

## Twins on Either Side – A Case Report of Bilateral Gemination

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### Abstract

Gemination is an anomaly caused by a single tooth germ that attempted to divide during its development resulting in a bifid crown. They are found more frequently in the primary than in the permanent dentition unilaterally, but bilateral gemination is very rare. It is caused by complex interactions among a variety of genetic and environmental factors. This developmental anomaly may cause clinical problems including esthetic impairment, periodontal problems, caries and tooth crowding. Here we report a unique case of bilateral gemination of permanent maxillary central incisors.

**Keywords:** Bilateral gemination; Twin tooth; Double teeth; Bifid crown

### Introduction

Tooth gemination is defined as single enlarged tooth or joined tooth where in the tooth count is normal when the anomalous tooth is counted as one. It is an attempt of a single tooth bud to divide. Clinically a tooth with a bifid crown which gives an appearance of double teeth and usually a common root canal but rarely separate root canals. Gemination and fusion clinically appears similar and they can be differentiated by assessing the number of teeth in the dentition [1-4].

The prevalence rate of unilateral gemination is 0.5% in deciduous teeth and 0.1% in permanent dentition [1]. Prevalence of bilateral cases is 0.01% to 0.04% in primary dentition and only 0.02% to 0.05% in permanent dentition [5].

### Case Report

A 25 year old male patient reported to our clinic with the complaint of decay in the right back region of the upper jaw. On clinical examination dental caries was observed on the occlusal surface of upper right first molar. Macrodonia was observed in relation to the maxillary central incisors. The central incisors were larger in the mesiodistal dimension. There was a notching present in relation to the Incisal edge of the macrodonts. On the right central incisor, the notch continued cervically as a shallow groove (Figure 1) whereas on the left central incisor the groove continued only till the middle third of the crown. The lateral incisors were placed palatally. The patient



**Figure 1:** Clinical photograph showing bilateral Macrodonia with Incisal notching.

had normal compliment of teeth for his age. The intraoral periapical radiograph of the maxillary anterior region revealed large crowns of the central incisors bilaterally. A radiolucent notch was observed in relation to the incisal edges of the central incisors (Figure 2). Relatively large pulp chambers and root canals were observed in relation to the central incisors which suggestive of bilateral gemination.

Since the patient was not concerned about the esthetic problems due to Macrodonia only composite restoration in relation to the right maxillary first molar was done.

### Discussion

A disorder of growth or development in the anatomical structures that results in anything different from normal is called anomaly [6]. An attempt of the division of a developing tooth bud resulting in an incomplete formation of two teeth is called as gemination. Its crown shows a low deep groove from incisal to gingival third. Radiographically, there is only one root and usually only one root



**Figure 2:** Intra oral periapical radiograph of the maxillary anterior region showing large pulp chambers and root canals.

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canal. In gemination, a normal number of teeth are maintained. This anomaly has a large bifid crown which usually found as an isolated trait [7]. Complete Case history, clinical examination and radiographic investigation can provide the information required for the diagnosis of such abnormalities [8]. Our case also shows the above clinical and radiographical features.

Other terminologies used to describe gemination are double teeth, double formations, joined teeth, fused teeth or dental twinning [9]. The etiology of geminated teeth remains unknown but nutritional deficiency, endocrine influences, and infectious/inflammatory processes, excessive ingestion of medicines, hereditary or congenital diseases, and local traumas and by ionizing radiation is also considered [4,5]. Gemination is most commonly seen in maxillary primary incisors but rare in permanent dentition [7]. The teeth involved in our case was permanent maxillary central incisors.

The Clinical problems, particularly if the anterior teeth are involved vary from tooth alignment, spacing problems, arch asymmetry, esthetic problems, peri-odontal involvement and impeded the eruption of the adjacent tooth [7]. Presence of deep groove in some cases of gemination makes them susceptible to caries and periodontal diseases [10,11]. If these defects are very deep and extend to gingival third, the chances of bacterial plaque accumulation in this area are high. Strict oral hygiene practice is advised to maintain periodontal health [5]. In our patient, the anomaly caused decrease in maxillary arch space resulting in palatally erupted maxillary lateral incisors. Despite a shallow buccal groove being present no serious periodontal disease was evident.

In case of permanent dentition, treatment of choice will be determined by the patients need. The endodontic treatment followed by surgical division of crown has also reported. In some cases extraction with prosthetic replacement is advised and also reducing tooth structure mesiodistally and placing a composite restoration to give the tooth a normal appearance [12]. Our patient was not concerned about the esthetic problems due to Macrodonia therefore other restoration was carried out.

## Conclusion

The dental gemination is a morphological alteration that sometimes

is confused with fusion but confirmed by thorough clinical examination and radiographic investigation. Bilateral Gemination is not a usual condition, but it is one of the important dental anomalies. Recognizing the condition will help in planning the appropriate treatment. A geminated maxillary incisor requires complex multidisciplinary treatment to preserve its health and restore esthetics.

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