ENDODONTIC TREATMENT OF MAXILLARY CENTRAL INCISOR WITH ANOMALOUS ROOT FORMATION-
A CASE REPORT

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ABSTRACT

This article reports root-canal treatment of maxillary right incisor fused with a supernumerary tooth. Radiographically, an accessory root we could decide to which tooth it belonged was observed. It was diagnosed as an acute apical abscess with pulp necrosis The treatment was completed successfully.

Keywords: Accessory root, Fusion, Groove, Maxillary central incisor, Supernumerary tooth

INTRODUCTION

Fusion and gemination are developmental anomalies of dental hard tissue. Fusion implies a union of enamel or dentine of separate tooth germs.\(^1\)\(^2\) In gemination, the tooth germ tries to be divided, but this division is incomplete and results in more-or-less completely separated roots and crowns.\(^3\) Clinically, it is often difficult or impossible to differentiate between fusion and germination.\(^4\)\(^5\) In gemination, the arch will contain the normal complement of teeth whereas in fusion there will be one less than the normal complement. In cases where fusion has occurred with a supernumerary tooth, the number of teeth in the arch would remain normal.\(^4\) The term ‘double tooth’ has suggested to cover both of these possibilities when the true etiology cannot be determined. \(^6\)

A tooth with an acute periradicular abscess will be very painful to biting pressure, percussion, and palpation. This tooth will not respond to any pulp vitality tests and will exhibit varying degrees of mobility, and the radiograph or image can exhibit anything from a widened periodontal ligament space to periradicular radiolucency. \(^7\)

Few articles have been written regarding the endodontic treatment of the geminated or fused tooth, \(^8\)\(^-\)\(^10\) The following case report describes the endodontic treatment of a maxillary central incisor having two separate roots and an accessory root.

REPORT

A 21-year-old female was admitted to Endodontic Clinic of the University of Ataturk, complaining of a severe pain associated with the maxillary right central incisor. The tooth was symptomatic and tender to percussion. The labial cortical plate was tender to palpation. Electric pulp tester and thermal tests elicited no response from the tooth. There was no swelling or fistula.

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The maxillary right central incisor had an anomalous clinical crown. The tooth was wider buccopalataly but it had the same dimensions mesio-distally in comparison to the symmetric one (Figure 1). The tooth had a groove and except for this groove it had no aesthetic problems. The groove was surrounded cingulum buccopalataly and did not exceeding the beneath of the gingiva. The groove is clearly seen in radiography. However, further examination revealed neither a carious defect nor restoration. Radiographic investigation indicated the tooth had two roots and an accessory root. Periapical radiolucency was clearly observed in the radiograph of this tooth. (Figure-2) It was diagnosed as an acute apical abscess with a necrotic pulp.

The tooth was anaesthetized and isolated with rubber dam. Three separate root canal orifices were found on the same level of the pulp chamber floor. (Figure 3) Canal orifices were in bucco-palataly order. The length of the root canals was determined using an apexlocator (AMADENT INC. Cherry Hill. NJ). The buccal root canal didn’t reach to the apical area. The root canals were prepared in a crown-down method using rotary Hero 642 (Micro- Mega, France) NiTi instruments. Finally, apical preparation was finished by hand with using NiTi files. For irrigation, 5 % sodium hypochlorite solution was used. The canals were dried with paper points. Calcium hydroxide paste was used as an intracanal medicament. A sterile cotton pellet was placed in the pulp chamber and Cavit (3M ESPE AG, Germany) was used to seal the access cavity. One week later, all symptoms had disappeared and root canal treatment was completed; the canals were rinsed 5 % sodium hypochlorite solution, dried with sterile paper point and obturated with gutta-perca and Sealapex (Kerr, Romulus, MI USA) using cold lateral compaction technique. Final radiograph was taken to establish the quality of the obturation (Figure 4). After completion of root canal treatment, the tooth was restored with a composite filling (Z250, 3M Dental products, St. Paul, Minn.) In order to eliminate aesthetic problems, it was restored with composite in groove parts. (Figure 5)
The same clinical and radiographic appearance can be result of either gemination of fusion. Fusion may be differentiated from gemination by the presence, respectively, of two separate roots or a single root, and by counting the teeth.5,14

In this case the number of teeth was normal and differentiation between fusion and gemination is difficult. However, it was seen as a mesiodens which is frequently seen in this area and the bucco-palatal fusion of the central tooth. There was no clue from the point of root shapes and dimensions about which root belonged to the supernumerary tooth,15 yet when we took the palatal groove surrounding the cingulum of the tooth and the shape of the tooth crown into account together. In this case we couldn’t detect any evidence about which tooth the accessory root belonged to. Since the root canal treatment of accessory root was carried out successfully and there was no palatal groove related to accessory root, resection of the accessory root and radiculoplasty wasn’t taken into consideration.

CONCLUSION

Differential diagnosis between fusion and germination is difficult when a normal tooth and a supernumerary tooth are involved. Careful clinical and radiographic examination is essential to decide on the treatment of the tooth. In this case, radiographic investigation indicated that the tooth had two roots and an accessory one. Clinical examination revealed that this was a fusion of central incisor with a supernumerary tooth and the palatal root belongs to the supernumerary tooth. However clinical and radiographic examinations were not sufficient to find out which tooth the accessory root belongs to.

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