UNILATERAL GEMINATION OF A MAXILLARY FIRST PREMOLAR: A CASE REPORT

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ABSTRACT
Gemination originates when one tooth bud attempts to split into two, resulting in a large bifid crown and usually a single root and root canal. This paper reports gemination of upper first premolar in a 34-year-old female patient, which is asymptomatic.

Keywords: Bicuspid; Germination; Maxilla; Tooth Abnormalities

Introduction
Dental abnormalities may be due to developmental anomaly in number, size, shape and structure of teeth.\(^1,\)\(^2\) Gemination is a dental shape anomaly with high similarity to fusion but with different etiology.\(^3,\)\(^4\) These anomalies are clinically present as “Double teeth.”\(^5,\)\(^6\) Developmental deviation of the ectodermic and mesoderm linings during tooth bud morphologic differentiation can result these anomalies.\(^3\)

Gemination originates when one tooth bud attempts to split into two, resulting in a large bifid crown and usually a single root and root canal.\(^7,\)\(^8\) Although, the main reason of gemination is unknown, but some factors (trauma, vitamin deficiencies, systemic diseases and certain genetic predisposition) have been considered as its possible causes.\(^9,\)\(^10\) This paper reports gemination of upper first premolar in a 34-year-old female patient, which is asymptomatic.

Case Report
A 34-year-old female was reported to our dental outpatient clinic for a routine dental checkup. The patient had no special medical or dental history. On intraoral examination, a large abnormal tooth was found in the region of maxillary left first premolar (Figure 1). The two crowns were similar in both size and shape. To recognize the extent and nature of the union of teeth, intraoral peri-apical radiograph was advised. Radiographic examination revealed the presence of two crowns, which were fused by enamel and dentin with one single root (Figure 2).

The shadow of pulp chamber and root canal appeared as nearly Y shaped radiolucency. Based on radiographic appearance it had been diagnosed as gemination. The patient had no complaint about this abnormal tooth, because the buccal view of this tooth was nearly normal and the tooth did not create any deformity or crowding in the dental arch. There was no similar clinical feature among her family.

Discussion
Pindborg describes gemination as the malformation of a single tooth bud, resulting in an anomalous tooth within the normal complement of teeth.\(^11,\)\(^12\) Gemination is observed both in the primary and permanent dentition. Gemination when occurs in the anterior region can cause unpleasant esthetic appearance due to irregular morphology. Moreover, if gemination presents with a deep groove, these teeth may be susceptible to caries and periodontal disease.\(^13,\)\(^14\) Overall prevalence of gemination is reported in different studies between 0.01 to 0.5% in the deciduous teeth and 0.05 to 0.1% in the permanent dentition.\(^7,\)\(^9,\)\(^16\)

Gemination may be confused with fusion and macrodontia.\(^15,\)\(^16\)\(^-20\) Anatomy of pulp cavity can be useful in differential diagnosis between these anomalies. Fused teeth have separate pulp chambers and root canals, while geminated teeth usually have a single big root and root canal.\(^2,\)\(^4,\)\(^11\) According to these statements we concluded that the presented case is a geminated tooth (Figure 1, 2). As seen in this case, gemination is usually asymptomatic.\(^9\) The most common complications associated with gemination are the presence of grooves or fissures in the union with bacterial plaque accumulation leads to dental caries or periodontal diseases.\(^9,\)\(^20,\)\(^21\) Application of fissure sealants or composite materials into these grooves reduces the caries risk.\(^1,\)\(^2\)

Gemination can change tooth alignment and arch symmetry causing crowding, delayed eruption of adjacent teeth and midline shift.\(^22\) However in these respects our patient was asymptomatic. The treatment approaches for gemination include “no treatment”, selective grinding, surgical separation and endodontic therapy of the remaining part and orthodontic therapy.\(^15,\)\(^23\) In this case the patient was kept under annual follow-up without any treatment, as the tooth did not create any functional or aesthetic compromise.

Conclusion
In conclusion, proper clinical and radiographic examination and symptomatic treatment planning are necessary to manage gemination.
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References

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