

## Functional Restoration of a Fused Primary Mandibular Macromolar – A Case Report

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Received date: 11 August 2015; Accepted date: 14 August 2015; Published date: 20 August 2015.

Citation: Kalra M, Nishita G, Mandeep R, Lumbini P, Ramakrishna Y (2015) Functional Restoration of a Fused Primary Mandibular Macromolar – A Case Report. Int J Dent Oral Health 1(6): doi <http://dx.doi.org/10.16966/2378-7090.130>

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### Abstract

Gemination and fusion are two rare entities which can be found in human dentition caused as result of aberration in any step of its development. Fusion mainly occurs in primary teeth with incisors and canines being the commonest location especially in the mandibular arch. In the literature, very few cases of fusion of posterior teeth have been reported along with being nonsyndromic and with a normally developing successional tooth. The present case report depicts one such case in which there is fusion between mandibular first molar with an atypical canine like tooth of primary dentition. The resultant tooth is large and had anomalous occlusal anatomy. The macromolar presented with caries which was removed and the tooth was treated endodontically and restored with a semi permanent restoration.

**Keywords:** Double teeth; Fusion; Macromolar

### Introduction

The process of development of dentition in human beings involves interplay of many processes and abnormality in any one of the step can give rise to developmental defects and gemination or fusion are one of them. They are often described as 'double teeth', 'joined teeth', fused teeth, 'dental twinning' etc. The term 'double teeth' is the most commonly used term [1]. In the primary dentition, they range from 0.1-3% without any sex predilection. They are reported either unilaterally or bilaterally in maxillary or mandibular dentition, most commonly in the incisor and canine regions [2-3].

The exact cause of formation of double teeth is not known but there are certain theories suggestive of environmental influences, genetic predisposition such as association with various syndromes [4], systemic diseases, deficiency of vitamins, reduced dental arch length leading to narrowing of space between the tooth germs thus creating a physical force which inturn unites them. The present case is an atypical presentation of a fused primary molar with a supernumerary canine like tooth resembling a macromolar. Functional restoration of this tooth has been attempted as it is perceived that preservation of a primary tooth will serve as a best space maintainer.

### Case report

A 8-year-old male child reported to the Pediatric Dentistry Clinic with the chief complaint of pain and discomfort on chewing on the right lower back tooth region since one month. Clinical examination showed that the patient was in mixed dentition stage with four decayed teeth in the lower arch (84,85,74,75). Primary mandibular first molar of the right side was anomalous and aberrant with large clinical crown showing abnormal occlusal anatomy in contrast to the tooth in its corresponding arch (Figure 1).

The tooth was greatly predisposed to caries from its distal surface. An extra prominent cusp resembling middle lobe of a mandibular canine could be appreciated distolingually. Occlusal outline of this tooth showed abnormally large lingual side contributed by supernumerary fused tooth as compared to its contralateral tooth.

Radiographic examination revealed an enlarged primary molar crown with divided pulpal chambers by two individual crowns along with three distinct roots. Another normally developing and positioned permanent mandibular right first premolar was visible radiographically (Figure 2(a)).

Based on clinical and radiographic examination, the case was diagnosed as a macromolar formed by fusion between mandibular primary first molar with an atypical canine like tooth. A final diagnosis of chronic reversible pulpitis was made and treatment plan was devised in which excavation and removal of caries was planned followed by restoration of the tooth.



**Figure 1:** Clinical picture of mandibular arch showing unilateral presence of fused macromolar on the right side (84). Difference in shape can be appreciated by comparing with contralateral tooth on the left side (74).



**Figure 2(a):** Intra oral periapical radiograph showing macromolar , which is partially fused to a supernumerary tooth resembling canine, with divided pulp chamber and three roots. Normally developing succedaneous premolar tooth bud can be appreciated well.



**Figure 2 (b):** The macromolar is endodontically treated and is restored with a semi permanent restoration in the form of stainless steel crown.

## Management

After administration of local anaesthesia, under rubber dam isolation, caries was chemomechanically removed by using Cariecare gel (Ecoworks Solution Pvt.Ltd), for about 1 minute. It was then washed with saline and soft carious tissue was then excavated with a spoon excavator. Upon excavation, a bleeding point was observed which prompted the need to perform an access opening and extirpation of the coronal pulp. A saline soaked cotton pellet was placed under pressure for 4 min. When the pellet was removed, profuse bleeding of dark red colour was observed from pulp canal orifices. Immediately, pulpectomy procedure was planned and pulp extirpation was done followed by chemomechanical preparation. There were four canals in the macromolar of the location as mesiobuccal, mesiolingual, distal and a distolingual which corresponded to be of the fused part of the tooth. The canals were obturated with metapex (Meta Biomed Co.Ltd.) followed by restoration with glass ionomer cement (Type II-GC Corporation Ltd.) and inturn followed by a stainless steel crown (3M-ESPE). It was noted that even after modifying the tooth according to the normal anatomy of primary mandibular right first molar, it was very difficult to seat the preformed crown. A primary maxillary right first molar stainless steel crown was tried, contoured, crimped and finally luted with Glass ionomer cement (Type I-GC Corporation Ltd.) (Figure 2b). The other decayed teeth were restored and patient was recalled for further follow up (Figure 3).

## Discussion

Fusion can occur due to a number of reasons and one such important factor is persistence of dental lamina during tooth bud formation [5]. In the present case, the fusion has occurred in utero in which the extra tooth as a result of excess of dental lamina was partially fused with the primary first molar. The macromolar appears to fulfil all the criteria stated by Levitas [6] and Mader [7] in terms of morphology of teeth, radiographic appearance and required number of teeth in the arch. In the literature, only three cases of fusion of molar teeth have been reported. In 1987, Yuen et al. [8] reported double primary teeth and their relationship with the permanent successors. Clear buccal and lingual grooving of the crown indicative of joining of primary molar crowns was reported by Acs et al [9]. Radiographically, it exhibited two distinct pulp chambers, incomplete fusion of the dentin, and five or six roots of the macrodont. Another case report depicting macrodont of primary maxillary second



**Figure 3:** Post operative picture of the mandibular arch depicting complete rehabilitation of the decayed teeth.

molar demonstrated complete fusion of primary molars in which three buccal and three lingual cusps were present, separated by occlusogingival grooves with a single pulp chamber and four distinct roots. It has been reported that there exists a tendency for missing permanent successors in cases of primary tooth fusion rather than hyperdontia of the successional tooth. In the present case, there is unilateral presence of a macromolar that is primary mandibular right first molar formed by incomplete fusion with supernumerary canine. The macrodont has two distinct pulp chambers, three distinct roots, partial fusion of the overlying enamel and dentin along with a naturally and normally developing permanent successor in contrast to a study by Yuen et al. [8] who revealed that the fusion of primary teeth is associated mostly with hypodontia in succedaneous dentition. Aberrant tooth anatomy of primary mandibular right first molar made the endodontic treatment difficult but still the tooth was treated and restored by a semi permanent restoration that can serve as a natural space maintainer.

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