thereby helped retain natural dentition. No negative effect was seen on mandibular fracture healing at subsequent follow up periods.

Keywords: Endodontic treatment, fracture line and mandibular fracture.

INTRODUCTION

There is always a great chance of teeth falling within fracture line as about 56-69% of mandibular fracture involves teeth bearing areas (1). There is no consensus in literature regarding such teeth whether they should be retained or extracted. While authors of previous studies supported extraction of such teeth as it was thought that they may act as nidus of infection further complicating fracture healing (2-4). However, more recent studies overwhelmingly advocate preservation of teeth in fracture line unless there is an absolute indication for their removal as they provide occlusal reference and have stabilizing effect(5). There is always a great chance of teeth falling within fracture line as about 56-69% of mandibular fracture involves teeth bearing areas (1). There is no consensus in literature regarding such teeth whether they should be retained or extracted. While authors of previous studies supported extraction of such teeth as it was thought that they may act as nidus of infection further complicating fracture healing (2-4). However, more recent studies overwhelmingly advocate preservation of teeth in fracture line unless there is an absolute indication for their removal as they provide occlusal reference and have stabilizing effect(5).

Although with the use of antibiotic extraction of symptomless teeth in the fracture line is no longer indicated, However question of retaining teeth with periapical or pericoronal infection in the fracture line remains debatable(6). In this case report there was formation of sinus tract as well as radiographic sign of periapical radiolucency associated with the suspected teeth which were non responsive to electric pulp test. The diagnosis of devitalization of the concerned teeth was further confirmed by access opening done without local anesthesia. This case report shows successful resolution of periapical infection of teeth falling near to mandibular parasymphysis fracture line with conventional endodontic treatment.

CASE REPORT

A 24 years old male patient reported to the department with chief complaint of pus discharge in the front chin region since past one month. Past dental history revealed bilateral condylar, left parasymphysis, and right body fracture two months back. However one month after treatment patient developed extra oral sinus with discharge of pus in anterior mandibular

region. On examination all mandibular anterior teeth i.e. tooth #31, 32,33,41,42 and 43 were found non responsive to electric pulp test with mobility of variable degree. Radiographic examination revealed periapical lesion with respect to the offending teeth. Conventional endodontic treatment was planned.

Access cavity was prepared under rubber dam isolation after administration of 2% lignocaine hydrochloride with epinephrine 1:80,000 (ICPA Health Products Ltd, Ankleshwar, India). Canal orifices were identified and enlarged using Gates Glidden drills (Mani Inc, Utsunomiya, Tochigi, Japan) or Sx ProTaper Universal rotary (Dentsply Maillefer). Working length was determined using stainless steel k-files (Mani, Inc.) keeping 0.5 to 1.0 mm short of the apex using a RootZX apex locator (J. Morita, Irvine, CA) and confirmed radiographically. Apical enlargement was done depending on the file that bound at the apex after coronal preparation. Canals were finally irrigated with 5 mL 2.5% NaOCl. Calcium hydroxide medicament was placed and access cavity was restored with Ketac Molar as an intermediate restoration. At the second visit, obturation was done with gutta-percha (Meta Biomed Co. Ltd, Cheongwon-gun, Chungbuk, Korea) and zinc oxide eugenol sealer (Dental products of India Ltd, New Delhi, India) using cold lateral condensation technique and restored with composite resin with a base of glass- ionomer cement (Ketac Molar). Patient on recall visit after six months reported complete absence of any signs or symptoms. OPG was taken which revealed significant reduction in periapical radiolucency with respect to all treated teeth and healing mandibular fracture (Fig 1).

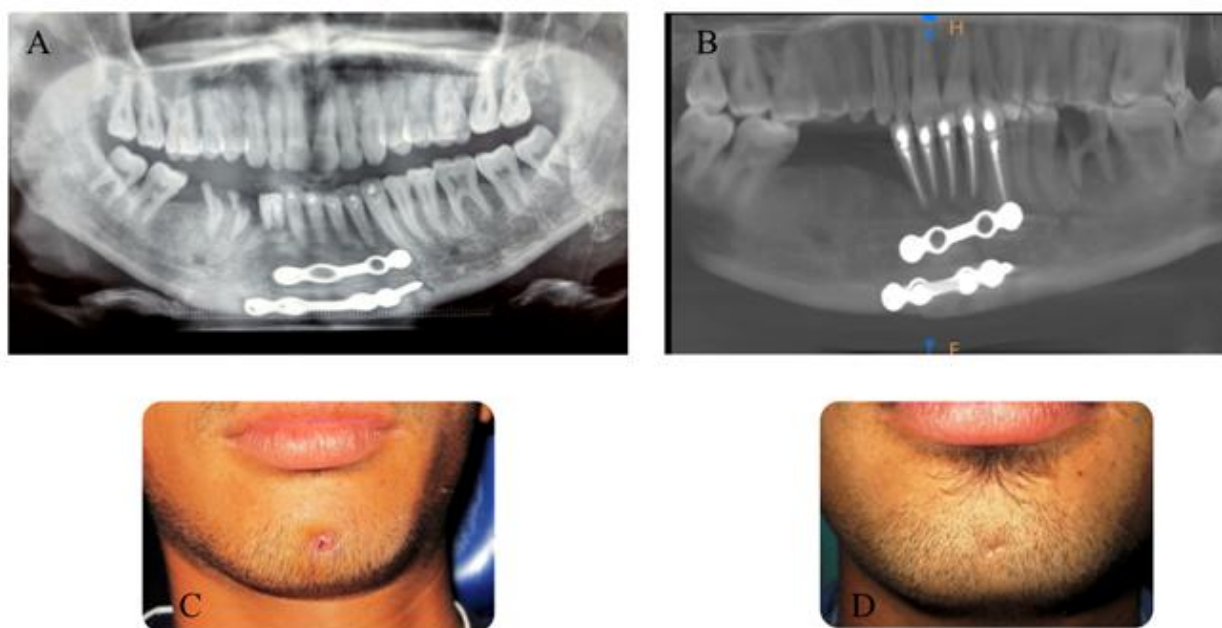


Fig 1: Preoperative OPG (A); Preoperative OPG (B); Preoperative clinical photograph with sinus tract (C); Postoperative clinical photograph with healed sinus tract (D)

DISCUSSION

Response of teeth in fracture line to electric pulp test is shrouded with cloud of controversy. As trauma can cause either devitalization or only temporary parasthesia and in both case the teeth will remain non responsive to pulp sensibility tests. Although teeth can take months to start responding to pulp sensibility tests after fracture and any endodontic intervention during this time period invite inappropriate treatment(7). However in the absence of frank clinical sign and symptom or radiographic sign of devitalization making distinction between devitalized and teeth under temporary parasthesia is difficult.

The periapical status of the teeth involved was not clear at the time of fracture of mandible in this case report. Role of mandibular fracture in developing or at least aggravating signs of existing periapical pathology therefore can't be ruled out. Vice versa teeth with periapical pathology in line of fracture has been viewed as constant source of infection and therefore deterrent to fracture healing (8-9). Endodontic treatment of these teeth can not only help in alleviating clinical and radiographic signs and symptoms of periapical pathosis but also promote fracture healing which is in sync with the finding of previous study (10).

CONCLUSION

Conventional endodontic treatment may help in retaining teeth with pulpal and periapical pathosis within fracture line. Efforts should be made to retain natural teeth on its merit in fracture line.

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