

## Case Report

### Gemination in Deciduous Dentition: A Case Report

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#### ABSTRACT

Gemination is a developmental disorder characterized by change in the shape of the tooth. Gemination is the partial splitting of single tooth bud with normal tooth number. It affects both primary and permanent dentition but seen more commonly in primary dentition. The paper describes the management of unilateral gemination of primary central incisor with pulp therapy and contouring

#### INTRODUCTION

Gemination is defined as an attempted division of a single tooth germ by invagination occurring during the proliferation stage of the growth cycle of the tooth.<sup>1</sup>

The unilateral gemination has a prevalence rate of 0.5% and 0.1% in deciduous and permanent dentition, respectively.<sup>2</sup> Germination occurs more commonly in deciduous dentition than permanent dentition. The maxillary primary incisors and canines are most commonly affected.<sup>3</sup>

The etiology of is unknown, but hereditary pattern of occurrence, is seen in both primary and permanent teeth, though it probably appears more frequently in primary

teeth and trauma has also been suggested as a possible cause.<sup>1,4</sup>

A clinician can usually distinguish between the fusion of two primary teeth from gemination without the aid of radiographs by counting the number of teeth. If gemination has occurred, there should be 10 teeth in the arch and one will be very large. A radiograph may be necessary to confirm the preliminary diagnosis of fusion or gemination.<sup>5</sup>The geminated tooth appears clinically as a bifid crown on a single root. The crown is usually wider than normal, with a shallow groove extending from the incisal edge to the cervical region.

Based on the clinical and radiographic appearance as criteria and guide, the gemination were classified into

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four morphological types by Aguiló et al.<sup>6</sup> [Table 1] the presented case has tendency to type II since tooth has large crown and a large root. Aguiló et al. found that type II were seen only in mandible but in our case it was seen in maxilla.<sup>6</sup>

## CASE REPORT

A 4 year old boy reported to the department of Pedodontics and Preventive dentistry, K D Dental College and hospital, Mathura with chief complaint of swelling in the upper front teeth. The clinical examination revealed the presence of deep caries involving the pulp with sinus formation and the presence of geminated 51(Figure 1).On intraoral examination there were 10 teeth in the maxillary arch with one was very large (Figure 2).The radiographic examination showed periapical radiolucency with the affected tooth and confirmed the diagnosis of germination (type II) and the presence of single pulp chamber and root canal (Figure 3). On extraoral examination, no abnormality was detected. The patient was healthy and the medical history was noncontributory. The family history did not reveal any evidence of dental anomalies

## MANAGEMENT

The child showed negative behavior toward dental treatment. Tell show do behavior management technique was used to alleviate anxiety and to bring positive attitude toward the dental treatment. Treatment was performed under local anesthesia (LIGNOX 2% AD), all the caries were removed and pulpectomy was carried out under rubber dam. The cleaning and shaping of canal was performed using endodontic k-files and h- files (MANI, INC. Utsunomiya, Tochigi, Japan). Irrigation of root canals was done with 2.5% sodium hypochlorite and normal saline. The obturation was done using

combination of calcium hydroxide, iodoform (Metapex, META Biomed Co, PA, USA). The access cavity was sealed with glass ionomer cement (GC Corporation, Tokyo, Japan) and restored with microhybrid composite restoration (Filtek Z250,3M ESPE) with reshaping and contouring for esthetic rehabilitation (Figure 4).

## DISCUSSION

Double teeth like gemination and fusion are the most common type of dental anomalies in the primary dentition. Nik-Hussein and Abdul Majid (1996), in their analysis of 65 children with dental anomalies in the deciduous dentition, stated that double teeth performed 75% of cases, where 94% were fusion and 6% were gemination.<sup>7</sup>

The exact cause of gemination is unknown, however these factors have been put forward as possible reasons are vitamin deficiency, Hormonal irregularities, hereditary disease, Infection or inflammation near the tooth bud during the time of tooth development, Increased intake of medicines, Radiation therapy.<sup>8</sup> Gemination is the result of “schizodontism” — the splitting of tooth germ during development or “synodontism” — fusion of a regular tooth bud with a supernumerary tooth bud.<sup>9</sup>

In the present case, we could see the morphological alteration in the right maxillary primary central incisor. The mesiodistal dimension of the affected tooth was considerably more in comparison with left central incisor and the number of teeth is normal in the arch.

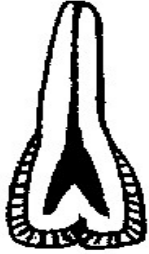
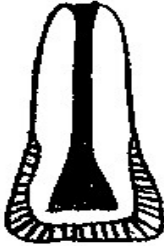
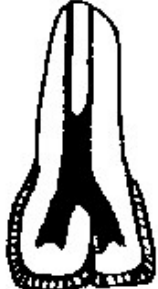
Presence of deep buccal and palatal grooves favors more plaque accumulation and can lead to dental caries. If the geminated tooth is involved with dental caries, it should be restored and oral hygiene instructions given. If the tooth is pulpally involved, appropriate endodontic therapy is recommended. In the present case, the


geminated tooth was pulpally involved and endodontic treatment was done so that tooth should retain until the eruption of successor tooth and advised periodic follow up visits because this has effect on succedaneous tooth such as impaction, malformation, delayed or altered the path of eruption of due to greater root mass and increased root surface area

## CONCLUSION

Due to presence in the anterior region causes unpleasant esthetic appearance due to irregular morphology and functional problems. If a deep groove is present, these teeth may be susceptible to dental caries. Thus, require timely management also periodic long term follow up is advocated in all such cases. Knowledge of developmental dental anomaly allows clinician to early diagnosis and manages these conditions appropriately with predictable clinical outcomes.

**Table 1:** Morphological type classification of Geminatio

Type I	<p style="text-align: center;"><b>Bifid crown and single root</b></p> <p style="text-align: center;">Enlarged crown with notch on the incisal edge, a bifid pulp chamber and normal radicular dimension with widening in the cervical portion</p>	
Type II	<p style="text-align: center;"><b>Large Crown and Large Root</b></p> <p style="text-align: center;">A larger than normal crown usually with a groove or notch, a single large pulp chamber and a root with increased radicular dimensions.</p>	
Type III	<p style="text-align: center;"><b>Two fused crowns and double conical roots</b></p> <p style="text-align: center;">Two fused crowns, with complete or partial vertically running groove, which extends cervically. Coronal portion may or may not be symmetrical. Pulp chamber coronally can be fused or shared but end as two separate canals</p>	

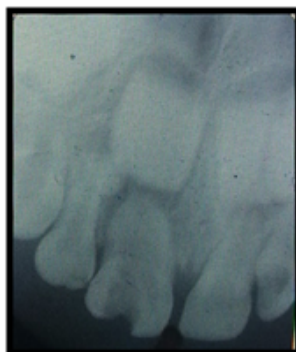
Type IV	<p style="text-align: center;"><b>Two fused crowns and two fused roots</b></p> <p>Fused crowns, double roots, two (or more) clearly distinct but joined roots with two separate canals</p>	
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**Figure 1:** Clinical photograph of geminated tooth



**Figure 2:** Maxillary occlusal view



**Figure 3:** Radiograph of geminated tooth



**Figure 4:** Post -operative radiographic and clinical photograph

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