

Endodontic treatment of a supernumerary tooth fused to a mandibular second molar: a case report

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Abstract: Since abnormal tooth morphology can predispose to caries and periodontal disease, careful management of fused teeth is essential. In this paper we report a rare case of a fused molar and supernumerary tooth and describe its management. Caries was removed from the tooth complex under local anesthesia. The pulp chamber of the supernumerary tooth was exposed without involvement of second molar pulp chamber. The root canal of the supernumerary tooth was prepared using the step back technique and copious irrigation with 2.6% sodium hypochlorite. Obturation using the lateral condensation technique with gutta-percha and AH26 sealer was subsequently performed and final restoration was accomplished with composite resin. Nine months after the treatment, no clinical or radiographic concern is apparent, and the second molar tooth has remained vital. (J. Oral Sci. 48, 39-41, 2006)

Keywords: supernumerary tooth; fusion; endodontic treatment.

Introduction

Tooth fusion is the result of the union of two distinct dental entities that occurs in any stage of dental organ development. This process involves epithelial and mesenchymal germ layers resulting in irregular tooth morphology (1). While the teeth are fused by dentine, the

pulp chambers and canals may be fused or separate (1).

The etiology of tooth fusion is still unclear, but is likely, in part, related to the physical forces produced by the close contact between two developing teeth. A genetic predisposition has been reported, and racial differences in incidence are evident (1).

Most fusions between a molar and a supernumerary tooth require surgical removal due to the abnormal morphology and excessive mesiodistal width that causes problems with crowding, alignment and occlusal function. These teeth are also predisposed to caries and periodontal disease (2,3).

This paper reports a rare case of fusion between a mandibular second molar and a supernumerary tooth, where endodontic treatment of the supernumerary tooth and restoration of this tooth complex maintained pulp vitality of the second molar.

Case Report and Results

A 21-year old male without remarkable medical history was referred to Mashad University of Medical Sciences postgraduate Dental Clinic with the chief complaint of spontaneous and severe pain on the left side of the mandible that started one week earlier.

Tooth count was normal, but clinical and radiographic examination revealed a fusion of tooth #37 (second molar) with a supernumerary tooth (Fig. 1). A cross-sectional occlusal radiograph confirmed the diagnosis.

The fusion between the buccal aspect of tooth #37 and the supernumerary tooth resulted in a wide distinct crown and grooves on the complex (Fig. 2). A carious lesion was detected both on the occlusal surface of tooth #37, with associated irreversible pulpitis, and on the distal surface of tooth #36, with associated reversible pulpitis.

The complex was isolated and all caries was removed

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Fig. 1 Pretreatment radiograph.



Fig. 2 Pretreatment clinical view.



Fig. 3 Working length determination.



Fig. 4 Post treatment radiograph.



Fig. 5 Post treatment clinical view.



Fig. 6 Radiograph at 9 months post treatment.

under local anesthesia. The pulp chamber of the supernumerary tooth was exposed and one canal was instrumented. This pulp chamber was not in direct contact with that of the second molar. Under rubber dam isolation the working length was established using a K-file No.15 (Maillefer, Swiss), (Fig. 3). The root canal was prepared using a step back technique up to K-file No. 80 (Maillefer, Swiss), Gates-Gliddens No. 2, 3, and 4 (Maillefer, Swiss), and copious irrigation with 2.6% sodium hypochlorite. Apical patency was ensured using a k-file No. 10. Cleaning and shaping were completed and obturation was performed using a lateral condensation technique with gutta-percha and AH26 sealer (Dentsply, Germany) (Fig. 4). Zonalin dressing (Masterdent, USA) was applied as a temporary restoration of the access cavity.

Final restoration of the tooth complex was accomplished with composite resin (Synergy, Coltene, Germany) and the first molar crown was restored with amalgam (Fig. 5). After 9 months of follow up, no clinical or radiographic concern was apparent, and tooth #37 remained vital (Fig. 6).

Discussion

Diagnosis of fusion is based on the patient history as well as on clinical and radiographic findings. Fusion of molar teeth with supernumerary teeth is particularly rare, but when it does occur, caries, periodontal disease and crowding are common. Since grooves created by the union between the teeth involved are deep and extend subgingivally, bacterial plaque accumulates readily in this area (1,4). While pulpal involvement of these teeth is common, endodontic treatment is usually problematic, due to the complex anatomy, tooth positioning and difficulty in rubber dam isolation (1). A multidisciplinary approach, with different practitioners working together, can increase the rate of success (5,6).

Delany and Goldblatt (6) and Hulsmann et al. (7) reported that most fusions necessitate surgical removal of the

involved teeth because of their abnormal morphology and excessive mesiodistal width, causing crowding, tooth misalignment and occlusal dysfunction. Turell and Zmener (2) and Nunes et al. (5) have reported, however, that some fused teeth can be saved.

In the present case, the caries had not extended into the second molar pulp chamber, and only the supernumerary tooth pulp was exposed. Thus, clinicians should consider the pulp vitality of the supernumerary tooth and the tooth to which it is fused independently.

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