

Unilateral Fusion of a Mandibular Third Molar to a Supernumerary Tooth: A Case Report

JB Taheri¹, M Baharvand², AR Vahidi-Ghahrodi²

¹Associate Professor, Department of Oral Diseases, Dental School, Shaheed Beheshti University Of Medical Science, Tehran, Iran

²Assistant Professor, Department of Oral Diseases, Dental School, Shaheed Beheshti University Of Medical Science, Tehran, Iran

³Dentist, Private practice

Abstract:

Fusion is a developmental anomaly defined as the union of two normally separated tooth buds or the partial splitting of one tooth bud into two buds. Depending on the stage of development, fusion may be either complete or incomplete.

The significance of this particular case was that this fusion occurred in a posterior permanent mandibular tooth, while such a manifestation is more reported in maxillary anterior teeth; either in the primary (0.5%) or permanent (0.1%) dentition.

The genetic basis for this anomaly is probably autosomal dominant with reduced penetrance. In addition, the essential findings for differential diagnosis include number of teeth, radiography and clinical features.

Key Words: Fusion; Tooth anomaly; Double tooth

✉ Corresponding author:
M. Baharvand, Department of Oral Diseases, Faculty of Dentistry, Shaheed Beheshti University of medical sciences, 9/1 Karimi Lane, Arash Bulv., Zafar St., Tehran, Iran.
bahar_vand@yahoo.com

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INTRODUCTION

Fusion is a developmental anomaly in tooth morphology which may be due to either union of two separate tooth buds or partial splitting of a single tooth bud. Depending on the stage of tooth development, union may be complete or incomplete, and the tooth may have separate or fused root canals. The condition is more common in deciduous than permanent dentition. Fusion may also occur between a normal tooth and a supernumerary tooth such as a mesiodens or a para molar [1].

Double teeth occur in both dentitions with higher frequency in anterior maxillary regions [2]. Fusion is a rare occurrence in the mandibular posterior teeth, but some cases have been reported by Di Felice & Lombardi [3], and Tsesis et al [4]. The overall prevalence appears to be approximately 0.5% in deciduous teeth and 0.1% in permanent dentition

and 0.02% bilateral in both dentitions [2]. Gemination demonstrates a single root canal, whilst separate root canals are seen in fusion. Changes in tooth morphology can be either hereditary or caused by physical forces [5], such as trauma or some disease [6]. The genetic basis for the anomaly is probably autosomal dominant with reduced penetrance [4, 5].

Fused teeth may show unusual configurations of their pulp chambers, root canals, or crowns. Fusion may be differentiated from gemination in regard to the reduced number of teeth, except in an unusual case, in which the fusion is between a supernumerary tooth and normal tooth [5]. The potential clinical problems associated with fusion which include abnormal shape of the tooth and overall spacing, eventually leads to periodontal disease.

The uncommonness of this entity, along with its

complex characteristics often make it difficult to treat [7].

CASE REPORT

This is an uncommon case of fusion between a permanent mandibular third molar with a supernumerary tooth (paramolar). A 24-year-old man attended the department of Oral Medicine, Dental School of Shaheed Beheshti University of Medical Sciences for routine dental check up. During oral and dental examination a single enlarged tooth located in posterior lower left quadrant of mandible has been found. It seemed like two teeth joined by dentin or enamel (Fig. 1A).

The patient revealed that he had a molar extracted in the left side of mandible about 6 year ago; he also endured some dental problems including bad tooth shape, spacing and mild periodontal disease (Fig. 1A and B). There was no history of a familial marriage and he had no systemic disease. Since the extent and nature of the union of teeth are better recognized radiographically, panoramic and periapical (P.A) radiographs were obtained for further examinations and final diagnosis (Fig. 1B and 1C).

DISCUSSION

Although retrospective studies have shown that fusion occurs in deciduous and permanent dentition and it is more common in deciduous teeth [2] with a higher frequency in maxillary anteriors [5], in this case it was seen in the permanent dentition and in posterior mandi-

bular region which is a rather rare manifestation [3,4].

Di Felice and Lombardi reported a posterior fusion between a second and a third mandibular molar occurring in a black African woman [3]. Tsesis et al reported 2 cases of fused teeth; the first was an 11-year-old girl with an anomalous "double" first mandibular molar and the second case was a 16-year-old boy with 'double' second and supernumerary mandibular molars [4].

The fact that fusion is usually the cause of reduced number of teeth in dental arch helps to differentiate it from gemination [5] with exception of such unusual cases, in which fusion is between a supernumerary and a normal tooth. The final diagnosis was established by clinical and radiographic features.

P.A radiographs of the patient presented separate roots and root canals. Although the number of teeth in mandibular arch was normal and the panoramic view revealed no evidence of impacted or un-erupted tooth, no history of a tooth extraction in that quadrant in conjunction with the unusual shape of one of the united teeth, established the final diagnosis of fusion (Fig 1C).

CONCLUSION

Fusion in posterior permanent dentition is a rare condition. If fusion occurs between a normal and a supernumerary tooth P.A radiographs play an invaluable role in final diagnosis and the number of teeth, in such situations, might be normal.

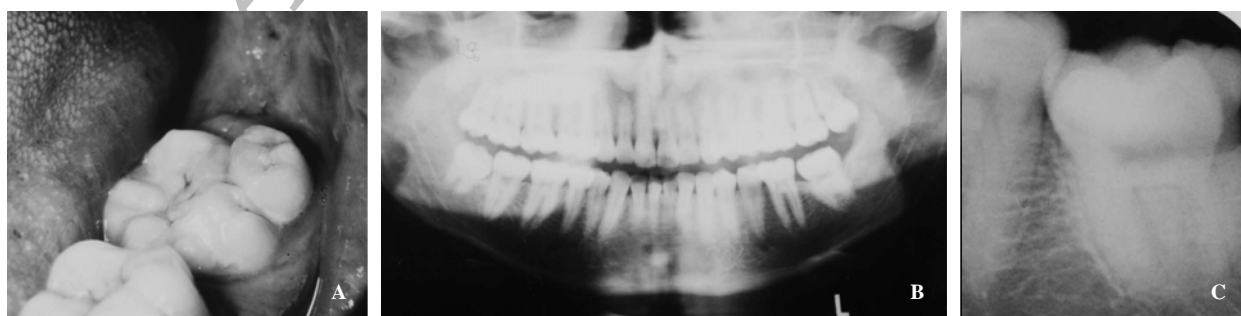


Fig.1: Fused third molar with a supernumerary paramolar; A: Clinical; B: Panoramic, and C: PA view

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