

Rare association of dens invaginatus with impacted mesiodens — A case report

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ABSTRACT

Mesiodens is a supernumerary tooth occupying the position in the maxillary anterior region. This additional tooth structure may cause disturbance in eruption or position of the adjacent teeth. About 8–25% of supernumerary teeth in the anterior region erupt spontaneously. Un-erupted supernumerary teeth are incidentally identified on a routine radiographic examination. Dens invaginatus is a rare tooth malformation showing an in-folding of enamel and dentine of affected tooth sometimes extending deep into the pulp cavity and the root portion. We report a case of un-erupted mesiodens causing midline diastema of permanent teeth subsequently corrected following extraction of mesiodens. Dens invaginatus was identified affecting the un-erupted mesiodens.

It is rare to find dens invaginatus associated with a supernumerary tooth and only 10 such instances of dens invaginatus affecting supernumerary teeth have been reported in the English literature.

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INTRODUCTION

Mesiodens is a term used for addressing a supernumerary tooth in the maxillary incisor region. Approximately 95% of single supernumerary teeth are found in maxilla with prevalence of mesiodens in Indian context to be around 1%.¹

Supernumerary teeth in the dentition most probably results from continued proliferation of permanent or primary dental lamina,² resulting in teeth which can be classified into two groups. Group A includes supernumerary teeth which are of normal size and shape and are called as supplemental teeth, whereas Group B includes supernumerary tooth structures having abnormal shape, and smaller size as compared to normal teeth and are called as rudimentary teeth. Mesiodens belongs to the latter group.³ Mesiodens are usually found erupted, occupying the position between two maxillary central incisors, and prevalence of impacted mesiodens is further very low.^{1,4}

Dens invaginatus is another tooth anomaly with prevalence ranging between 0.3% and 10%.⁵ It represents exaggeration or accentuation of a lingual pit,² commonly affects maxillary anterior teeth and is observed as an incidental radiographic finding.

Co-existence of the above two tooth anomalies is very rare and we found only 10 such cases reported in the literature⁶ and our case follows the list. No recent reports on this rare association were found in the literature.

CASE REPORT

A 18-year-old male presented with a complaint of sensitivity to cold in his traumatized maxillary anterior teeth. On examination, there was Ellis Class II fracture of crown with respect to 11 and 21. Midline diastema was noticed as an incidental finding (Fig. 1). Rest of the facial structures

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Fig. 1 Showing midline diastema between 11 & 21 teeth.

and oral cavity was observed to be normal. An intra oral periapical radiographic examination of 11 and 21 region revealed fracture of crown with respect to 11 and 21 and presence of a supernumerary tooth (mesiodens) between the two teeth (Fig. 2). On careful examination un-erupted mesiodens showed somewhat oval radiopacity with central radiolucency suggestive of dens invaginatus with incomplete closure of apex. Surgical extraction of the mesiodens was performed and was later sent for histopathological examination. Ground section of the specimen showed enamel invagination into the tooth (Fig. 3).

DISCUSSION

Dens invaginatus is a rare developmental anomaly resulting from an invagination in the surface of the crown of involved tooth before calcification.⁵ The affected tooth radiographically reveals in-folding of enamel and dentine which may extend to pulp chamber, roots and sometimes up to root apex. Tooth most frequently affected by this anomaly is maxillary lateral incisor.^{2,5,7} Dens invaginatus is also recognized by several other terms like: Dens in dente, tooth within a tooth, invaginated Odontome, dilated composite odontome, tooth inclusion, dentoid in dente, gestant odontome.^{2,5,6,8}

Dens invaginatus is classified based on the depth of penetration and communication with the periodontal ligament or periapical tissues (Oehlers, 1957).⁹

Type I: a minor form of invagination confined to the crown not extending beyond the cemento-enamel junction.

Type II: invagination extending into the root portion, but remains confined as a blind sac which may or may not communicate with pulp.

Type III: the invagination extends beyond the cemento-enamel junction showing a second “apical foramen” in the periapical region or in the periodontal area. There is no immediate communication with the pulp. The invagination

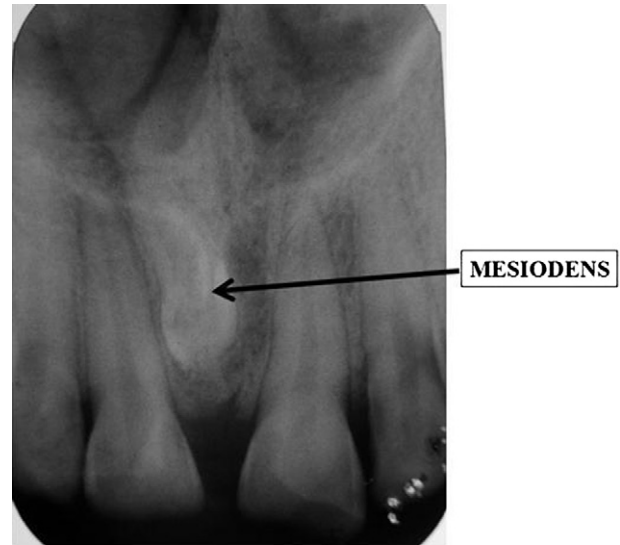


Fig. 2 Intra oral periapical radiograph showing un-erupted mesiodens between roots of 11 & 21.

may be completely lined by enamel, but frequently cementum will be found lining the invagination. In our case type II invagination was noticed.

The invagination sometimes results in formation of a communication between the oral cavity and the pulp leading to entry of irritants into vital pulp tissues resulting in their necrosis.

Mesiodens refers to a supernumerary tooth occupying the midline position between the two maxillary central

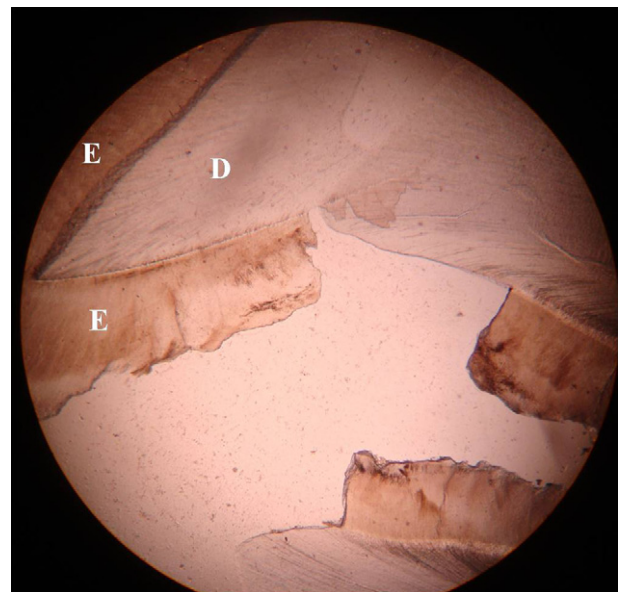


Fig. 3 Ground section of the specimen showing enamel invagination into the tooth (* E- enamel, D- dentine).

incisors. It often precludes eruption of permanent incisor tooth, causes midline diastema or rarely results in development of a dentigerous cyst and resorption of adjacent tooth.⁴ The crown of mesiodens is usually conical in shape with a single root, is usually impacted and is incidentally observed on routine radiographic examination.

Dens invaginatus may be associated with other tooth anomalies like macrodontia, microdontia, taurodontism, fusion, germination and amelogenesis imperfect.⁵ The association of dens invaginatus with supernumerary tooth, a mesiodens as in our case is rare and only 10 cases have been reported in English literature of which only 3 have been found in the last two decades.⁶

Treatment of dens invaginatus varies according to the clinical findings, and signs of pathology, ranging from preserving the tooth with composite restoration, performing a root canal therapy to the extraction of the anomalous tooth with invaginatus.^{5,7,8} Mesiodens are preferred to be extracted.⁴ In our case, as the tooth was impacted and was causing pressure effects on the adjacent teeth (diastema), extraction was deemed as the most appropriate and definitive treatment followed by orthodontic correction.

CONCLUSION

The aim of this article is to present possible rare association of dens invaginatus with mesiodens and highlight the significance of keen and close observation of radiographs prior to formulating a treatment strategy for teeth associated with such structural abnormalities.

CONFLICTS OF INTEREST

All authors have none to declare.

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