Multiple Accessory Cusps in Maxillary Primary Second Molars and Permanent First Molars and Its Clinical Implications

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ABSTRACT
The primary and permanent teeth in humans may show anomalies related to numbers and morphology of crown and roots. There can be a variation in morphology, location, and prevalence of accessory cusps that can often lead to dental problems. The present case report is of a 9-year-old child exhibiting multiple accessory cusps on the occlusal surface of maxillary primary second molars and maxillary permanent first molars. This article highlights the clinical implications of condition and the associated problems.

Keywords: Central cusp, Clinical implications, Dens evaginatus, Multiple accessory cusps.

CASE REPORT
A 9-year-old child reported to the Oral Health Sciences Center, Postgraduate Institute of Medical Education and Research, Chandigarh, India, with the chief complaint of reduced mouth opening. History revealed trauma 4 days back due to road traffic accident. There was no history of unconsciousness, vomiting, and bleeding from ear or nose. Patient had restricted mouth opening and bilateral tenderness in temporomandibular joint region. Intraoral examination revealed deranged occlusion and step deformity at lower border of mandible in the symphysis region. The clinical findings and three-dimensional face computed tomography were suggestive of mandibular symphysis and bilateral condylar fractures (Fig. 1). Both condylar and symphysis fractures were managed conservatively with active mouth opening exercises. There was a significant improvement in mouth opening from baseline (9.5 mm) to 2 years follow-up evaluation (34.5 mm).

Intraoral examination revealed central projection of cusps on the occlusal surface of maxillary permanent first molars and maxillary primary second molars bilaterally affecting 55, 65, 16, and 26 (Federation Dentaire Internationale notation). There was a prominent central projection...
on the occlusal surfaces of these teeth surrounded by six to seven small accessory cusps (Fig. 2). The demarcation of central oblique ridge was difficult due to the fusion of accessory cusps. Radiographic examination on intraoral periapical radiograph revealed normal crown and root development without any other abnormality in these teeth (Fig. 3). These cuspal projections were situated on a triangular base in the center of the oblique ridge. They were identical on both sides. These projections were smooth and rhomboidal in shape (Fig. 4). Medical history was noncontributory and no other family member was affected with similar condition. No other abnormalities related to systemic health or oral soft/hard tissues were present.

DISCUSSION

The central cusp also known as “dens evaginatus” is an accessory cusp and may or may not be associated with other accessory cusps. Several terminologies, such as supernumerary occlusal cusp, premolar odontome, occlusal tubercle, accessory central cusp, tuberculated premolar, and Leong’s premolar are used to describe the central cusps on the occlusal surfaces of posterior teeth. It is composed of enamel and dentin with or without pulp projections. This anomaly is relatively rare with a wide variation in size, shape, and location. Schulze’s classification distinguishes the different types of central accessory cusps or dens evaginatus for posterior teeth according to the location of tubercles (Table 1). The condition is primarily reported in the people of Asian subcontinent with a reported prevalence of 2 to 8%. It shows a typical bilateral symmetric distribution with a slight female
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Studies have reported different prevalence rates of dens evaginatus for maxillary and mandibular arches, which varies according to the populations studied. Although no variation has been reported in the root canal anatomy, number, and position of canals in dens evaginatus cases, however, there can be a variation in the extent of pulp horns in accessory cusps. A correlation between the primary second molars and permanent first molars for presence of central cusp and multiple accessory cusps has not been reported in the literature. Studies have shown a high percentage of the succedaneous permanent teeth present with anomalies following its presence in primary dentition. Thus, presence of a dental anomaly in the primary dentition represents an increased likelihood of anomalies occurring in the permanent dentition.

The presence of central cusp and associated multiple cusps is an anomaly of considerable clinical significance. It can often lead to occlusal interference. Maintaining a clean area between these cuspal elevations is very difficult. The presence of these extra cusps may lead to dental problems, such as caries in the pits or developmental grooves between the accessory cusp and the tooth. It can also lead to sensitivity. Banding procedure is also very difficult to perform due to unusual morphology of these teeth, making proper adaptation of bands difficult. This poses a great difficulty for orthodontic treatment and can also lead to tooth demineralization and caries development.

Early detection and management of this condition is important because trauma during mastication can cause fracture or wear of these tubercles and can lead to necrosis of pulp and periapical infection. There are possibilities of pulp exposure during early phases of root development, resulting in pulp necrosis and an incompletely formed root. In a vital tooth with such an accessory occlusal cusps, selective reduction of opposing occluding teeth can be done. In a situation where the tubercle has fractured, it can be sealed with resin composite. Early diagnosis is important so that preventive management can be started as early as possible.

CONCLUSION

This article represents a rare case of bilateral anomalous multiple accessory cusps on the occlusal surface of primary and permanent molars. Early diagnosis and institution of preventive measures can help to prevent dental problems associated with the condition.

CLINICAL SIGNIFICANCE

Early diagnosis and preventive interventions help to prevent dental complications of dens evaginatus.

REFERENCES