



## GEMINATION OF MANDIBULAR LATERAL INCISOR: A CASE REPORT

## Orthodontics

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## ABSTRACT

Developmental disorders of the teeth can affect number, size, shape, and structure of teeth. They are not only congenital but may also be inherited, acquired or idiopathic. Gemination is one such developmental disorder in which there is an attempt of a single tooth bud to divide, with the resultant formation of a tooth with a bifid crown and a single root and root canal. In this case report we describe a case of gemination of mandibular lateral incisor in a 40year old male patient.

## KEYWORDS

developmental disorders, teeth, gemination, fusion

## INTRODUCTION:

Gemination is an unusual developmental anomaly of the hard tissue affecting the morphology of teeth. The phenomenon of gemination occurs when two teeth develop from one single germ, with incomplete division<sup>1-2</sup>. The primary teeth are more frequently affected, but gemination may also occur in permanent dentitions, usually in the maxillary-incisal region<sup>3</sup>. Evolution, trauma, heredity, and environmental factors are thought to play a role in germination<sup>4</sup>. Grover & Lorton suggested that local metabolic interferences during morphodifferentiation of the tooth germ may be the cause for gemination.<sup>5</sup> It is associated with poor esthetics, a higher degree on caries, periodontal problems and malocclusion. In this case report we present a case of unilateral gemination of mandibular lateral incisor.

## Description of Case:

A 40year old male patient reported with complaint of stains and deposits on his teeth since 1year. Patient had habit of chewing pan 6-8 times a day since 20 years. Dental and medical history was non contributory. Patient was moderately built and nourished. There was no abnormality extraorally. On intra oral examination, there was generalized grade 2 stains and calculus. There was generalized grade 1 gingival recession. There was crowding with lower anterior teeth. On examination of mandibular right lateral incisor, the crown was wide mesio-distally and there was presence of groove in the incisal and middle third of labial surface of crown with notching on incisal surface (figure 1). A Provisional diagnosis of chronic generalized periodontitis and gemination of 42 was given. OPG revealed generalized moderate periodontitis. An IOPA with 42 revealed enlarged crown of 42 with notching at center of incisal surface. There was bifurcation of coronal pulp into two distinct pulp chambers with single root and root canal which was suggestive of gemination of 42 (figure 2). There was moderate periodontitis with 31, 32, 41 and 41. Band of radio-opacity was seen in cervical aspect of roots of 31 32 and 42 suggestive of subgingival calculus. Final diagnosis of generalized chronic periodontitis and gemination of 42 was given. Patient was sent for oral prophylaxis and periodontal therapy. Since patient was not esthetically concerned about 42 no active treatment was advised and patient was kept under observation.

## DISCUSSION:

Gemination is an attempt of tooth bud to divide, this partial division is arrested before tooth development is completed, the end result is single tooth with a bifid crown and the total number of teeth is normal.<sup>6</sup> Literature suggests that the condition may result from trauma to the developing tooth bud. Evidence from case history studies suggests that the anomaly exhibits a hereditary tendency, likes other anomalies<sup>7</sup>. Fusion and gemination are developmental anomalies with difficulties both in morpho-differentiation and clinical differential diagnosis<sup>8</sup>. The two can be differentiated by counting the number of teeth. If fused teeth are counted as one and the total teeth number of dentition (without extraction or missing) is less than fusion is considered. However, when the double tooth is calculated as one and the total teeth number in dental arch is normal then it is diagnosed as gemination or is a presentation of fusion between normal and supernumerary teeth.

Unilateral gemination has a prevalence rate of 0.5% and 0.1% in deciduous and permanent dentition, respectively. Bilateral cases are seen in 0.01% to 0.04% in primary dentition and in 0.02% to 0.05% in permanent dentition<sup>9</sup>. In the present case gemination involved unilateral permanent mandibular lateral incisor. This anomaly leads to higher caries potential, malocclusion, changes in the dental arch shape, periodontal disease, and eruptive disturbance of successional tooth and creates poor esthetics<sup>10</sup>. In the present case the patient had no associated complaints. Treatment of geminated teeth involves esthetic rehabilitation by crown. Sometimes it may require complex restorative, periodontal, surgical, and orthodontic treatments, and a multidisciplinary approach. In the present case patient was not esthetically concerned about the tooth and hence was kept under observation.

## CONCLUSION:

Gemination is an unusual developmental anomaly affecting the morphology of teeth. It results in formation of single tooth with a bifid crown and single root and root canal. Differentiating fusion and gemination can be a clinical challenge and can be done by counting the number of teeth in the arch. Gemination can lead to clinical problems like caries, periodontal disease, poor esthetics and malocclusion. Hence it has to be diagnosed and managed appropriately at the earliest.



Figure 1: Bifid crown with groove on labial surface of 42

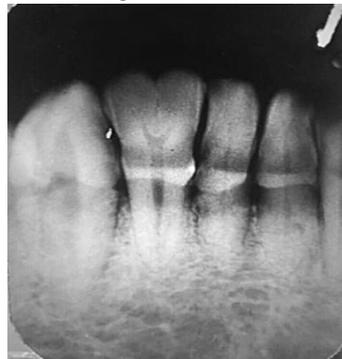


Figure 2: Bifid crown and pulp chamber in relation to 42 with single root and root canal. Band of calculus on cervical region of roots of 41, 42 and 31

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