

Fused primary incisors in siblings: Case report and literature review

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ABSTRACT

Fusion may be defined as a union of two separately developing tooth germs typically leading to one less tooth than normal in the affected arch. This phenomenon has been described by several different terms, such as gemination, double teeth and twinning. Factors which have been implicated as possible etiologies for fused teeth include hypervitaminosis, pressure from physical contact of young tooth buds, and genetic factors. This article reports two cases of unilateral fused primary maxillary incisors in siblings, with a discussion covering further elaboration of definitions of gemination and fusion, clinical implementation and review of literature.

Keywords: Fusion, Gemination, Primary teeth.

Introduction

Dental anomalies can be related to either the morphology or number of teeth and are associated with both primary and permanent dentition. Abnormalities in tooth size, shape and structure are caused by disturbances during the morphodifferentiation stage of development. But the exact aetiology of these anomalies is still unknown. Fusion is one of the important dental anomalies which arise through the union of two normally separated tooth germs. It is believed that some physical force or pressure/trauma causes the contact of developing teeth, The aim of this article is to reports two cases of unilateral fused primary maxillary incisors in siblings, with a discussion covering further elaboration of definitions of gemination and fusion, clinical implementation, and review of literature.

Case report

An 8 year old male child reported to department of oral medicine and radiology with the chief complaint of pain and mobility of tooth in left front region of upper jaw. The intra oral examination

revealed presence of carious fused teeth (crown of 61 and 62) (Fig.1).

Clinical examination of periapical region of fused teeth showed the exposed root apex surrounded by inflamed gingiva and erupting upper left permanent central incisor was seen on palatal aspect of fused deciduous teeth. Radiographic examination revealed that crown and root of both 61 and 62 were united and two separate pulp chamber and pulp canal were noticed (Fig. 2). The family history revealed that his younger brother also had fused primary teeth which were present on left front region of upper jaw. He was 6 year and half year old and he reported to the department with chief complaint of pain in tooth in right front region of upper jaw.

On clinical examination it was found that fused teeth (51 and 52) (Fig.3), 62, 75 and 85 were carious and root stumps of 74 and 84 were present. Radiographic examination of fused teeth revealed that crown and root of both 51 and 52 were united and two separate pulp chamber and pulp canal were noticed (Fig.4).

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To overcome pain and to control infection, antibiotics and analgesics were prescribed. The extraction of the fused teeth followed by the curettage of apical tissue was done (Fig.5). In younger brother extraction of (74

and 84), restoration of carious fused teeth (51 and 52), 62, 75 and 85 and space maintainer is advised.



Figure 1: Carious fused teeth (crown of 61 and 62

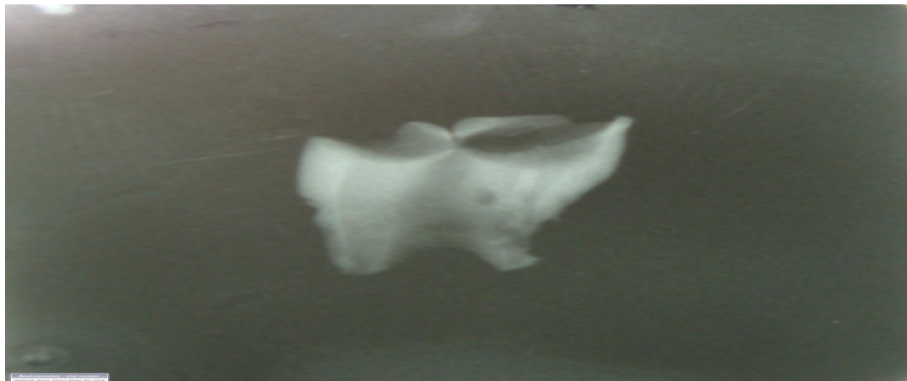


Figure 2: IOPA showing united crown and root of 61 and 62 with two separate pulp chamber and pulp canal



Figure 3: Fused 51& 52



Figure 4: IOPA showing united crown and root of 51 and 52 with two separate pulp chamber and pulp canal



Figure 5: Extracted fused teeth (61 & 62)

Discussion

The anomaly of conjoined teeth has been described in several different terms including fusion, gemination, double teeth, twinning and joined teeth. In 1963, Tannenbaum and Ailing defined fusion as a union of two separate tooth buds at some stage of their development. Depending on the stage they are united, one tooth may have only one pulp chamber as a gemination or there may be two pulp chambers, with union only of dentin. Whereas, gemination is defined as formation of equivalent of two teeth from the same follicle, with evidence of an attempt for the teeth to be completely separate, this is indicated clinically by a groove or depression which could delineate two teeth.[2,3]

It is now clear that the definition of fusion and gemination are based on how the teeth develop. But, the differential diagnosis between these two clinical entities is difficult when a normal tooth and a

supernumerary tooth are involved. Hernandez – Guisado *et al.* suggested that the distinction between fused and geminated teeth must be on the basis of dental formula. They suggested that the teeth in the arch be counted with anomalous crown counted as 1. A full complement indicates gemination while 1 tooth less than normal indicates fusion.[4]

The prevalence of fused primary teeth depends upon the subject examined, the criteria of fused teeth, examination method with or without radiographs and the ethnic background. Fused primary teeth and bilateral cases occur more frequently in Japanese than in Caucasian population. In Japanese population, incidence was found to be 2.8%[5]. Fusion is more frequently found in Mongolians (5%) than in Caucasians (0.5%)[6].

Nik-Hussein and Abdul Majid analysed 65 children with dental anomalies in primary dentition and observed that 75% were double teeth, and among them 94% were fused teeth, and rest 6% were gemination[7].

The investigation of Knezevic *et al* showed a 0.2% prevalence of teeth, in which 57.2% were fused and 42.9% were geminated[8].

The incidence of these anomalies is more common in primary dentition nearly 0.5% and 0.1% in permanent dentition[9]. Data available for primary dentition combined the prevalence of fused and gemination teeth ranging from 0.5% to 2.5%[10].

Duncan reviewed and analysed 38 papers in dental literature and reported the prevalence of unilateral double primary teeth at 0.5% and that of bilateral at 0.02%[11]. Aguiló *et al.* showed that double teeth were mostly unilateral, involving two adjacent teeth and no difference was found in proportion of double teeth in either maxilla or mandible[12]. But, Tsujino investigated 182 fused permanent teeth, of which 34 teeth were in maxilla and 81.3% were in mandible[13]. Fusion is one of the most common anomalies in the primary dentition and has a familial tendency[14]. Fusion has also been reported with congenital anomalies like cleft lip[15]. It is also seen with X-linked congenital conditions[16]. Hagman FT reported a case of fused teeth in two of five siblings. Both siblings had fusion of contralateral lower primary canines and lateral incisors. One had aplasia of one of the succedaneous lateral incisors[14]. Guimarães Cabral LA *et al.* reported a case of a 5-year-old white girl with a family history of anomaly in primary dentition. The girl and her mother presented double teeth in the primary dentition. Her mother showed hypodontia in the permanent dentition[17]. In addition, several authors suggest that dominant autosomal heredity may be one of the etiologic factors[1,18].

These finding suggested that fusion has definitely some hereditary predisposition or familial tendency, which is not fully understood yet.

The clinical interest for the appearance of double teeth in the primary dentition is the clinical problems associated with them, including caries[12], abscess, fistulae, delayed exfoliation[19] and anomalies in the permanent dentition such as impaction of the successors[12], supernumerary teeth[7,19], permanent double teeth[7] or aplasia of teeth[7,12].

The presence of double primary tooth can also cause delayed resorption of root due to greater root mass and increased area of root surface relative to the size of the permanent successor crown[19]. This may lead to delayed or ectopic resorption of the permanent successor[20]. Fusion or gemination may also result in orthodontic anomalies like tooth alignment, diastema, disturbance in maxillary and mandibular arch length,

arch symmetry and occlusion and crowding and protrusion as a result of larger tooth crown size.

The most common problem related to double teeth is hypodontia of the permanent dentition and it has been observed in 50% of affected subjects. Tooth agenesis is one of the most common craniofacial malformations. Its prevalence in permanent dentition reaches 20% and its expressivity ranges from only one tooth, usually a third molar, to the whole dentition[21].

Treatment of a fused tooth will depend on the clinical situation. If the tooth is free from caries, it may require no special treatment. General preventive advice should be given to the parent and the child, and if caries already exists, a restoration should be performed in order to retain function and aesthetics. If there is pulpal involvement, endodontic treatment should be carried in the same way as for a multirrooted tooth. So, to establish a right treatment to this anomaly, the proper examination and knowledge to recognize this anomaly is a prerequisite.

Conclusion

Fusion and gemination are not usual conditions, but they are important dental anomalies. It has been found that anomalies of permanent dentition are strongly associated with in the primary dentition. Therefore, early diagnosis of the anomaly has a considerable importance and it should be followed by careful clinical and radiographic observations that will allow surgical intervention at appropriate time.

Teeth are like precious gems and stones of a person, which if maintained properly throughout one's life, are good for his own physical, social and psychological well being. To preserve this priceless, yet least cared for gift of nature, it's important to make him realize the importance of good oral hygiene practise in his life. Nearly every person will be in need of dental treatment in his lifetime, whether purely for health causes or alternately for aesthetic issues yet the main reasons of seeking dental treatment are in fact caries, gingivitis and periodontitis. Using simple techniques such as oral rinsing, flossing and brushing of teeth are normally sufficient for obtaining good oral health. If this is actually the case then how is it that we are witnessing a massive spread of dental problems? How come there are so many incidents of people suffering from dental problems if the preventive care is so easy to manage? The answer lies in the concept of adherence, referring to the cooperation of an individual with demands of his treatment regime and the dental staff[1].

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