

# Fluke of Fusion and Concrescence in Maxillary Deciduous Incisors: A Case Report

Vipin Ahuja<sup>1</sup>, Arunima Pathak<sup>2</sup>

## ABSTRACT

**Aim:** The aim of this paper is to report a rare case in a 6-year-old girl where two dental anomalies, fusion and concrescence, coexisted in primary dentition. This highlights the significance of the accurate early diagnosis of these dental anomalies.

**Background:** Odontogenic anomalies are frequently encountered in dental practice. These anomalies can occur due to abnormalities during the differentiation stage and may lead to aberrations in hard tissue formation. Some of the uncommon and unusual dental anomalies of number and form include fusion, gemination, and concrescence.

**Case description:** This elusive case represents the fusion and concrescence together between the left central and a supernumerary tooth. The left primary central incisor presents as a large tooth with a groove through the incisal edge. Clinical observation along with radiographic evaluation using RVG radiographs and orthopantomogram (OPG) were used to arrive at a diagnosis.

**Conclusion:** Early diagnosis of concrescence will reduce the risk of possible complications associated with any need for extraction later on. Monitoring the patient and long-term follow-up are required to manage the case with coexisting anomalies of true fusion and acquired concrescence.

**Clinical significance:** A thorough history-taking and clinical and radiographic evaluation of fusion and concrescence at an early stage results in an accurate diagnosis. A careful monitoring plan is a key to reduce the risk of possible complications later on.

**Keywords:** Case report, Concrescence, Deciduous, Dental anomaly, Fusion, Primary incisors.

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## INTRODUCTION

Pediatric dentist is often the first dental professional to come across some elusive and asymptomatic oral pathological conditions. These dental incongruities of various forms may occur in the oral cavity. Out of which, anomalies in number and shape of teeth are more commonly found in permanent dentition and are quite uncommon in deciduous dentition. Most evident developmental anomalies of teeth are fusion and germination, which often are named as “double teeth,” fused teeth, or “dental twinning” in the documented literature.<sup>1</sup> Fusion is defined as a union of two separated developing tooth germs typically leading to one less tooth than normal in the affected arch.<sup>1</sup> Two distinct root canals and also fused teeth with one or two roots may be apparent in radiographs. Yet, there are confounding cases where normal tooth bud is found united to a supernumerary tooth germ, making it difficult to differentiate fusion from germination.<sup>2</sup> It is improbable that imperative or physic strength can result in the contact between the teeth and depending upon the stage of tooth development at the time of fusion, the union may be complete or partial and may happen between a normal and a supernumerary tooth.<sup>1</sup> It has been noted that supernumerary teeth are not rare, and prevalence rate is 0.3–3.8% of the population. Most often occurring supernumerary teeth are mesiodens, followed by premolars and fourth molars or distal molars.<sup>3</sup>

The clinical presentation of the anomaly is a mesiodistally widened tooth or large tooth. However, etiology is mysterious; the accepted hypothesis is that two developing tooth buds come close to each other due to physical forces leading to fusion afore calcification.<sup>3</sup> The nature of union—partial or complete, with normal or supernumerary—varies with phase of development

<sup>1</sup>Department of Pediatric and Preventive Dentistry, Government Dental College and Hospital, Jamnagar, Gujarat, India

<sup>2</sup>Department of Pedodontics and Preventive Dentistry, Hazaribagh College of Dental Sciences and Hospital, Hazaribagh, Jharkhand, India

**Corresponding Author:** Vipin Ahuja, Department of Pediatric and Preventive Dentistry, Government Dental College and Hospital, Jamnagar, Gujarat, India, Phone: 7209901113, e-mail: drvipinahuja@gmail.com

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during fusion.<sup>1</sup> The prevalence rate of fusion is 0.08% in deciduous, 1.5% in mixed dentition, and 0.19% in permanent dentition.<sup>4–6</sup> A study where 2,757 young children in deciduous dentition were surveyed for dental anomalies inferred that prevalence rate of fusion anomaly is 0.4, with 50% of children with dental aberrations also having aberrations in permanent dentition.<sup>7</sup> This study's findings are also in line with a study documented in China, where it was also noted that fusion utmost affects deciduous mandibular lateral incisors and canines with more predilection toward unilateral than bilateral fusion.<sup>8</sup> Another study testified that there are no significant differences in the distribution with side, sex, and site.<sup>9</sup>

Concrescence is well-defined as the cemental fusion of two roots seen during (true or developmental concrescence) or after (acquired or postinflammatory concrescence) root formation, with

distinct pulp chambers and root canals evident on radiographic analysis.<sup>5</sup> The probable etiological elements include trauma, arch overcrowding, space discrepancy, traumatic occlusion, and distal inclination of molar and local infection post development.<sup>10</sup> The most commonly affected tooth is maxillary molars; however, a case of concrescence was also reported in maxillary primary central and lateral incisor.<sup>10,11</sup> Patients with concrescence complaints have esthetic concerns due to their uneven morphology. In addendum to this, predisposition to caries and periodontal diseases is also a factor to consider. The treatment protocol involves periodontal, restorative, endodontic, surgical, or orthodontic approaches.<sup>12,13</sup>

The objective of this paper is to highlight unecentric case where fusion and concrescence coincided in deciduous maxillary incisors.

### CASE DESCRIPTION

A girl child of 6 years came to the Department of Pediatric and Preventive Dentistry, Hazaribag College of Dental Sciences and Hospital, Hazaribagh, Jharkhand, India. Her chief complaint was of mobile teeth in the upper front teeth section of the mouth. The patient also gives a past dental history of falling from bed 2 years back, and it was her first dental visit. The patient reported her past

medical history to be negative. No history of any drug or food allergy was reported.

Intraoral clinical examination revealed the patient was in primary dentition stage. She presented with an enlarged tooth present in the upper left front tooth region (Fig. 1). The tooth was numbered as 61 as per the Fédération Dentaire Internationale (FDI) tooth numbering system. Further examination revealed that a peculiar vertical linear groove was present in the crown portion (Fig. 2). Mobility test shows grade II mobility with 61. Patient also gives the history of mobility and abscesses with same tooth from past 1 month, which imperceptibly had increased up to the date of examination. Radiographic examination shows fusion of 61 with a supernumerary tooth with dentin portion with two separate root canals (Fig. 3). On radiograph evaluation, it was deciphered that there was a fused upper left primary central with extra teeth at the crown as well as root portion with cementum. The orthopantomogram (OPG) validates the existence of all the permanent successors, and primary lateral incisor was in upper left arch (Fig. 4). Since cementum is not usually apparent radiographically because the contrast between it and dentin is so low and cement layer is very thin, therefore, conformation of cementum was done clinically after extraction.<sup>4</sup>



Fig. 1: Clinically enlarged upper left front tooth

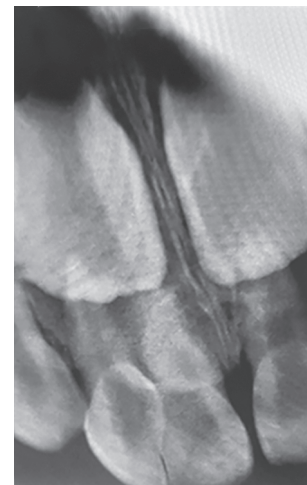


Fig. 3: IOPA showing fusion of 61 with supernumerary tooth



Fig. 2: Peculiar grooves seen in the fusion line of clinical crowns

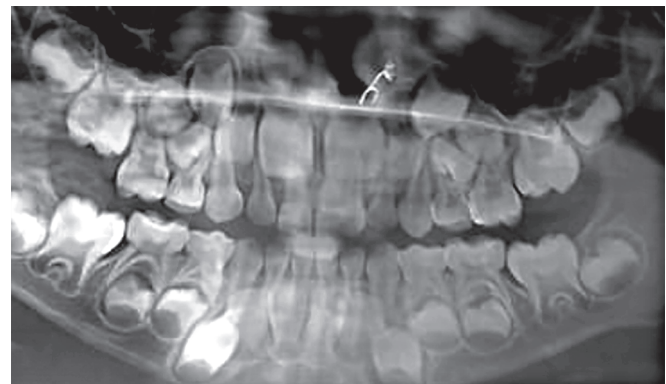


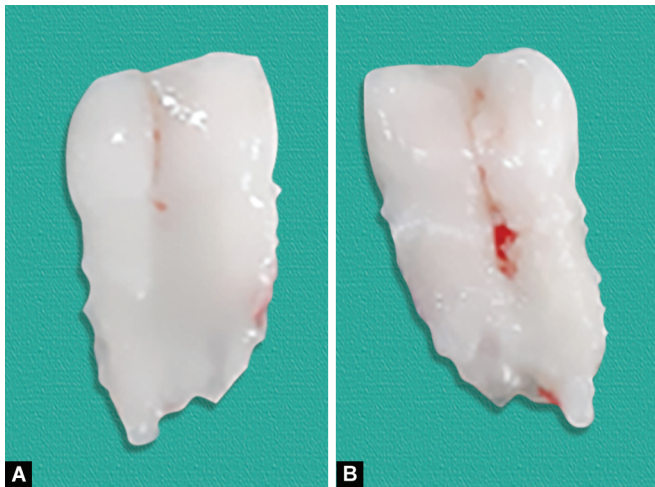
Fig. 4: Orthopantomogram (OPG) showing fusion of 61 with supernumerary tooth and presence of 62 and other permanent successors



**Fig. 5:** Raising of periodontal flap for the extraction of 61 fused with supernumerary tooth



**Fig. 7:** Endodontic preparation done to confirm separate roots and canals



**Figs 6A and B:** Extracted anomalous teeth presented from both right and left sides

The treatment planned was extraction with the anomalous upper primary left central incisor. The periodontal flap was conservatively raised, and groove was evident throughout the fusion line from crown to the root (Fig. 5). The tooth was extracted under local anesthesia (Fig. 6). The final diagnosis was affirmed as fusion with concrescence after clinical examination and radiographic analysis. Endodontic access preparation was done in the extracted tooth to confirm two separate root canals (Fig. 7).

## DISCUSSION

In contempt of notably number of case reports in the literature, the differential diagnosis between fusion and gemination creates an eminent dispute for dentists. In case of fusion, a dental affliction is disclosed when a tooth numeration results in a missing tooth (fused teeth are counted as one tooth). An accurate diagnosis of these abnormalities can only be achieved through detailed case history of the patient with pertinent oral and radiographic examination. A case can be classified as "true fusion," or "late fusion" on the basis of stage of tooth development. "True fusion" is unification by enamel and dentin, whereas "late fusion" is unification by dentin and/or cementum; and if late fusion is only by cementum, it is termed

as "concrecence." True fusion happens when the fusion starts before the calcification stage and can be seen as a large crown mesiodistally. Late fusion happens post-tooth calcification stage and can be seen as separate crowns as fusion may be confined to the root cementum only.<sup>5</sup> In the presented case, teeth revealed concrescence. As advisable from the radiographic examination, the concrescence appears to be inflammatory or acquired type. The viable cause for this dental abnormality (acquired type) might be the traumatic injury when the child was nearly 16–22 months old. The significance of correctly identifying concrescence is to bring down the peril of complications related to future extraction of the affected teeth. In some cases, the anomaly may cause disagreeable esthetic occurrence and upsurge the chance of dental caries and periodontal disease incurrence. Furthermore, the coexistence of fused teeth may binate esthetic and space problems and may cause disturbances in occlusion.

In the above outlined case, affected tooth shows true fusion with acquired concrescence. However, the engrossing coexistence of both fusion and concrescence in deciduous incisors in the same tooth with a history of local trauma makes the present case more exceptional and exemplary for reporting in the documented literature.

## CONCLUSION

- A thorough clinical history and radiographic evaluation at an incipient stage result in accurate diagnosis of exceptional cases like our case of fusion with concrescence.
- Clinicians should be made aware of diagnosis of concrescence at an incipient stage in order to keep down the risk of viable complications related to any later need for extraction.
- Proper supervision with longitudinal follow-up is required to manage the case with coexisting anomalies of true fusion and acquired concrescence.

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