

## Case Report

### Bilateral Fusion of the Mandibular Primary Incisors: A Case Report

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#### Abstract

Fusion is a developmental anomaly characterized by the union of two adjacent teeth. Although its etiology is not exactly known, it is believed that some physical forces or pressures cause the contact of developing teeth. Bilateral mandibular fusion of the primary incisors is a rare event, occurring with a prevalence of less than 0.04 percent. Fusion teeth may contribute to esthetic concerns, space problems, occlusal disturbances, and delayed eruption of permanent successors. Hence, careful monitoring of the condition is recommended. An unusual case of bilateral fusion in primary mandibular incisor region in a four year old boy is reported.

**Keywords:** Anomaly; Fusion; Tooth, Deciduous; Incisor; Dentition; Mandible; Incisor;

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#### Introduction

Developmental dental disorders may be due to abnormalities in the differentiation of the dental lamina and the tooth germs (anomalies in number, size and shape) or to abnormalities in the formation of the dental hard tissues (anomalies in structure). In some, both stages of differentiation are abnormal. Developmental dental disorders are not only congenital but they may also be inherited, acquired or idiopathic.

Fusion is defined as the union of two independently developing primary or permanent teeth. This union of two separate tooth germs may be either complete or incomplete. This distinction depends upon the stage of tooth development at the time the union occurs and can be noted clinically by the presence or absence of a groove or indentation separating the two teeth.<sup>1,2</sup> Fused teeth may have separated or shared pulp chambers and canals.<sup>3</sup> This malformation can be distinguished from gemination because gemination is an attempt by the tooth germ to divide.<sup>4</sup> For a differential diagnosis between these anomalies, the dentist must carry out a highly judicious radiographic and clinical examination. Although its etiology is not exactly known, it is believed that some physical forces or pressures cause the contact of developing teeth. Pressure from the adjacent tooth follicles, as well as hereditary conditions or racial differences; have been speculated to be the cause of fusion.<sup>4</sup>

Bilateral dental fusion in the primary dentition is a rare dental anomaly. Epidemiological studies showed that the incidence of fused teeth was similar for males and females and occurred most frequently in the deciduous dentition.<sup>5</sup> A survey of the literature has revealed prevalence estimates for bilateral double teeth ranging from 0.01 to 0.04% in the primary, and 0.05% in the permanent dentition.<sup>6</sup> Eighty-three percent of cases of bilateral fusion in the primary dentition are found in the mandible, out of which, 70% show the involvement of the lateral incisors and canines.<sup>6</sup> These teeth also tend to be greatly predisposed to caries and could cause esthetic, spacing and periodontal problems. The most common problem related to fused teeth is hypodontia of the permanent dentition which has been observed in 50% of affected subjects.<sup>7</sup> The purpose of this article is to highlight the rarity of the condition and presents 4 years old boy with bilateral fusion in his mandibular primary lateral incisor and canine teeth.

#### Case Report

A 4-year-old boy accompanied by his parents reported with the chief complaint of having decayed large teeth in the lower front region of the mouth. The patient had no systemic disorders and there were no abnormalities in his medical or family's history.

Intraoral examination revealed bilateral presence of unusually large teeth in the lower incisor canine region. Both sides were strongly suggestive of conjoined primary lateral incisors and canines (Fig 1). Deep

labio-lingual grooves were associated with both the enlarged teeth. The fused teeth were involved with caries and the patient had good oral hygiene. No esthetic problem was seen in the mouth.



Figure 1: Intraoral view of bilaterally fused primary mandibular lateral incisors and canines.

Radiographic evaluation of the left and right sides revealed two distinct roots and root canals and were evident of the fused 72 and 73 and 82 and 83 (Fig 2). The periapical radiographs and panoramic x-ray showed that the mandibular lower permanent lateral incisors were congenitally absent bilaterally (Fig 3).



Figure 2: Left and right intraoral periapical radiograph showing fused 72 and 73 and 82 and 83 respectively with two distinct roots and root canals.

The patient was diagnosed to be a case of bilaterally fused mandibular primary lateral incisors and canines of the complete type with congenitally absent mandibular permanent lateral incisors. The treatment plan comprised of removal of caries and restoration of the prepared site using composite and periodic follow-ups. The patient was put on 3 months recall program, and parents were informed about the

possible missing succedaneous teeth i.e. permanent mandibular lateral incisors.



Figure 3: Panoramic radiograph displaying mandibular bilateral fusion involving primary lateral incisor and canine teeth and congenital absence of mandibular permanent lateral incisors.

### Discussion

The terminology dental fusion and germination are used to define two different morphological dental anomalies, characterized by the formation of a clinically wide tooth. Despite the considerable number of cases reported in the literature, the differential diagnosis between these abnormalities is difficult. Case history and clinical and radiographic examinations can provide the information required for the diagnosis of such abnormalities.<sup>1</sup> After a judicious evaluation of all information we can report that this case represents bilateral fusion of primary mandibular lateral and canine teeth.

It has been thought that some physical force or pressure produces contact between developing teeth resulting in their subsequent fusion. It can occur between normal teeth or between normal and supernumerary teeth.<sup>8</sup> Fusion can be classified into two types, complete and incomplete. They can be differentiated as:

#### 1. Complete:

- Fusion begins before calcification.
- The crown incorporates features of both participating teeth with regard to their enamel, dentin, cementum and pulp.

#### 2. Incomplete:

- Fusion occurs at a later stage.
- The tooth might exhibit separate crowns and fusion may be limited to the roots alone with pulp canals fused or separate.

Cases of bilateral fusion are less frequent than unilateral fusion. Hagman reported that such patients have a 75% chance of lacking the succedaneous lateral incisor.<sup>9</sup> The presence of fissures or grooves at the union between fused teeth predisposes it to caries and periodontal disease.<sup>10</sup> The main periodontal complication in fusion cases occurs due to the presence of fissures or grooves in the union between the teeth involved. If these defects are very deep and extend subgingivally, the possibility of bacterial plaque accumulation in this area is quite high. Strict oral hygiene is imperative to maintain periodontal health. Furthermore, fusion may have an adverse effect on occlusion, causing deviation and, sometimes, delaying the eruption of other teeth. The greater root surface area of fused primary teeth may delay its resorption.<sup>11</sup> Fusion teeth may also contribute to esthetic concerns, space problems, occlusal disturbances, and delayed eruption of permanent successors.

Treatment modalities include selective grinding, surgical separation of fused teeth or extraction followed by prosthetic replacement of missing teeth. Successful management of these cases depends on the morphology of fused teeth and knowledge and skills of the practitioner. Hence, careful monitoring of the condition is recommended.

While the literature on the occurrence of double teeth is extensive, there is still much discussion concerning the nomenclature. Some authors have tried to differentiate them by counting the teeth or by observing the root morphology: others use fusion and gemination as synonyms. Finally, some authors simply call the phenomenon "double teeth" or "connoted teeth" to avoid confusion over terminology.<sup>10,12</sup> The use of Levitas' classification to distinguish between cases of fusion and gemination is very practical.<sup>12</sup> The differential diagnosis between fusion and gemination, based on the number of teeth present on the dental arch, is not, however, always possible.<sup>13</sup> This is because nothing impairs the fusion between a "normal" and a supernumerary element while the contiguous "normal" tooth is congenitally absent, resembling clinical cases of gemination.<sup>13,14</sup>

The phenomenon of gemination arises when two teeth develop from one tooth bud and, as a result, the patient has a larger tooth but a normal number, in contrast to fusion where

the patient would appear to be missing one tooth.<sup>6,14</sup> Fused teeth arise through union of two normally separated tooth germs, and depending upon the stage of development of the teeth at the time of union. On some occasions, two independent pulp chambers and root canals can be seen. However, fusion can also be the union of a normal tooth bud to a supernumerary tooth germ. In these cases, the number of teeth is also normal and differentiation from gemination may be very difficult, if not impossible. In geminated teeth, division is usually incomplete and results in a large tooth crown that has a single root and a single canal.<sup>13</sup>

### Conclusion

Case history and clinical and radiographic examinations can provide the information required for the diagnosis of dental abnormalities. After a judicious evaluation of all information we can report that this case represents bilateral fusion of primary mandibular lateral and canine teeth. Fusion teeth may also contribute to esthetic concerns, space problems, occlusal disturbances, and delayed eruption of permanent successors. Management of fusion warrants regular and long-term follow-ups. A multidisciplinary approach with different practitioners with expertise in several areas of dentistry is important to achieve functional and esthetic success to treat these rare cases.

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### References

1. Milano M, Seybold SV, McCandless G, Cammarata R. Bilateral fusion of the mandibular primary incisors: Report of case. *J Dent Child.* 1999;66:280-2

2. Camm HJ, WoodAJ. Geminatio, fusio and supernumerary tooth in the primary dentitio: Report of case. *Dent Child*. 1989;56:60-1.
3. Velasco LFV, Araujo FB, Ferreira ES, Velasco LEL. Esthetic and functional treatment of a fused permanent tooth: A case report. *Quintessence Int*. 1997;28:677-80.
4. Turell L, Zmener O. Endodontic therapy in a fused mandibular molar. *Endod*. 1999;25(3):208-9.
5. Peytano A, Zmener O. Endodontic management of mandibular lateral incisor fused with supernumerary rooth. *Endod Dent Traumatol*. 1995;11:196-8.
6. Duncan WK, Helpin ML. Bilateral fusio and geminatio: a literature analysis and case report. *Oral Surg Oral Med Oral Pathol*. 1987;64:82-87.
7. Guimaraes Cabral LA, Firoozmand LM, Dias Almeida J. Double teeth in primary dentitio: Report of two clinical cases. *Med Oral Pathol Oral Cir Buccal* 2008;13:E77-80.
8. Rajendran R. Developmental disturbances of oral and paraoral structures. In: Rajendran R, Sivapathasundaram B, editors. *Shafer's Textbook of Oral Pathology*. 5<sup>th</sup> ed. New Delhi: Elsevier; 2006. p. 3-112.
9. Hagman FT. Anomalies of form and number, fused primary teeth, a correlation of the dentitios. *ASDC J Dent Child* 1988;55:359-61.
10. Nunes E, de Moraes IG, de Oliviera Novaes PM, de Sousa SMG. Bilateral fusio of mandibular second molars with supernumerary teeth: Case Report. *Braz Dent J* 2002;13:137-41.
11. Brook AH, Winter GB. Double teeth. A retrospective study of "geminated" and "fused" teeth in children. *Br Dent J* 1970;129:123-30.
12. Neves AA, Neves MLA, Farinhas JA. Bilateral connatio of permanent mandibular incisors: a case report. *Int J Paediatr Dent*. 2002;12:61-5.
13. O'Reilly PMR. Structural and radiographic evaluation of four cases of tooth fusio. *Aust Dent J*. 1990;35:226-229.
14. Terezhalmay GT, Riley CK. Geminatio/fusio. *Quintessence Int*. 1999;30:437.

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