

Management of an Innocuous Looking Dens Evaginatus.

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ABSTRACT

Dens evaginatus (DE) is a rare developmental anomaly of the tooth which presents tubercle like growth above the adjacent tooth surface. This tubercle like growth has pulpal projections which may get easily worn fractured or cariously involved leading to pulpal infection. Dens evaginatus may present difficulty when performing diagnosis and treatment planning. This case report presents successful endodontic treatment of innocuous Dens evaginatus on mandibular second premolar with extensive periradicular lesion and also discusses current treatment strategies available in literature based on pulpal condition and maturity of the apex.

INTRODUCTION

Dens evaginatus (DE) is a rare developmental anomaly resulting from formation of accessory cusp or tubercle which projects above the adjacent tooth surface. Other synonyms for DE are occlusal pearl, occlusal tubercle, Leong's premolar and Talon's cusp [1]. DE exhibits enamel covering a dentinal core that usually contains fine extensions of pulp tissue [2]. The presence of pulp within the tubercle like projection distinguishes the anomaly from other supplemental cusps like cusp of carabelli which contains no pulpal tissue [3]. Tubercle like projection on the occlusal surface on premolars is referred to as Leong's premolar after M.O. Leong who first drew attention to this anomaly of premolar at meeting of Malaysian Dental Association in 1946.

DE develops due to abnormal proliferation and folding of a portion of the inner enamel epithelium and subadjacent ectomesenchymal cells of the dental papilla into the stellate reticulum of the enamel organ during the bell stage of the tooth formation. The resultant formation leads to formation of tubercle or supplemental cusp of DE [3].

DE predominantly occurs in people of Asian descent with varying estimates reported at 0.5 to 4.3% depending upon the population group studied. DE is most commonly observed in premolars but may also occur in molars, incisors and canines. It occurs in mandible five times more than in the maxilla. There is slight predilection for females. DE occurs in both deciduous and permanent dentition, but more frequently in permanent dentition [4].

The extra cusp or tubercle is usually at a higher level than the level of cusps. It can be easily worn or fractured when teeth comes into occlusion with opposing teeth resulting in pulpal exposure and pulpal infection which spread to periradicular area.

Studies indicate that 14.1 to 40.2 % of DE exhibits pulpal and periapical involvement Depending on pulpal conditions, apical maturation and symptoms, the recommended management ranges from preventive treatment, pulpotomy, pulpectomy, conventional root canal treatment and Apexification [4].

MATERIALS AND METHODS

Case Report

A 24 year old female patient reported to Department of Conservative Dentistry and Endodontics for routine dental check up. On clinical examination lower left first premolar 34 had occlusal amalgam restoration and second premolar 35 had innocuous looking tubercle on occlusal surface identified as Dens evaginatus (Figure A). Tooth 35 was asymptomatic with no history of pain or swelling. Patient consent was obtained to radiographically examine the tooth 35 having dens evaginatus. Radiograph (Figure B) revealed a small radio-opaque projection of occlusal surface; a thin radiolucent track joining the projection and the pulp chamber; and a large radiolucency at the apex of the tooth 35 extending upto the crestal margin along the distal surface of entire root suggestive of chronic periapical abscess. Electrical and thermal pulp vitality tests revealed tooth 35 as non vital entity.

Patient was explained that there is a tubercle like growth on the occlusal surface of left lower tooth which may have been worn out leading to infection of pulp tissue. The infection has spread to the tooth supporting bone and the tooth has to be endodontically treated to prevent further complications. After obtaining consent for treatment from the patient, root canal treatment was performed followed by removal of tubercle by coronoplasty (Figure C). After 2 months a ceramic crown with metal substructure was given on 35. Six months re-evaluation revealed that tooth was asymptomatic with resolution of radiolucency indicating success of the endodontic treatment (Figure D).



Figure legends:

- Figure A Clinical picture showing dens evaginatus on 35
- Figure B Preoperative intra oral periapical radiograph
- Figure C Immediate post operative intra oral periapical radiograph
- Figure D Post operative intra oral periapical radiograph after 6 months

Discussion

Levitan et al. [3] suggested following six categories to determine the treatment of teeth with DE (Table 1) based on condition of pulp and maturity of the apex.

Table 1

Type I	Normal pulp, mature apex	Reduce opposing occluding tooth Apply acid etched flowable light cured resin to the tubercle Yearly re-evaluation to assess occlusion, resin, pulp and periapex When re-evaluation demonstrates adequate pulp recession, remove tubercle and apply resin
Type II	Normal pulp , immature apex	Same as type I except re-evaluation every 3-4 months until development of mature apex
Type III	Inflamed pulp, mature apex	Conventional root canal treatment followed by restoration
Type IV	Inflamed pulp, immature apex	Shallow Mineral trioxide aggregate pulpotomy, Glass ionomer cement layer and etched light cured resin
Type V	Necrotic pulp, mature apex	Conventional root canal treatment followed by restoration
Type VI	Necrotic pulp, immature apex	Mineral trioxide aggregate root end barrier, Glass ionomer cement layer and etched light cured resin

CONCLUSION

To avoid expensive endodontic regimen, early detection of DE followed by prophylactic intervention is advisable. However if pulpal involvement is evident, endodontic treatment has to be performed depending upon pulpal condition and root maturity followed by clinical and radiographic evaluation at periodic intervals.

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