

Dens evaginatus on maxillary first premolar: Report of a rare clinical case

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Abstract

Dens evaginatus (DE) is an odontogenic developmental anomaly that can be defined as a tubercle or protuberance from the involved surface of the affected tooth consisting of an outer layer of enamel, a core of dentin, and may contain a slender extension of pulp tissue. Early diagnosis and management of DE is important in order to prevent occlusal interference, compromised esthetics, carious developmental grooves, periodontal problems due to excessive occlusal forces, or irritation of the tongue during speech and mastication. DE usually affects the mandibular second premolars as an accessory cusp or a protuberance between the buccal and lingual cusps. Reports of DE on maxillary premolar are rare in the literature. We report one such extremely rare case of DE on maxillary first premolar.

Key words: Dens evaginatus, evaginated odontoma, premolar

INTRODUCTION

Dens evaginatus (DE) is an odontogenic developmental anomaly that can be defined as a tubercle or protuberance from the involved surface of the affected tooth consisting of an outer layer of enamel, a core of dentin, and may contain a slender extension of pulp tissue.^[1] Other terminologies include dens evaginatus, interstitial cusp, tuberculated premolar, odontoma of the axial core type, evaginated odontoma, occlusal enamel pearl, occlusal anomalous tubercle, supernumerary cusp, and Leong's premolar. While one article attempts to distinguish talon cusp from DE,^[2] most authors agree both are the result of an exacerbation of the same phenomena during the morphodifferentiation stage of tooth development.^[3]

DE appears as an accessory cusp or tubercle located

between the buccal and lingual cusps of premolars. It is composed of an enamel covering over a dentine core with a fine extension of pulpal tissue.^[4]

The exact mechanism of the formation of DE is unknown. It has been postulated that the anomaly is caused by an evagination of the internal enamel epithelium and dental papilla into the stellate reticulum during the morphodifferentiation stage of tooth development.^[5]

A review of the relevant literature reports revealed a high incidence of the presence of DE among populations of Asian descent (including Chinese, Malay, Thai, Japanese, Filipino, and Indian populations), with a frequency between 0.5% and 4.3%.^[3] This additional cusp has a rare occurrence in Caucasians and African-Americans, whereas in populations with North American Indian (Amerindians) populations and in specific Eskimos (Alaskan Natives), this anomaly has higher prevalence rates (up to 15%).^[6,7] It is more common in mandibular premolars than maxillary premolars (more than twice as many), and about 50% of cases have bilateral involvement of collateral teeth.^[3]

DE is clinically important as fracture or wear of the tubercle can lead to pulp death and periapical abscess,

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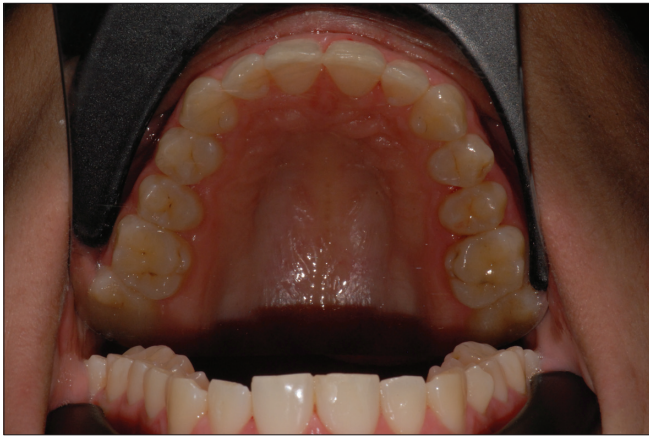


Figure 1: Maxillary left first premolar with DE

often before completion of root formation.^[8] Unlike with caries, pain caused by DE may manifest itself in a distant location. Therefore, diagnosing the cause of that pain may prove problematic. This is a report of an unusual case of DE which presented on the maxillary first premolar and the first such report in Turkish origin.

CASE REPORT

A 26-year-old woman presented to Kırıkkale University Dental School Clinic for dental care and was not experiencing any discomfort. The patient's medical history was unremarkable. Her temporomandibular joints were normal. There was no reported history of orofacial trauma. The patient in this report also did not give a history of its occurrence in any member of her family. Oral examination revealed she had a moderate level of oral hygiene and mild gingivitis of the gums. No other soft tissue abnormalities were found. On intraoral examination, DE was present on the maxillary right first premolar [Figures 1]. Percussion showed no sensitivity or pain, and neither did warm or cold testing. The electrical pulp vitality test showed no stimulated pulp state or necrosis compared with neighboring teeth.

DISCUSSION

DE is an anomaly of great clinical significance, sometimes causing occlusal interference. The cleaning of the area between the nodule and the tooth is difficult, and caries are often found.^[9]

This evagination is often described as a nodule or tubercle, shaped as a cylindrical cone with a sharp point or a raindrop. Merrill^[6] divides the various kinds of evagination into two groups: the nodule originating from the lingual crest of the buccal cusp, and the nodule

originating from the middle of the occlusal surface and commonly obliterating the central sulcus.^[10]

The incidence of DE is predominant in Asians, but this condition can also be found in Caucasians, as observed in this case. Today, with greater migratory movements, communities are mixing, thus the professional must be aware of this clinical condition in order to provide information to the patient regarding correct hygiene, the need for occlusal adjustment or even removal, and the necessity of endodontic treatment.^[10]

DE may cause a variety of clinical problems such as stagnation of food, caries, periapical lesions, irritation of tongue during speech and mastication, other soft tissue irritation, breast feeding problems, compromised esthetics, occlusal interference which may lead to accidental cusp fracture, displacement of the affected tooth, temporomandibular joint pain, and periodontal problems because of excessive occlusal force. Occlusal interference can damage the periodontium, cause infra-occlusion of the opposing tooth, and also temporomandibular joint pain. Severe attrition or fracture of the enamel surface can cause exposure of the dentine–pulp complex, and consequently pulp necrosis. Various prophylactic treatments have been proposed to treat these teeth before pulp infection occurs: selective grinding of the tubercles, application of resin to reinforce the tubercles, placement of prophylactic amalgam or composite restorations after removal of the tubercles, and cavity preparations.^[8]

Panoramic radiographs are recommended for exclusion of the association of DE with other abnormalities, including supernumerary teeth, odontomas, and impacted or unerupted teeth.

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