CASE REPORT

Fusion/Double Teeth

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ABSTRACT

Odontogenic anomalies of teeth can be encountered frequently in dental practice. Fusion and gemination are developmental anomalies leading to eruption of joined elements as double teeth. These anomalies pose a challenge even to the most experienced clinician in treating these teeth. This article highlights the importance of clinical and radiographic correlation in arriving a definitive diagnosis.

Keywords: Anomalies, Fusion, Gemination, Double teeth.

INTRODUCTION

Developmental dental disorders may be due to abnormalities in the differentiation of the dental lamina and tooth germ or abnormalities in the formation of dental hard tissue. Odontogenic anomalies of number and forms may occur in primary and permanent dentition. These include gemination, fusion and concrescence.

The term ‘double teeth’, ‘joined teeth’, fused teeth, connoted teeth are often used to describe these anomalies.

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 indicated clinically by a groove or depression which could delineate two teeth. Radiographically, there appears to be only one pulp chamber. They stated that in gemination, the bifid tooth is counted as one entity; the total number of teeth in dental arch is otherwise normal.

Pindborg defined fusion as the union between dentin and enamel of two or more separate developing teeth. Fusion might occur between normal teeth or normal tooth and supernumerary tooth. In latter case, it is difficult to differentiate from gemination and for which the dentist must carry out a highly judicious radiographic and clinical examination.

This anatomic irregularity occurs more often in deciduous than in permanent dentition. In the primary dentition, the frequency of gemination or fusion is about 2.5%. Prevalence is higher in anterior region. Cases of bilateral fusion are less frequent than unilateral fusion ranging from 0.01 to 0.04% in primary and 0.05% in permanent dentition. These anomalies may cause an unpleasant esthetic tooth shape due to the irregular morphology. These teeth also tend to be greatly predisposed to caries and periodontal disease and in some cases endodontic treatment is complicated.

Presence of the anomaly in primary dentition could be followed by dental anomaly in permanent dentition. The etiology of fusion is still unknown but the influence of pressure or physical forces producing close contact between two developing teeth have been reported as one possible cause. Genetic predisposition and racial difference have also been reported as contributing factor. Several treatment methods have been described in literature with respect to the different types and morphological variation of fused teeth, including endodontic, restorative, surgical, periodontal and/or orthodontic treatment.

The purpose of this article is to highlight the rarity of the condition and to evaluate the presence associate consequences.

CASE REPORT

A 14-year-old boy visited to dental clinic for large teeth in mandibular anterior region. His medical and dental histories were unremarkable. Intraoral examination revealed the presence of irregular morphology of mandibular incisors. The fused incisor was vital, noncarious and almost of the same shade as the adjacent and contralateral teeth. Increased mesiodistal width with a groove on the incisal edge (Fig. 1). The remaining maxillary and mandibular teeth were normal in shape.

Radiographic examination showed the union of 31 and 32 with a groove on the incisal edge separating coronal pulp chamber and single completely developed root (Fig. 2). This describes a case of fusion between 31 and 32.

DISCUSSION

The terminology dental fusion and gemination 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
The differential diagnosis between these abnormalities is difficult. Case history, clinical and radiological examination can provide the information required for the diagnosis of such abnormalities.13-15

The use of Levita’s classification to distinguish between cases of fusion and gemination is very practical.13 This is based on the number of teeth in the dental arch, is not, however, always possible. This is because nothing impairs the fusion between normal and supernumerary element while the contiguous ‘normal’ tooth is congenitally absent resembling a clinical case of gemination. Fused teeth arise through union of two normally separated tooth germ and depending upon the stage of tooth development of teeth and at the time of union it may be either complete or incomplete.10,13,14

Tannebaum and Alling2 described a phenomenon of gemination and twinning. A suggested scheme of classification is as follows:

* **Cleavage of single tooth:** Partial cleavage (true gemination) and complete cleavage (twinning).

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**Fusion:** Two separate tooth germ fused during formative stage, union by enamel and dentin (true fusion) and union by dentin and/or cementum (late fusion). A late fusion by cementum is called a concrescence.2

If fusion begins before calcification stage, the teeth unite completely and their crown incorporates feature of both participating teeth with regards to their enamel, dentin, cementum or pulp. Incomplete fusion occurs at a later stage and resultant tooth may exhibit separate crowns and fusion may be limited to root alone and pulp canals fused or separate. In fusion, tooth count reveals a missing tooth when anomalous tooth is counted as one. It may be unilateral or bilateral. It is more common in anterior mandibular segment.9-16 Our both cases were unilateral and involving anterior segment.

Although the term ‘double teeth’ as suggested by Miles in 1954 is widely accepted and may be more appropriate.9

The anomaly may cause unpleasant esthetic appearance due irregular morphology. When deep grooves are present, these teeth may be susceptible to caries and periodontal disease and may require endodontic intervention in some cases which may be complicated. In these cases, groove was present. Gemination of primary teeth presents several problems to the clinician. Since, exfoliation times are different for each tooth involved in the gemination, consideration should be given to the variations in root resorption. Double teeth may also contribute to esthetic concerns, space problems and occlusal disturbances.17 The minimal intervention technique and preventive approach for these double teeth have been advocated.

**CONCLUSION**

Double teeth are not usual condition but they are important dental anomalies. Both fusion and gemination are prevalent in primary dentition with incisors being more affected. Early diagnosis of an anomaly has a considerable importance and it should be followed by careful clinical and radiographic observation that allows the dentist to plan the treatment at proper time.

**REFERENCES**