

An unusual report of bilateral double teeth with hypodontia in primary dentition- A case report

¹Dr. Manasi Pradeep Kulkarni, Assistant Professor, Department of Paediatric And Preventive Dentistry, Bharati Vidyapeeth (Deemed To Be University) Dental College And Hospital, Sangli.

²Dr. Amol S Shirkande, Assistant Professor, Department of Orthodontics And Dentofacial Orthopaedics, Bharati Vidyapeeth (Deemed To Be University) Dental College And Hospital, Sangli.

³Dr. Sayali Sudhir Magdum, Dental Surgeon, Department of Paediatric And Preventive Dentistry, Bharati Vidyapeeth (Deemed To Be University) Dental College And Hospital, Sangli.

⁴Dr. Sandhyarani B, Associate Professor, Department of Paediatric And Preventive Dentistry, Bharati Vidyapeeth (Deemed To Be University) Dental College And Hospital, Sangli.

Corresponding Author: Dr. Amol S Shirkande, Assistant Professor, Department of Orthodontics And Dentofacial Orthopaedics, Bharati Vidyapeeth (Deemed To Be University) Dental College And Hospital, Sangli.

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Abstract

Gemination and fusion are most commonly seen anomalies in shape of teeth in day to day dental practice. Distinction between these two is always challenging. Fusion is when two tooth buds fuse to make a large tooth, while gemination is an anomaly exhibiting two joined crowns and a single root. Both gemination and fusion are considered multifactorial in etiology with greater impact of genetic and environmental factor. This case report highlights the importance of diagnosing gemination and fusion based on clinical and radiographic examination.

Keywords: Gemination, Fusion, Primary teeth, Developmental anomaly

Introduction

Dental anomalies of morphology and number may occur in the primary and permanent dentition. Various terms have been used to describe joined or fused teeth. Gemination, fusion, concrescence, and twinning all suggest certain kinds of abnormalities in which one tooth has conjoined with another.¹ 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, while fused teeth arise from two normally separated tooth germ. Depending upon the stage of the development of the teeth at the time of union, fusion may be either complete or incomplete.²

These anomalies considered multifactorial in etiology with the greater influence of genetic and environmental causes. It is extremely difficult to differentiate between fusion and gemination especially when a supernumerary is attached with the adjacent tooth. These anomalies can lead to certain clinical problems related to appearance, spacing and periodontal conditions.³

The prevalence of fused teeth has been reported as 0.14% - 5% in primary dentition with no gender predilection and 0.1% in permanent dentition and more frequently in anterior region. Prevalence and incidence of dental anomalies in relation to maxillary lateral incisors in the Indian population indicate that gemination, and fusion (both unilateral and bilateral) accounted for 0.28% and 0.18%, respectively.^{4,5}

So in this case report, there were bilateral double teeth including gemination and fusion with congenitally missing permanent mandibular lateral incisors on both the sides.

Case Report

A 8-year-old boy visited the Department of Pedodontics and Preventive Dentistry, Rajarajeswari Dental College and Hospital, Bangalore with a chief complaint of decayed tooth in upper right back tooth region since 3 months. There was no history of pain or swelling in the same region. No relevant medical or dental history. A thorough clinical intraoral examination revealed child with mixed dentition.

Decayed teeth with respect to 51 61 52 54 55 64 while deep dentinal caries were present in relation to 74. Oral examination also revealed fused teeth between 72, 73 and gemination 82, 83

OPG was advised and it revealed the presence of separated roots and root canal in 82 and 83 while fused root and root canals were found in relation to 72 and 73. Congenitally missing 32 and 42 was observed. The treatment plan included type- II GIC restoration for 51 61

52 54 55 and 64, pulpectomy followed by stainless steel crown in relation to 74. The patient and parent were informed about the absence of permanent mandibular lateral incisors and oriented about preservation of primary teeth.

Discussion

Human jaws, teeth represent many morphological and anatomic variation due to identical genetic and racial characteristics. Developmental abnormalities in the form and number of the teeth are congenital and appear in both primary and permanent teeth. Odontogenic anomalies can occur as result of conjoining or twining defects that include fusion, gemination and concrescence and are clinically manifested by formation of large tooth. Literature shows that differential diagnosis between these two is always challenging. In 1963, Tannenbaum and Alling, defined gemination as the formation of the equivalent of two teeth from the same follicle, with evidence of an attempt for teeth to be completely separate, this is indicated clinically by a groove or depression which could delineate two teeth.⁶ Radiographically, gemination appears to be only one pulp chamber. The same authors' defined fusion as a union of two separate tooth buds at some stage in their development. This union may be either complete or incomplete depending on the stage of tooth development.⁷ In case of primary dentition the prevalence is 0.14-5% with anterior region being most common site.⁸ In spite of various studies the exact etiology of these condition remains unknown; while trauma, genetic and environmental factors are considered main contributing factor in case of gemination and fusion. Clinically, these anomalies presents a problem of unpleasant aesthetics, due to presence of deep grooves, there is greater susceptibility of dental caries or periodontal disease. In case of primary dentition, exfoliation may occur depending on root resorption.⁹

Diagnosis of fusion and gemination depends on clinical and radiographic examination. In 1979, two teeth rule was introduced which was used in diagnosis of fusion and gemination. If the fused tooth is considered as one and number of teeth in dental arch is less, then it is considered as fusion while if the number of the teeth in the dental arch is normal then it is considered as gemination or it is case of fusion between normal and supernumerary.¹⁰ In our case provisional diagnosis was made as fusion depending upon clinical examination it was confirmed as gemination in 72 and 73 while fusion in 82 and 83 depending upon radiographic examination. Congenitally missing 32 and 42 was also seen radiographically which is suggestive of hypodontia.

The treatment depends upon clinical status of fusion or gemination, teeth involved and patient's requirement. If primary teeth is involved treatment depends upon presence or absence of permanent successor.^{11,12} In our case preservation of these teeth is important as there was no radiographic evidence of presence of permanent mandibular lateral incisors on both the sides. Oral hygiene instructions were given to the child and parent.

In such cases management requires regular and long term follow-up.

Conclusion

The presence of dental anomaly and correct diagnosis is always challenge specially in case of Paediatric Dentistry. The close relationship between double primary teeth and their permanent successors justifies radiographic examination to determine the condition of permanent successors.

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Legend Figure



Figure 1 : Maxillary Arch



Fig. 2: Mandibular Arch



Fig.3: Gemination in 72 and 73 Fusion in 82 and 83



Fig. 4: Post-Op- GIC restoration 51,52,61



Fig. 5: OPG showing Gemination in 72,73 and Fusion in 82,83