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Double Teeth- A Rare Case of Mandibular Third Molar Gemination

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Abstract

Geminated teeth are anomalies which arise from an attempt at division of a single tooth germ by an invagination, with resultant incomplete formation of two teeth. These anomalies may develop during tooth bud morpho differentiation as a result of a developmental aberration of the ectoderm and mesoderm. Gemination is more common in the deciduous dentition compared to permanent dentition and that in the posterior permanent dentition is extremely rare. Here, we present a rare occurrence of gemination associated with the mandibular third molar.

Keywords: Double Teeth, Gemination, Morpho Differentiation.

Introduction

Development of the human dentition is a very complex process. Numerous developmental alterations of teeth can occur, of which variations in the number of teeth are the commonest of the alterations.(1) Gemination is a developmental disturbance involving the shape of the teeth, where one tooth bud attempts to split into two. This partial division is arrested before tooth development is completed, resulting in formation of a single tooth with a bifid crown, with the total number of teeth in the dentition remaining normal.(2) Hence, the term "double teeth" is often used to describe such anomalies.(3) These anomalies may develop during tooth bud morpho-differentiation as a result of developmental aberration of the ectoderm and mesoderm.(4) Gemination is more common in the deciduous dentition compared to permanent dentition, the prevalence in the primary and permanent dentitions being 0.4-0.9% and 0.1-0.2%, respectively. There is no sex predilection and a higher frequency has been observed in the anterior and maxillary regions.(5,6) Gemination is rarely associated with mandibular third molars, and the terminology has often been a topic of debate when the condition in associated with this tooth. This article reports a rare occurrence of gemination in the mandibular third molar, showing atypical coronal and radicular morphology.

Case Report

A 21-years-old male patient reported to the Department of Oral Medicine and Radiology, Dr. Syamala Reddy Dental College, Hospital and Research Centre, Bangalore with the chief complaint of pain in the right lower back tooth region since one week. Pain was sudden in onset, sharp, severe in intensity, continuous in nature with postural variation. Pain aggravated on mastication and relieved on taking medication. The patient's past medical and dental histories were not contributory.

Intra-oral examination revealed brownish black discolouration with partial loss of coronal tooth structure in relation to 48. But an important inspectory finding was the anomalous crown structure of the same tooth. It appeared like two crown structures which were fused, the occlusal surface of the tooth appeared to be continuous but on the buccal and lingual surfaces, the two crowns were separated by a marked groove causing incomplete division of the tooth (Fig. 1). A soft carious yielding base was elicited on palpation with tenderness revealed on vertical percussion in relation to 48. The right submandibular lymph node was tender and palpable. With the above findings, it was provisionally diagnosed as acute apical periodontitis in relation to a geminated tooth 48.

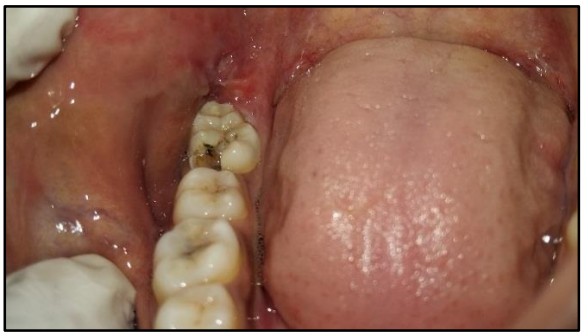

Fig. 1: Clinical appearance of geminated 48

Routine radiographic examination was carried out. Intra-Oral Periapical Radiograph in relation to 48 (Fig. 2) revealed an ill-defined radiolucency on the mesio-occlusal aspect of the crown involving enamel, dentin and approximating pulp. The pulp chamber appeared to be continuous for both the crowns. The roots also showed atypical morphology. There were three roots, a common root being shared by both the crowns, which confirmed incomplete division of the tooth. A radiographic diagnosis of gemination was arrived at. The patient was advised for surgical extraction but

unfortunately, he was not co-operative and the treatment could not be performed.

Fig. 2: Intra-Oral Periapical Radiograph showing geminated 48 with three rooted morphology

Discussion

Germination is defined as an attempt to make two teeth from one enamel organ. It is a developmental anomaly with inherently unusual and bizarre anatomy.[4] In the present case, the mandibular third molar also presented an anomalous crown structure and three rooted morphology. According to Guerisoli et al., 0.9% of 114 analysed mandibular third molars demonstrated three-root morphology[7] while Sidow et al. reported the same in 5% of his cases.[8]

The formation of double teeth may be the result of the fusion of two adjacent tooth buds (fusion) or the partial splitting of one into two (gemination).[1] Fusion is the incomplete attempt of two tooth buds to fuse into one, whereas gemination is the incomplete attempt of one tooth bud to divide into two. Clinically it may be difficult, if not impossible, to differentiate fusion from germination. Mader[9] proposed the "*Two Tooth Rule*" which may be a practical way of differentiating between fusion and gemination. If the anomalous tooth is counted as one and the number of teeth in the dental arch is less, then the term fusion is considered whereas if the number of teeth in the dental arch is normal then it is termed as gemination or is a case of fusion between a normal and supernumerary teeth. Radiographically, in case of fusion, there are usually two separate canals, whereas in gemination, there is usually one common root canal.[10] In the case presented here, there was no reduction in the number of teeth and the two crowns shared a common root. Hence, the diagnosis of germination was made.

Though generally asymptomatic, this type of dental anomaly can cause clinical problems in the form of malocclusion, poor aesthetics, impaction of adjacent teeth, periodontal destruction and caries leading to pulpal necrosis.[4] In the present case, the patient presented with deep dental caries with pulpal involvement of the geminated tooth. According to the specific nature of problem, various treatment approaches are available which include surgical extraction, endodontic therapy, surgical division of the double teeth when the degree of fusion is mild or selective grinding in order to reduce the width.[10] In the present case, as the anomalous tooth was a third molar and it was pulpally infected, the patient was advised for surgical extraction rather than opting for conservative procedures.

Conclusion

Gemination in the posterior permanent dentition is an uncommon condition and is extremely rare. Knowledge about such morpho-anatomical abberations of teeth will help in correct diagnosis and proper treatment planning for the same.

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