



## Double Teeth: A challenge for dentists

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### Abstract

Gemination and fusion are anomalies in size, shape and structure of teeth.

Geminated teeth are typically disfigured in appearance due to irregularities of the enamel. Fused teeth can have separated pulpal space, one pulp chamber and two canals or take the form of a large bifid crown with one pulpal space. Fusion is differentiated from germination by a reduced number of teeth. An exception is in the unusual case in which the fusion is between a supernumerary tooth and normal tooth. Here we present a case of geminated primary maxillary later and a case of fusion of mandibular permanent central and lateral.

Key words: Double teeth; fusion ; germination; lateral incisor

### Introduction

The terms "double tooth", "double formations", "joined teeth" or "fused teeth" are often used to describe gemination and fusion, both of which are primary developmental abnormalities of the teeth.<sup>1</sup>

Gemination is defined as an attempt to make two teeth from one enamel organ.

This results in a structure with two completely or incompletely separated crowns with a single root and root canal.<sup>2</sup>

Fusion is defined as the union of two separate tooth buds. These anomalies develop when the adjacent tooth bud come very close to each other by resorption of the interdental bone. If this occurs between the normal complement of teeth then it results in decrease in the number of teeth.

But if the fusion occurs between a normal and a supernumerary tooth then the number of teeth remains the same.<sup>3</sup>

Gemination more frequently affects the primary teeth, but it may occur in permanent dentitions, usually in the incisor region.<sup>4</sup> In the primary dentition, the frequency of gemination or fusion is about 2.5%. Bilateral presentation is very rare.<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> Geminated teeth are typically disfigured in appearance due to irregularities of the enamel. Fused teeth can have separated pulpal space, one pulp chamber and two canals or take the form of a large bifid crown with one pulpal space.<sup>4</sup>

Case Reports

### Case-1

A 8-year old boy reported to the department with the complaint of decay in the lower right first molar. Medical history was non contributory. Intra oral examination revealed full complement of teeth with a geminated right primary maxillary lateral incisor [Figure-1].



Figure-1: Intraoral photograph of the patient showing geminated primary maxillary right lateral incisor [Facial view].

The geminated incisor was vital, non carious and almost the same shade as the adjacent and contralateral teeth. The tooth looked like two lateral incisors separated by a groove running in the middle cervico-incisally [Figure-2].



Figure-2: Intraoral photograph of the patient showing geminated primary maxillary right lateral incisor [Palatal view].

Periapical radiograph of the tooth showed complete root resorption [Figure-3].



Figure-3: Periapical radiograph showing germination on primary maxillary right lateral incisor.

### Case-2

A 9-year old boy reported to the department with the complaint of decay in the lower left first molar. Medical history was non contributory. Intra oral examination revealed one tooth less than the normal count and 31 was found to be larger with missing 32 [Figure-4].



Figure-4: Intraoral photograph of the patient showing complete fusion of clinical crown of 31 and 32.

Periapical radiographic examination revealed the complete fusion of central and lateral incisors with one root and one pulp canal [Figure-5]. There was no history of pain or discomfort and incisors were caries free.



Figure-5: Periapical radiograph showing complete fusion of 31 and 32.

### Discussion

In spite of considerable number of cases reported in the literature, the differential diagnosis between fusion and gemination is difficult. Proper case history, clinical and radiographic examinations can update the information required for the diagnosis of such abnormalities. The etiology of double teeth may be attributed to evolution, trauma, heredity and environmental factors.<sup>7</sup> Fusion is believed to occur due to physical force or pressure on adjacent tooth germs, which lead to their contact and fusion before calcification.<sup>8</sup> Although the etiology of gemination is unknown, there is some evidence that the condition has a familial tendency.<sup>9</sup> Double teeth may also be part of syndromes such as achondrodysplasia and chondroectodermal dysplasia.<sup>10</sup> They have been reported predominantly in the anterior region, with incisors and canines being most frequently affected. Gemination is more prevalent in the anterior maxillary region, whereas fusion is more commonly found in the anterior mandibular dentition.<sup>11</sup> There are different treatment approaches of cases with double teeth. If the affected teeth are primary, they may be retained as they are. The patient's expectations and

degree of compliance must also be accurately assessed when determining suitable management.<sup>12</sup> If the fused tooth is free from caries, it may require no particular treatment. Universal preventive advice should be given to the parent and the child<sup>13</sup> and if caries already exist, a restoration should be made.<sup>14</sup> Surgical division of the double teeth can be carried out when the degree of fusion is mild.<sup>15</sup> When dividing double teeth, the complicated dental canal system should be evaluated cautiously. If there is pulpal involvement, endodontic treatment should be carried out in the same way as for a multirooted tooth.<sup>14</sup> If the clinician plans extraction, it is important to determine first whether the corresponding teeth are present. The extracted teeth can be replaced with an interim removable partial denture until they can be replaced with a fixed bridge or an implant.<sup>15</sup>

### Conclusion

Fusion and germination are uncommon conditions, but they are important dental anomalies. Correct diagnosis of germination and fusion must be made by the dentist. Careful treatment planning, including conservative, endodontic, prosthodontics, periodontic and orthodontic considerations are required.

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