

Uncommon Fusion Between Primary Mandibular Lateral Incisor and Canine: A Case Report

¹Dr. Kale Yugandhara S; ² Dr. Shylaja MD; ³ Dr. Gujjar Pavan;
⁴ Dr. Attur Kailash

¹Senior Lecturer, Department of Oral Pathology and Microbiology,
Yogita Dental College and Hospital, Khed, Ratnagiri, India

²Professor and HOD, Department of Oral Pathology and Microbiology,
Narsinhbhai Patel Dental college and hospital, Visnagar, Gujarat, India

³Professor and HOD, Department of Oral Pathology and Microbiology,
Yogita Dental College and Hospital, Khed, Ratnagiri, India

⁴Professor and HOD, Department of Conservative Dentistry and Endodontics,
Narsinhbhai Patel Dental college and hospital, Visnagar, Gujarat, India

Corresponding Author: **Dr. Kale Yugandhara S**

Abstract: Fusion is a rare developmental dental anomaly characterized by the union of two adjacent tooth buds, leading to the formation of a single enlarged tooth structure. It can present as complete fusion, where both the crowns and roots are joined, or as incomplete fusion, involving only the crowns or the roots. This condition most commonly affects the anterior teeth and is more prevalent in the primary dentition than in the permanent dentition. The exact etiology of tooth fusion remains uncertain, though it is believed to result from physical forces or pressure during tooth development. Clinically, fused teeth may cause esthetic concerns, spacing issues, or delayed eruption of permanent successors. In this report, we present a rare case of fusion involving the primary mandibular lateral incisor and canine in a 6-year-old female patient, emphasizing the importance of early diagnosis and appropriate management in pediatric dental practice.

Key-words: Anomaly, aesthetics, tooth germ

Introduction:

Fusion is generally identified as the joining of two separate tooth buds, which can occur at any stage of tooth development. During this process, the teeth become united at the dentin level, and their pulp chambers and root canals may either be connected or remain distinct. Both the epithelial and mesenchymal layers of the tooth germ are involved in this anomaly, often leading to abnormal tooth morphology.¹

Fusion may also involve the union of a normal tooth bud with a supernumerary tooth germ. In such instances, the total tooth count appears reduced if the fused structure is

considered a single tooth. In contrast, gemination refers to the incomplete splitting of a single tooth bud, leading to an enlarged crown with a single root and canal. Fusion is considered one of the rarest anomalies affecting tooth morphology.^{2, 3}

One possible explanation for fusion is the influence of pressure or physical forces causing close contact between two developing tooth buds; however, this theory remains inconclusive.⁴ Other proposed contributing factors include racial variations and genetic predisposition. The prevalence of double teeth in primary dentition ranges from 0.1% to 3%, with no significant difference between sexes. Fusion can occur unilaterally or bilaterally and may affect either the maxillary or mandibular arches.⁵

Misalignment, dental caries, periodontal issues, and esthetic concerns are among the various complications associated with this uncommon developmental anomaly.⁶ We present a rare case of fusion involving the right mandibular primary central and lateral incisors in a six-year-old female patient.

Case History:

A 6-year-old girl reported to the dental clinic for routine dental care. The patient's medical and dental histories were nonsignificant. There was no family history of dental anomalies and no consanguinity was reported in the parents. General and extra-oral examinations appeared non-contributory. Intra-oral examination revealed that mandibular right deciduous lateral incisor and deciduous canine were fused together (Figure 1). A prominent groove was observed on both the labial and lingual surfaces of the fused tooth, though it showed no signs of dental caries or periodontal disease. The absence of the right mandibular deciduous canine supported the diagnosis of fusion rather than gemination. Additionally, the permanent mandibular central incisors were noted to be erupting lingually. The patient had an early mixed dentition. The rest of the dentition was normal without any variations or anomalies. Intraoral periapical radiographs revealed the fusion of the 82 and 83 with single root and root canal (Figure 2). The patient was diagnosed with a case of complete unilateral fusion involving the mandibular primary lateral incisor and canine.

Discussion

Tooth fusion refers to the joining of two separate tooth germs. This fusion can be either complete or incomplete, depending on the timing and developmental stage at which the union occurs. It may involve two normal teeth or, in some cases, a normal tooth and a supernumerary tooth germ.² The term fusion is used when the total number of teeth in the dental arch is reduced. If the tooth count remains normal, the condition is identified as gemination, or it may represent fusion between a normal tooth and a supernumerary tooth.⁷ In the present case, the number of teeth in the dental arch was reduced, indicating a true case of fusion. Fusion in deciduous teeth is rarely reported and this is one such rare case wherein mandibular primary anterior

teeth are reported to be completely fused. Trauma, hereditary, environmental factors are considered as the pathogenesis of tooth fusion.

There is strong evidence suggesting a genetic influence in the development of fused teeth. Clinically, a fused tooth appears broad and may show a groove separating the two crowns, or it may have an incisal notch or bifid crown. The deep groove on the surface of the fused tooth can trap bacterial plaque, leading to dental caries and periodontal disease. A thorough patient history, clinical examination, and radiographic findings are the key factors in diagnosing tooth fusion.⁸ The groove on the crown may extend onto the root if the teeth are fully conjoined, although maxillary fused teeth often have two roots. Fusion can be partial, involving only the crowns, or complete, affecting both the crown and root. In some cases, fused teeth may have separated pulp chambers, dividing the tooth into two root canals or creating two distinct endodontic systems.⁹ In the present case, a groove was observed between the crowns of teeth 82 and 83, located only in the incisal third, while their roots fused completely to form a single root canal. To prevent dental caries, it is recommended to apply fissure sealants to the grooves between the two components in fused primary teeth.¹⁰ Radiographs should be taken to check for other developmental anomalies. Regular follow-up at the appropriate stages is essential to prevent delayed exfoliation and eruption of the permanent teeth. The increased root surface area of fused primary teeth may delay exfoliation due to slower root resorption. Treatment options include selective grinding, surgical separation, or extraction, followed by the placement of a prosthesis if necessary.⁴

Fusion of primary teeth is typically asymptomatic, but the irregular morphology of these teeth can sometimes result in aesthetic concerns. These teeth may also be more prone to caries and spacing issues. Additionally, the consequences of fused teeth can affect the eruption of permanent teeth, such as delayed or ectopic eruption, due to the slowed physiological root resorption of the fused deciduous teeth.

Conclusion:

Tooth fusion is a rare anomaly in tooth morphology, and instances of fusion in mandibular primary teeth are scarcely documented in the Indian population. Clinical examination, along with radiographic assessment and timely intervention, is crucial. Management of these cases typically involves a minimal intervention approach, preventive measures, and long-term follow-up care.

References:

1. Nunes E, de Moraes IG, de Novaes PM, de Sousa SM. Bilateral fusion of mandibular second molars with supernumerary teeth: Case Report. *Brazilian Dental Journal*. 2002; 13: 137–141.
2. Peirera AJ, Fidel RA, Fidel SR. Maxillary lateral incisor with two root canals: Fusion or gemination? *Brazilian Dental Journal*. 2000; 11: 141–146.
3. Tewari N, Pandey RK. Bilateral fusion in primary mandibular teeth: A report of two cases. *Journal of Indian Society of Pedodontics and Preventive Dentistry*. 2011; 29: 50–52.
4. Rajashekara BS, Dave B, Manjunatha BS, Poonacha KS, Sujana SG. Bilateral fusion of primary mandibular lateral incisors and canines: A report of a rare case. *Revista Odonto Ciência*. 2010; 25: 427–429.
5. Wu CW, Lin YT, Lin YT. Double primary teeth in children under 17 years old and their correlation with permanent successors. *Chang Gung Medical Journal*. 2010; 33: 188–193.
6. Muthukumar RS, Arunkumar S, Sadasiva K. Bilateral fusion of mandibular second premolar and supernumerary tooth: A rare case report. *Journal of Oral and Maxillofacial Pathology*. 2012; 16: 128–130.
7. Bharghav M, Chaudhary D, Aggarwal S. Fusion presenting as gemination – A rare case report. *Oral and Maxillofacial Pathology Journal*. 2012; 3: 211–214.
8. Rao PK, Mascarenhas R, Anita A, Devadiga D. Fusion in deciduous mandibular anterior teeth – A rare case. *Dentistry*. 2014; S2-001.
9. Penumatsa NV, Nallanchakravarthy S, Dandempally A. Fusion of mandibular primary incisors and their permanent successors: A case report with review of literature. *Journal of Oral Research and Review*. 2012; 4: 56–59.
10. Surmont PA, Martens LC, Craene LG. A complete fusion in the primary human dentition: A histological approach. *ASDC Journal of Dentistry for Children*. 1988; 55: 362–367.



Fig 1: Clinical picture of unilateral fusion of 82 & 83



Fig 2: IOPAR showing fused 82 and 83