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DOUBLE TOOTH: A CASE REPORT

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ABSTRACT
This article presents a case report of an incidental finding of a double tooth in a 65 year old man. Medical and social history was non- contributory. Interestingly, clinical features tends to suggest fusion where-as radiographic analysis revealed gemination. The course of odontogenesis was not witnessed thus fusion and germination seem to be equivalent hence the term double tooth, which may contribute to esthetic concerns, space problems and occlusal disturbances. Careful evaluation of a case will guide the clinician in treatment planning and in some instances no treatment may be carried out.

INTRODUCTION

Anomalies in the size and shape of teeth arise from abnormalities in the differentiation of tooth germs such as gemination, fusion, concrescence, double tooth [1, 2, 3, 4, 5]. The term double tooth is used to describe connate tooth that can be due to gemination or fusion[6]. Other synonyms include 'double formations', 'fused teeth' and 'joined teeth' and they all suggest the conjoining of one tooth to another[7,8].

Gemination is a developmental anomaly of form which is recognized as an attempt by a single tooth germ to divide resulting in a large single tooth with a bifid crown and usually a common root and root canal in which the tooth count is normal when counted as one [9,10,11]. The single root is not split and has a common pulp canal [12]. It is most commonly seen in the region of the maxillary incisors and canines [13].

Fusion is the union of two adjacent teeth germs always involving dentine. Upon clinical examination, this condition appears similar to germination since the fused teeth appear doubled in width. However unlike gemination, radiographs usually reveal two separate pulp chambers [13]. Another distinguishing feature from gemination is the tooth count in the arch which will be short by one if the fused teeth are counted as one [2, 10, 11].

Double tooth usually presents unilaterally, although bilateral and contiguous presentations have also been reported in both jaws and there is no predilection for gender [7, 14, 15, 16]. It occurs in less than 1% of the population and seen more in the primary dentition [2, 17]. The prevalence is reportedly low in Caucasians while the

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prevalence of double teeth from studies in Nigeria was reported as 0.53 % [6, 18]. Hamasha reported a value of 0.43% in the permanent dentition among a Jordanian population [19]. This article presents a case of asymptomatic double tooth in an adult with co-existing features of geminaton and fusion, as well as its clinical relevance.

CASE REPORT

A 65 year old man reported with a complaint of a fractured upper right central incisor with no associated history of pain. His medical history and social history were non contributory.

On examination, extra oral and intraoral soft tissue findings were normal. There was a fractured upper right central incisor, and a double tooth was seen in the right mandibular incisor region (fig1). On the lingual aspect of the tooth was a developmental groove extending from the incisal edge to the middle third, incompletely splitting the crown into two halves (fig 2). There was a minor lower anterior imbrication, causing a mesio labial rotation of the lower right canine.

The patient had a full complement of upper dentition, while in the lower arch, counting the abnormal tooth as one; there was still one tooth missing in the incisor region. The patient denied any history of previous extraction.

Periapical radiograph of the double tooth showed a large crown (relative to adjacent incisors) with a single root and pulp chamber which was only slightly larger than that of the adjacent incisor (fig 3).

A diagnosis of complicated crown fracture using WHO classification was made for the upper right central incisor, while double tooth was made in the anterior segment of the lower arch. The patient was informed of the developmental anomaly. The fractured tooth was root treated and restored with a post retained crown. The patient also received dental prophylaxis.

DISCUSSION

Gemination and fusion have been used in the past by authors to represent the phenomenon called double tooth [20, 21, 22, 23]. Both refer to an alteration in the normal size of tooth according Neville's classification of dental anomalies [23, 24]. The etiology of double tooth may be attributed to evolution, trauma, hereditary, and environmental factors, although the pathogenesis is not clear. However, there is a strong evidence of genetic control of fused teeth as evidenced in family [9, 11, 25, 26].

Clinical diagnosis of fused teeth (fusion) and Gemini (gemination) may be difficult especially when these anomalies take place together with hypodontia or supernumerary tooth [27]. In this case, it appears that gemination of the lower right central incisor in combination with aplasia of the right lateral incisor imposes as fusion of the right lateral incisor and the right central incisor. When fusion occurs with partial anodontia, excess dental space may be created; this is because two fused teeth require less space than two normal teeth on the dental arch [8]. However on the contrary, the patient had imbrication in this region causing a mesio-labial rotation of the lower right canine and counting the abnormal tooth as one in the arch, there was one tooth missing in the anterior region. Radiographic evaluation, showed a single rooted tooth with a single canal not markedly increased in size relative to the adjacent incisors which suggested gemination in this case. However the term double tooth/conjoined tooth is preferred by authors [6, 9]. Since the course of

odontogenesis cannot be witnessed, fusion and gemination seem to be equivalent, hence the term double tooth/conjoined teeth is used.

Double tooth is seen more in the primary dentition than permanent dentition and this has effect on the succedenous dentition such as delayed exfoliation of the affected teeth due to greater root mass and increased root surface area [2, 12, 28]. Although information about the patient's primary dentition is not known, a proportion of permanent successor anomalies of up to 50% following primary double tooth, including congenitally missing supernumerary and repeated double tooth formation had been reported by Gellin; therefore early diagnosis is of considerable importance [4, 29].

Double teeth was classified into four morphological types by Aguilo et al [2], using both the clinical and radiographic appearance as criteria and guide. Type 1 has a single bifid crown, a larger than normal crown with a notch on the incisal edge, a bifid pulp chamber, normal sized root and radicular canal with widening in the cervical portion. Type II has a large crown and a large root: a larger than normal crown usually with a groove or notch, a single large pulp chamber, a root that is larger than normal along its length and one large shared root canal. Type III has two fused crowns , double conical root while type IV has fused crowns, double roots, two(or more) clearly distinct but joined roots with two separate canals [2] . The case presented has tendency to Type I, however it does not have a bifid chamber. Fusion was also classified into two types; Complete Fusion and Incomplete Fusion [30]. In the complete fusion, fusion begins before calcification and the crown incorporates features of both participating teeth with regard to their enamel, dentine, cementum and pulp. While in incomplete fusion, fusion occurs at a later stage and the tooth might exhibit separate crowns and fusion may be limited to the roots alone with pulp canals fused or separate [30].

It is noteworthy, that the patient was unaware of the anomaly as it was an incidental finding and he was apparently not bothered about any operative management afterward since there was no clinical symptom associated. This is not unusual for a patient who has lived with this condition for decades. Since the developmental groove was not seen on the labial surface of the double tooth, and there was a slight imbrication in the location, it thus disguised the true status of the tooth and contributed to the perceived lack of concern by the patient. The anomaly however may cause unpleasant esthetic appearance due to the irregular morphology, when deep grooves are present. This may lead to susceptibility to caries and periodontal disease. The treatment of choice depends on the patient's orthodontic, periodontal, esthetic and functional requirement [9]. No intervention was carried out due to the absence of a specific need by the patient. This attitude could be due to lack of knowledge and awareness of the population about dental needs in our environment. Many individuals would only visit the dental clinic if they experienced pain [31]. Since the condition can remain asymptomatic; it is likely that several individuals with double tooth may never visit a dentist except for complaints over its esthetic value which perhaps would be of higher concern in the younger age group.

CONCLUSION

Fusion, germination or as the case may be, double tooth are uncommon developmental anomalies which should be viewed uniquely with respect to each patient.

Figure 1: Labial surface of double tooth; there is shift in the midline of lower arch.

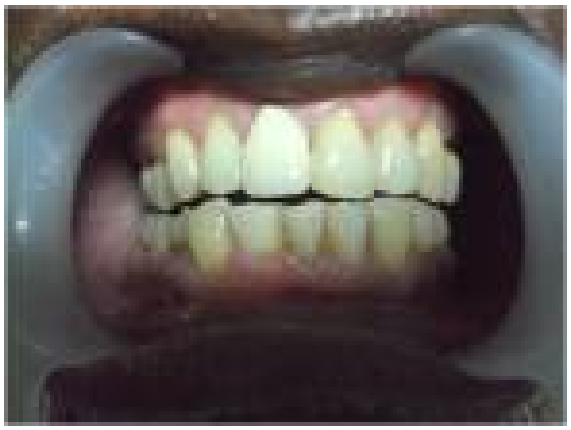

Figure 2: Lingual surface of double tooth showing imbrication

Figure 3: Periapical radiograph of double tooth with single canal and root.

Perhaps the condition, double tooth, has not received adequate documentation in this environment, because of its low prevalence. Though they are rare they also form a body of knowledge which a dentist should be familiar with.

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