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## PRIMARY DOUBLE TOOTH: A CASE REPORT AND REVIEW OF LITERATURE

<sup>1</sup> Thejokrishna P <sup>2</sup> Meghana S <sup>1</sup>Reader <sup>2</sup>Lecturer

<sup>1,2</sup> Department of Pedodontics, Terna Dental College and Hospital, Navi Mumbai, India.

## ABSTRACT:

A number of developmental anomalies can be encountered in clinical situations, which directly or indirectly can affect the treatment plan. These anomalies in the primary dentition can be of immense clinical significance since they can have a bearing on the permanent dentition. Here we report a case of fusion of a deciduous maxillary central incisor with its adjacent supernumerary tooth, presenting with the complication of dentoalvelolar abscess. Clinical observation along with periapical radiographs were used to arrive at a diagnosis. This case report emphasizes the need to attempt simple, esthetic conservative procedures before complex treatment alternatives are contemplated. Also, a review of literature is presented.

KEYWORDS: Developmental Anomaly, Fusion, Deciduous Teeth, Supernumerary Tooth, Conservative Treatment.

## INTRODUCTION

Fusion of teeth refers to the union of two normally separated tooth germs, and depending upon the stage of development of the teeth at the time of union, it may be either complete or incomplete. They are joined by dentin, pulp chambers and canals may be linked or separated depending on the developmental stage when the union occurs. This process involves the interaction of epithelial and mesenchymal germ layers resulting in irregular tooth morphology<sup>1</sup>. The aetiology of fusion is still unknown, but the influence of pressure or physical forces producing close contact between two developing teeth has been reported as one possible cause<sup>2</sup>. Genetic predisposition and racial differences have also been reported as contributing factors<sup>1</sup>.

This anatomic irregularity occurs more often in the deciduous (0.5%) than in the permanent (0.1%) dentition with a rare chance of bilateral involvement in the primary dentition (0.01-0.04%) as compared to the permanent dentition  $(0.05\%)^{3,4}$ . Fewer cases of fusion involving molar and premolar teeth have been reported, also, in both the dentitions, the prevalence is higher in the anterior region as compared to the posterior<sup>5</sup>. Turell and Zmener (1999) have even described a case of fusion involving a mandibular third molar and a distomolar<sup>6</sup>.

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Some fused teeth may require surgical removal because of their abnormal morphology and excessive mesiodistal width, which can cause problems such as spacing, alignment and function<sup>1</sup>. In the anterior region, this anomaly causes an unpleasant aesthetic appearance due to the irregular morphology. These teeth also tend to be greatly predisposed to caries and periodontal disease and, in some cases, endodontic treatment is very complicated<sup>1</sup>. Sometimes promising results can be obtained even with simple non-surgical conservative procedures as described in our case.

#### Case Report

A 2<sup>1/2</sup> yr old female patient reported with a swelling in respect to upper front teeth since a week. The swelling was associated with pain due to which patient was on antibiotic coverage. On extraoral examination, the upper lip appeared swollen. On intraoral examination, an abnormally large right central incisor with deep dental caries was seen, there appeared to be a line of fusion between the right central incisor and a supernumerary tooth. Further, a pin-point exposure of pulp without any bleeding on probing was seen. A diffuse swelling in the labial vestibule in respect to 51 was noted. A provisional diagnosis of dento-alveolar abscess was made. Patient was prescribed analgesics and advised to continue the antibiotic course. On the

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recall visit, an IOPA of 51 was taken which confirmed the diagnosis of a fusion between 51 and the adjacent supernumerary tooth with involvement of the coronal pulp. Treatment plan was aimed at preserving the tooth through endodontic treatment and restoration. Tooth was thoroughly debrided and obturated with Metapex (iodoform and calcium hydroxide) and restored with light cure glass ionomer cement. On post two week recall examination, the patient was asymptomatic.



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#### Discussion

terminology of 'dental fusion' and The 'gemination' are used to define two different morphological dental anomalies, characterized by the formation of a double tooth. Despite the considerable number of cases reported in the literature, the differential diagnosis between these abnormalities is difficult<sup>1</sup>. Fused teeth arise through union of two normally separated tooth germs, and depending upon the stage of development of the teeth at the time of union, it may be either complete or incomplete. It has been thought that some physical force or pressure produces contact between developing teeth resulting in their subsequent fusion<sup>2</sup>. On some occasions, two independent pulp chambers and root canals can be seen. It can occur between normal teeth or between normal and supernumerary teeth<sup>2</sup>. Whereas, in geminated teeth, division is usually incomplete and results in a large tooth crown that has a single root and a single canal<sup>7</sup>. While the literature on the occurrence of double teeth is extensive, there is still much discussion concerning the nomenclature. The use of Levitas' classification to distinguish between cases of fusion and gemination seems to be very practical<sup>8</sup>. In clinical situations, cases of fusion have the appearance of a congenitally missing tooth, while in gemination the number of teeth in the dentition is normal, provided the double tooth is counted as one unit<sup>3</sup>.

The differential diagnosis between fusion and gemination, based on the number of teeth present on the dental arch, is not, however, always accurate<sup>7</sup>.Since fusion can also be the union of a normal tooth bud to a supernumerary tooth germ, the number of teeth is also normal and differentiation from gemination may be very difficult, if not impossible. Finally, some authors simply call the phenomenon "double teeth" or "connoted teeth" to avoid confusion over their terminologies<sup>3</sup>.

A number of complications can arise in fused teeth. While deep grooves present between the fused teeth may be susceptible to caries and periodontal disease, they may require endodontic intervention in some cases<sup>9</sup>. Many a times, these grooves form an easy portal for organisms to enter the periodontium and cause a risk of space infection. In such cases, prophylactic application of pit and fissure sealants or adhesive restorative cements, like glass ionomer as early as possible may prove to be most effective option. As anterior teeth are vital for esthetics and development of phonation,

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Several treatment methods have been described in the literature with respect to the different types and morphological variations of fused teeth, which include endodontic, restorative, surgical, periodontal and/or orthodontic treatment<sup>8</sup>. Different cases require a variety of knowledge about alternative surgical and operative techniques. A multi-disciplinary approach is essential to achieve functional and esthetic success in these cases. The best way to manage complicated cases depends on a number of factors including the knowledge and technical skills of the practitioner. In some instances, one of the first procedures of endodontic therapy, rubber dam isolation, may be complicated due to the anatomical size and shape of the crown. Locating canals during access preparation can be difficult. Mesial and/or distal radiographic projections can give more information about morphological features and the relationship between the canals, making the interpretation of structures easier<sup>8</sup>.

Intracanal medicament has been considered an important step in successful endodontic therapy. Calcium hydroxide is recommended as a long-term medicament between appointments and in pulp necrosis associated with periradicular periodontitis because of its antibacterial properties. This medicament has also been shown to change the environment in the dentin and bone to a more alkaline pH, which in turn has been postulated to slow down the action of the resorptive cells and promote hard tissue formation and repair<sup>10</sup>. Nerwich et al. (1993) reported that calcium hydroxide used as a root canal dressing significantly increased the pH in the apical region only after 2-3 weeks<sup>10</sup>. This justifies the choice of the medicament due to its efficacy, in our case.

## CONCLUSION

Fused teeth contribute to esthetic concerns, space problems, occlusal disturbances, and delayed eruption of the permanent successors. Also, they raise concerns about periapical pathologies, as was the situation occurring with this reported case. Hence, careful monitoring of the condition is recommended. Meticulous history taking, clinical and radiographic examinations can provide vital information required for the diagnosis of such abnormalities. Long term follow up of treated case is mandatory. Also, we encourage dental practitioners to consider this conservative approach before more complex or radical treatment alternatives are attempted.

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### **Corresponding Author**

# Dr. Thejokrishna P. M.D.S.

Reader, Department of Pedodontics, Terna Dental College and Hospital, Sector no. 22,Nerul, Navi Mumbai-400706 **Phone No**. 09321279460 **e-mail** : <u>ptk2thejo@gmail.com</u>

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