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BILATERAL GEMINATION OF MAXILLARY PERMANENT INCISORS: A CASE REPORT

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ABSTRACT

Developmental dental disorders may be due to anomalies in tooth number, size, shape and structure. Gemination and fusion are anomalies of shape with close similarity but with different etiology.Gemination and fusion are anomalies of shape with close similarity but with different etiology.The etiology of germination is not fully understood environmental factors such as trauma, vitamin deficiencies, systemic diseases and certain genetic predisposition have been suggested as possible causes.A 9 year old male patient reported to the department of pedodontics and preventive dentistry Dr R Ahmed Dental College & Hospital with the chief complaint of unaesthetic upper front teeth on clinical examination. It was found that the upper central incisors were markedly large in size with buccolingual grooves present partially separating two halves of crown. The incisors were caries free and there was no history of pain or any discomfort. Since the roots were not completely formed the patient was kept on follow up for the treatment to be delivered.

KEYWORDS: developmental disorders, fusion, gemination, maxillary permanent incisors

INTRODUCTION

Developmental dental disorders may be due to anomalies in tooth number, size, shape and structure. Gemination and fusion are anomalies of shape with close similarity but with different etiology. Thus, they pose diagnostic challenge to clinicians. They are commonly referred to as "Double teeth". These anomalies may develop during tooth bud morpho-differentiation as a result of a developmental aberration of both, the ectoderm and mesoderm.

Severity of the anomaly depends on the stage of formation of the involved teeth[1].

In 1963, Tannenbaum and Ailing[2] defined germination as the formation of the equivalent of two teeth from the same follicle, with evidence of an attempt for the teeth to be completely separate, this indicated clinically by a groove or depression which could delineate two teeth. Fusion is commonly identified as the union of two distinct dental sprouts which occur in any stage of the dental organ. They are joined by the dentine; pulp chambers and canals may be linked or separated depending on the developmental stage when the unionoccurs.

However, definitive diagnosis is difficult, because a normal tooth can fuse with a supernumerary tooth or a tooth may be congenitally missing[3]. Although the prevalence rate is variable in individual reports, the overall prevalence appears to be approximately 0.5% in the deciduous teeth and 0.1% in the permanent dentition. Gemination is more prevalent in the anterior maxillary region affecting incisors and canines, although it can also affect molars and

bicuspids. Geminated teeth are mostly unilateral, so that bilateral presentation of this phenomenon is very rare with the prevalence of 0.01% to 0.04% in the primary, and 0.05% in the permanent dentition[4]. Bilateral cases are seen less frequently, with a prevalence of 0.02% in both dentitions. Gemination is reported to be more common in deciduous teeth than permanent teeth. They are very rare in posterior teeth[5,6].

Theetiology of germination is not fully understood environmental factors such as trauma, vitamin deficiencies, systemic diseases and certain genetic predisposition have been suggested as possible causes[7]. Grover and Lorton[8] claim that local metabolic interferences, which occur during morpho-differentiation of the tooth germ, may be the cause. This condition has a familial tendency[9]. It may be associated with syndromes such as achondrodysplasia and chondro-ectodermal dysplasia or can be found in non-syndromic patients[10].

CASE REPORT

A 9 year old male patient reported to the department of pedodontics and preventive dentistry Dr. R. Ahmed Dental College & Hospital with the chief complaint of unaesthetic upper front teeth on clinical examination (Figure 1) it was found that the upper central incisors were markedly large in size with buccolingual grooves present partially separating two halves of crown the grooves were more prominent on upper right central incisors. OPG (Figure 2) revealed normal complement of teeth present. IOPA (Figure 3) of anterior teeth showed partially separated crown with single and incompletely formed roots in both the incisors. The incisors were caries free and there was no history of pain or any discomfort. Since the roots were not completely formed the patient was kept on follow up for the treatment to be delivered.

Figure 1. Clinical picture of the patient.

Figure 2. Orthopantomograph.

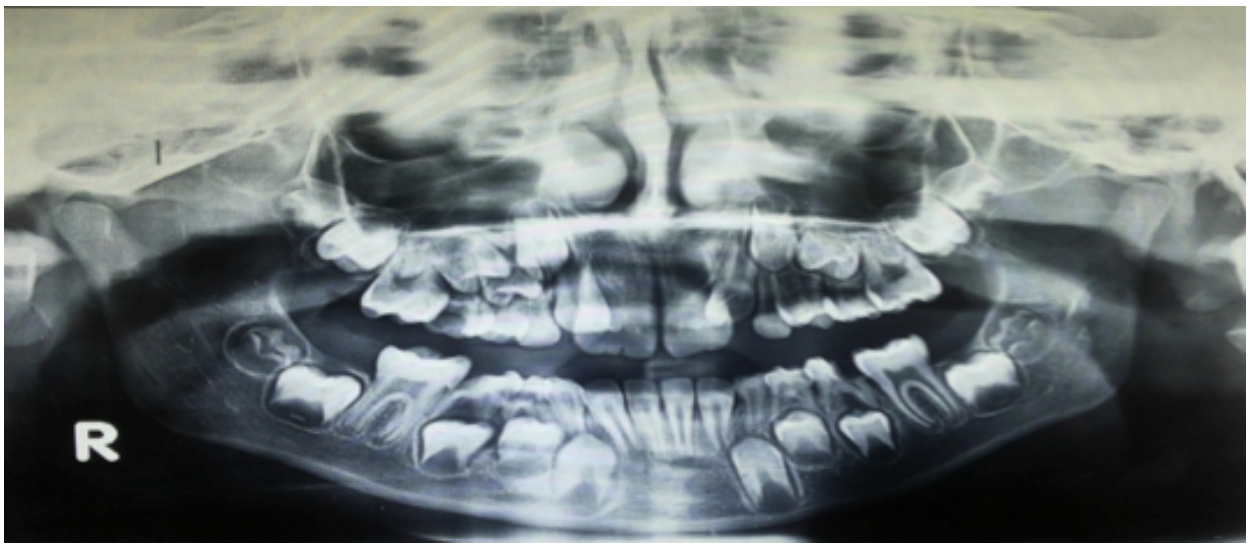
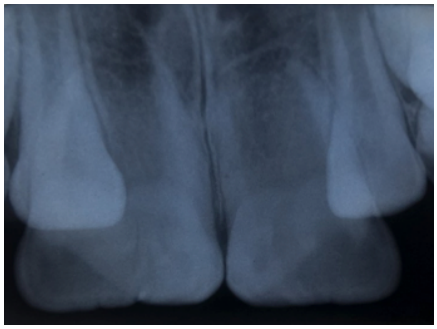


Figure 3. Intraoral periapical radiograph.



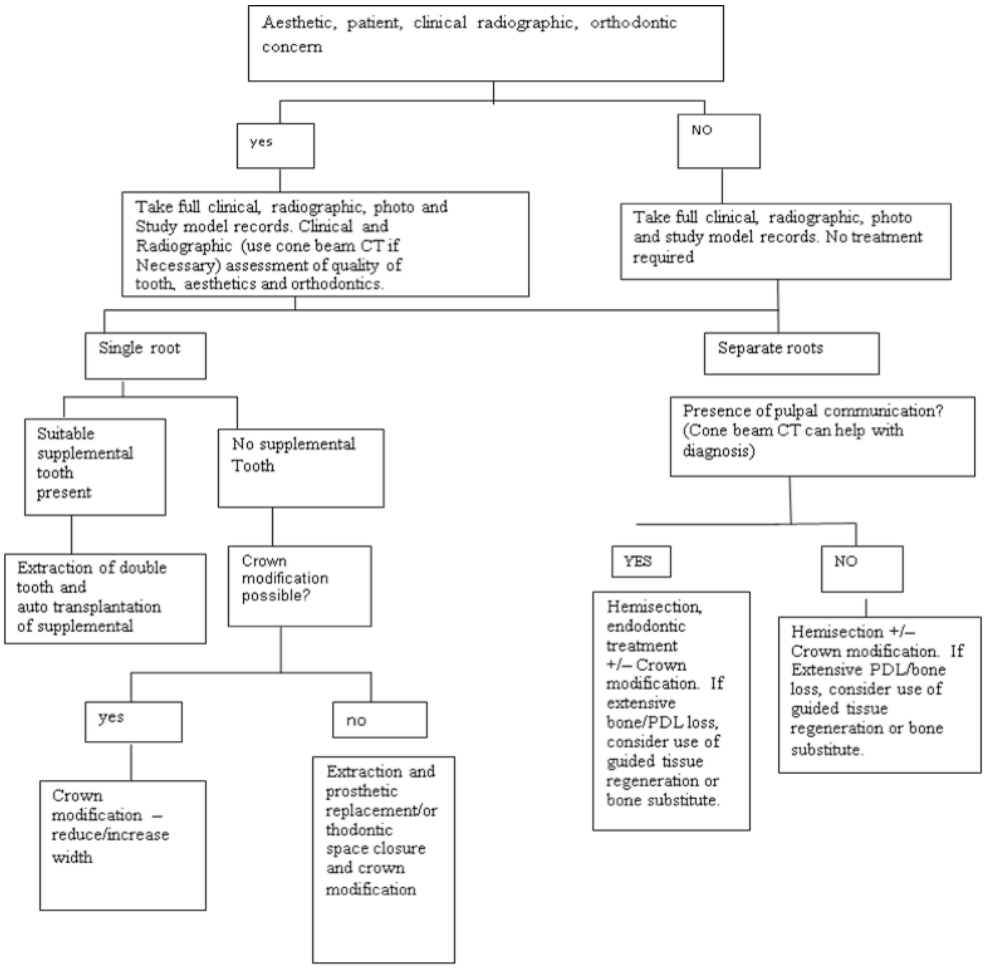
DISCUSSION

In spite of considerable number of reported cases the differential diagnosis between fusion and germination is difficult and some authors use the terms synonymously. In the case the diagnosis can be supported by the fact that normal complement of teeth is present which is seen in cases of either germination or fusion of a tooth with a supernumerary tooth. however since supernumerary are often malformed the fused tooth shows difference in two parts morphologically whereas in germination the two halves are mirror images of each other as seen in this case. Macrodontia is a condition where the tooth involved is larger than usual and exhibit normal crown, root and pulp morphology[11].

Teeth with this abnormality are unaesthetic due to their irregular morphology. They also present a high predisposition to caries, periodontal disease and spacing problems. The main periodontal complication in gemination or fusion 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. Sealants and resin restorations for deep grooves and fissures reduce risk of caries in these teeth. Furthermore, gemination may influence tooth alignment, inter-digitation and arch symmetry causing crowding, delayed eruption of other teeth and deviation of midline[12].

Figure 4 shows a clinical protocol to be used for the management of double teeth. This protocol assumes that the patient is being managed by a multidisciplinary team including a pediatric dentist, orthodontist and restorative dentist (when necessary)[13].

Figure 4. Clinical protocol to be used for the management of double teeth.



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