

Case Report

A novel presentation of a molariform supplemental tooth with dens evaginatus concrescent with a maxillary premolar

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Concrescence can occur between two adjacent normal teeth or it can also happen between a normal and a supernumerary tooth. Dens evaginatus are uncommon and usually arise from the occlusal surfaces of mandibular premolars or the palatal surfaces of the maxillary incisors. Evaginatus odontomes have rarely been seen associated with supernumerary teeth. We describe a very rare combination of supplemental tooth with dens evaginatus concrescent with a maxillary first premolar in an otherwise healthy 13 years old boy with a chief complaint of discomfort in maxillary left quadrant. Recognition of these conditions and early diagnosis are important to avoid complications.

Key words: Concrescence, dens evaginatus, evaginatus odontome, molariform supernumerary tooth.

INTRODUCTION

Concrescence is an uncommon developmental twinning anomaly in which juxtaposed teeth are united in the cementum but not in the dentin. The incidence of concrescent teeth is reported to be highest in the posterior maxilla (Echeverri et al., 1994) complicating exodontia and influencing endodontic, orthodontic, periodontal and even prosthodontic diagnosis and treatment planning as well. Concrescence is most frequently noted in maxillary molars, especially between a third molar and a supernumerary tooth. It is rarely seen in the mandible. Although the exact etiology of concrescence has not yet been explained, it is usually suspected that space restriction during development, local trauma, excessive occlusal force or local infection after development play an important role. It may involve either deciduous or permanent dentition. The union may vary from one small site to a solid cemental mass along the entire root surfaces. Unexpected complications

arising from concrescence may lead to legal issues.

Supernumerary teeth are teeth in excess of the number found in the normal series. The prevalence of supernumerary teeth in the permanent dentition is about 2 to 3%, and about 90% of all supernumerary teeth occur in the premaxilla. Supernumerary premolars have been reported to represent 3 to 9% of all supernumerary teeth, and their prevalence ranges from 0.29 to 0.64% (Gunduz et al., 2006). Supernumerary teeth are thought to be caused by locally conditioned hyperactivity of the dental lamina, which results in initiation and proliferation of additional tooth buds. The higher prevalence of these anomalies among first-degree relatives of affected individuals than in the general population suggests a significant genetic component in their development. Environmental factors, however, may also play a part. The most common supernumerary teeth, listed in order of frequency are the:

1. Maxillary midline supernumeraries;
2. Maxillary fourth molars;
3. Maxillary paramolars (buccal or lingual to the maxillary molars);

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Figure 1. IOPA radiographs showing supplemental premolar in maxilla.

4. Mandibular premolars;
5. Maxillary lateral incisors;
6. Mandibular fourth molars;
7. Maxillary premolars;

Dens evaginatus is a developmental anomaly in which an extra cusp or tubercle protrudes from the occlusal surface of posterior teeth, as well as the lingual surface of anterior teeth. It occurs most frequently in mandibular premolars. The occurrence of dens evaginatus shows great racial differences, with a higher prevalence among people of Mongoloid origin. It occurs almost exclusively among people of Mongoloid racial stock such as the Chinese, Japanese, Eskimos and to a lesser extent, the Malays, Filipinos, American Indians and the Thai. Isolated cases of dens evaginatus have also been documented in Caucasians. It may be composed of normal enamel and dentine, as well as varying amounts of pulpal tissue; care should be exercised while performing any aesthetic procedures to remove or re-contour it. Both supernumerary premolars and dens evaginatus occur most frequently in the mandible. The association of supernumerary premolars with dens evaginatus has been reported only infrequently (Luten, 1967). Dens evaginatus is considered to be the result of the evagination of an area of the inner enamel epithelium and its subjacent odontogenic mesenchyme into the dental organ during the morpho-differentiation stage of tooth development.

Combination of dens evaginatus in a molariform supernumerary tooth conrescent with maxillary first

premolar is a very rare condition and such type of case has never been reported in the medical literature. We report here the first such case of this rare anomalous triad.

CASE REPORT

A 13 years old male of Asian origin presented to Government Dental College and Hospital, Jaipur with a chief complaint of discomfort in his upper jaw and some restriction of the tongue movement on left side. Family and medical histories were inconclusive. Dental history revealed that the patient was having this feeling of discomfort during eating and speech for almost one and half years and he also got a temporary restoration done in the affected tooth 2 months before by some local dental practitioner. This restoration did nothing to make him comfortable and now he just could not bear this particular tooth in his mouth as it had now started to interfere with his tongue movement also.

Clinical examination revealed a supernumerary molariform tooth palatal to first premolar in the left maxillary arch which was causing discomfort and the feeling of some extra thing in the mouth to the patient. A temporary restoration could be seen on the occlusal aspect with some residual caries present. Intraoral periapical radiograph (Figure 1) confirmed the presence of the supernumerary tooth in close proximity to maxillary first premolar. A decision to extract the supernumerary tooth was taken after careful evaluation and discussing the matter with patient's father.



Figure 2. Clinical view of concrement teeth.

Once local anesthesia was secured, tooth was attempted for extraction and it was only then realized that the supernumerary tooth and the first premolar were both fused together and first premolar had also got luxated due to the extraction forces applied to the supernumerary tooth. The procedure was stopped immediately and an oral surgeon was called upon. After careful evaluation and discussion with the patient and his father, both teeth were extracted as the first premolar was luxated beyond repair and it was nearly impossible to remove the supernumerary tooth without taking out the premolar as well.

Clinical examination of the extracted teeth (Figure 2) showed the union of the roots of both the teeth and dens evaginatus (Figure 3) protruding onto the occlusal surface from the pulp chamber. Dilaceration of the root could also be seen. The teeth were kept for examination. Serial sections were obtained and examined to determine the odontogenic tissues involved in the union of the affected teeth. Macroscopic ground section in a bucco-palatal direction (Figure 4a) revealed that the union had involved only the roots of the affected teeth, sparing the crowns. An evaginatus odontome could also be seen in the crown part of the molariform supernumerary tooth. Microscopic examination of the ground section further confirmed that both of the teeth were united together by a thick layer of cellular cementum (Figure 4b).

DISCUSSION

Concrescence can occur between normal molars, a normal molar and a supernumerary molar, and in both

erupted and impacted teeth. The diagnosis of concrescence may occur only after a surgical mishap. Therefore, it is important for the clinician to consider the possibility of concrescence when planning extractions in which the roots of adjacent teeth are radiographically indistinguishable, especially in the posterior maxilla, where this anomaly is more likely to occur (Rajab et al., 2002).

A supernumerary tooth is an additional to the normal series and can be found in almost any region of the dental arch. The etiology of supernumerary teeth is not completely understood. Supernumerary teeth may be single or multiple, unilateral or bilateral, erupted or impacted, and in one or both jaws. Problems associated with supernumerary premolars are due to their potential to interfere with normal occlusal development or with orthodontic mechanics such as crowding, impaction or delayed eruption of permanent teeth, malocclusion, rotations, retained deciduous teeth, palatally displaced permanent canines, abnormal eruption sequence, compromised space closure and interference with root torque (Romito, 2004).

Dens evaginatus is a rare dental anomaly involving an extra cusp or tubercle that protrudes from the occlusal surface of the affected tooth. It is the result of an abnormal proliferation of the inner enamel epithelium into the stellate reticulum of the enamel organ. The resulting tubercle may contain a core of dentin with pulpal extension, which may be narrow, wide, constricted, an isolated horn or not present at all (Shiu, 2005).

Concrescence is noted more frequently in the posterior maxillary region. The developmental pattern often involves a second molar tooth in which its roots closely



Figure 3. Dens evaginatus protruding from the occlusal surface of the supplemental tooth.

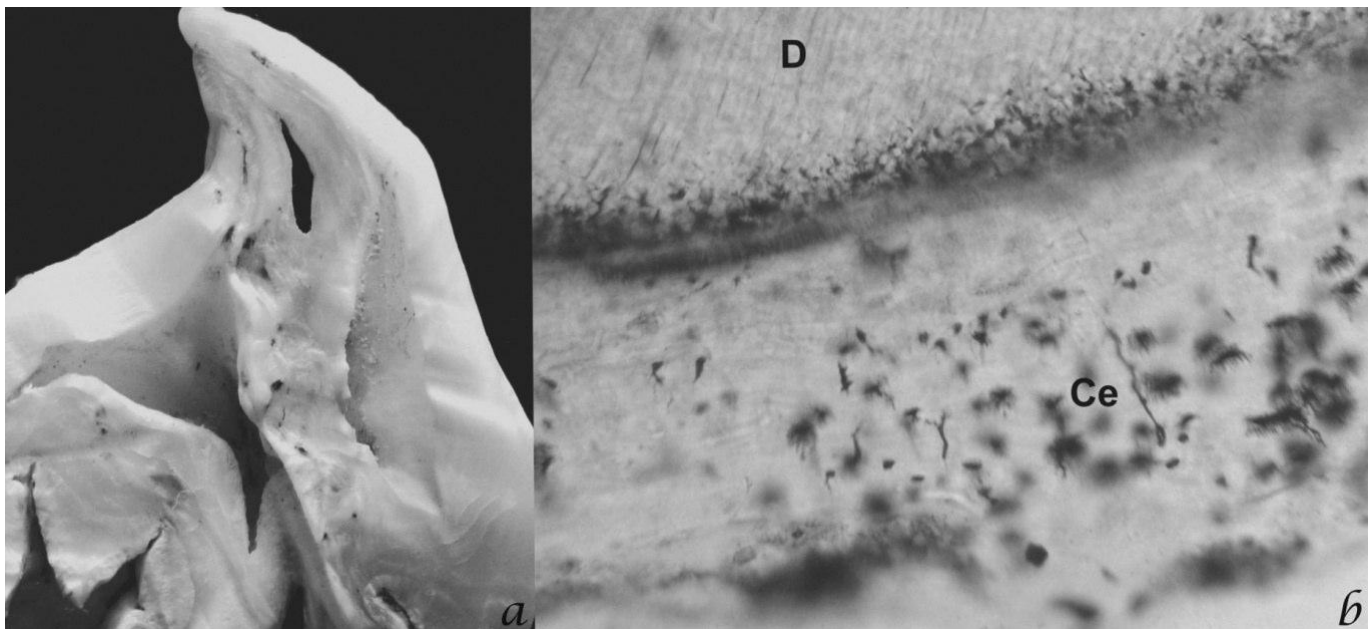


Figure 4. Macroscopic cut section (a) showing the union between the root of the maxillary premolar and supernumerary tooth along with the presence of the dens evaginatus. Microscopic slide (b) showing remarkable amounts of cellular cementum (Ce) on the dentin (D) of the roots of the united teeth (H/E, 40x).

approximate to the adjacent impacted third molar. There are very few cases about the concrescence of permanent and supernumerary tooth (Echeverri et al., 1994; Shiu et al., 2006). Supernumerary premolars occur nearly 3 times more in the mandible than in the maxilla and 3 times more in males than in females. Concomitant occurrence of dens evaginatus and supernumerary premolars is not a common finding (Thérèse et al., 1999).

Although it is not uncommon for development disturbances to affect the teeth, it is very unusual to observe several disturbances around a single tooth. Supernumerary teeth have rarely been seen in maxillary premolar region and concomitant association of dens evaginatus in a supernumerary premolar in maxilla is one of the rarest findings in medical literature. Moreover, concrescence between a maxillary premolar and supernumerary tooth has never been reported before and according to our current knowledge, this case report is the first in the literature in which concrescence has been observed between a maxillary first premolar and a supernumerary premolar with dens evaginatus.

REFERENCES

- Echeverri EA, Wang MM, Chavaria C, Taylor DL (1994). Multiple dens evaginatus: diagnosis, management, and complications: Case report. *Pediatr. Dent.*, 16(4): 314-317.
- Gunduz K, Sumer M, Sumer AP, Gunhan O (2006). Concrescence of a mandibular third molar and a supernumerary fourth molar: Report of a rare case. *Br. Dent. J.*, 200: 141-142.
- Luten JR (1967). The prevalence of supernumerary teeth in primary and mixed dentitions. *J. Dent. Child.*, 34(5): 346-353.
- Rajab LD, Hamdan MA (2002). Supernumerary teeth: Review of the literature and a survey of 152 cases. *Int. J. Paediatr. Dent.*, 12(4): 244-254.
- Romito L (2004). Concrescence: Report of a rare case. *Oral. Surg. Oral. Med. Oral. Pathol. Oral. Radiol. Endod.*, 97: 325-327.
- Shiu YC (2005). Supernumerary Premolars Associated with Dens Evaginatus: Report of 2 Cases. *J. Can. Dent. Assoc.*, 71(6): 390-393.
- Shiu YC, Ki Y, Chu V, Chan J (2006). Concomitant developmental dental anomalies in Chinese children with dens evaginatus. *Int. J. Ped. Dent.*, 16: 247-251.
- Thérèse GM, Hugh J, Barry MB (1999). Supernumerary Teeth- An overview of classification, diagnosis and management. *J. Can. Dent. Assoc.*, 65: 612-616.