SEVERE DENS INVAGINATUS MALFORMATION IN A MESIODENS : A CASE REPORT

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***Dens invaginatus* (DI), commonly known as dens in dente, is a rare developmental anomaly resulting from invagination in the surface of a tooth crown before calcification has occurred. Dens Invaginatus, most commonly affects permanent maxillary lateral incisor teeth, however involvement of primary and supernumerary teeth is extremely rare. Dens invaginatus is fairly common in permanent teeth, although only a few instances have been reported in association with a mesiodens. An unusual presentation of a severe type of dens invaginatus affecting a mesiodens in a 10-year old male patient is reported. This case presentation aims to report a rare case of Dens Invaginatus associated with a mesiodens.**

Key words: Dens invaginatus, mesiodens, dilated odontome

INTRODUCTION

Dens invaginatus is a deep surface invagination of the crown or root that is lined by enamel.[1] Coronal invaginations usually originate from an anomalous infolding of the enamel organ into the dental papilla. The most extreme form of this anomaly is referred to as dilated odontome.[2] The earliest reported documentation of dens invaginatus appeared in the *Dentists Register* (1856) described further by Tomes in 1859; followed by coining of the term "dens in dente" by Dusch in 1897.[1] Hallet introduced the term dens invaginatus to clarify the point that in the invagination enamel is located centrally and the dentin peripherally.[3] Since then, it has been the preferred term. The dens invaginatus is broadly divided into coronal and radicular types with the coronal type sub classified by Oehler in 1957.[2]

With a general prevalence of 0.04 to 10% and a female predilection of 3:1, the condition may occur in both deciduous and permanent dentition; with most common occurrence in the permanent maxillary lateral incisors followed by maxillary central incisors, maxillary cuspids, mandibular incisors and mandibular premolars.[4-7] In addition to the usually affected teeth, Dens invaginatus may also occur in association with 3rd molars and supernumerary teeth.[8,9] Radiographically, dens invaginatus shows radiopaque invagination similar in density to the dental enamel. The defects vary in size and shape. Most cases of extensive coronal invaginations are associated with malformed crowns. [3]

Supernumerary teeth are found more frequently in the permanent dentition with majority of them occurring in maxillary anterior region. Mesiodens is the most common supernumerary teeth and usually is responsible for eruption disturbance of maxillary anterior permanent teeth.[10] Dens Invaginatus is fairly common in permanent teeth though only a few instances have been reported in association with supernumerary teeth.[8,9] This case presentation aims to report the eruption disturbance of maxillary permanent central incisors caused by mesiodens associated with dens invaginatus.

CASE REPORT

A ten year old male patient was referred to Sri Guru Ram Das Institute of Dental Sciences and Research, Amritsar, India for consultation of delayed eruption of maxillary teeth. The patient's medical history was unremarkable. Extraoral examination revealed a symmetric face with head and neck structures within normal limits, corresponding to normal growth and development for that age. The

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intraoral examination of the maxillary incisor region revealed a fully erupted right maxillary central incisor which was normal in shape, a partially erupted tooth mesial to it and an accompanying swelling in the left maxillary incisor region (Fig 1).



Fig 1: A fully erupted right maxillary central incisor and a partially erupted tooth mesial to it and swelling in the left maxillary incisor region.



Occlusal and periapical radiographs showed a supernumerary tooth (mesiodens) with a large invagination extending from the crown well past the cementoenamel junction ending in a blind sac (coronal dens invaginatus type II / dilated odontome). Patient was asymptomatic with no evidence of periapical pathosis, clefts and any other abnormality. The left maxillary permanent central incisor was present at the apical region of the malformed tooth (Fig 2,3). Since this particular tooth was hindering the eruption of permanent central incisor, the treatment of choice was extraction of the mesiodens.

On gross examination, the tooth was bulbous in shape and exhibited a wide open apex. The periapical

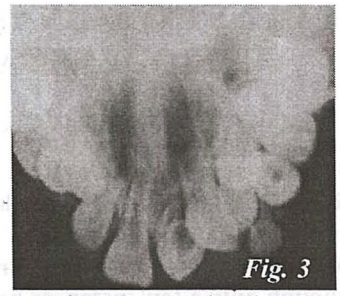


Fig 2, 3: Occlusal and periapical radiographs shows a supernumerary tooth (mesiodens) with a large invagination extending from the crown well past the cementoenamel junction ending in a blind sac

radiograph of the extracted tooth showed that the invagination was rather large, dilated and associated with disturbed tooth formation (dilated odontome) (Fig 3).

DISCUSSION

Dens invaginatus can manifest in different teeth, varying in size, extent of invagination, and internal cavity morphologic features. It affects crown and root width and consequently tooth alignment in the dental arch and may have a complex internal anatomy.[1,3] The majority of the cases are located in the maxillary permanent lateral incisors followed by central incisors, premolars, canines and molars.[3-7] The occurrence in supernumerary teeth is however rare.[8,9] The review of the English language literature showed that only about six cases of invaginated mesiodens have been reported so far.

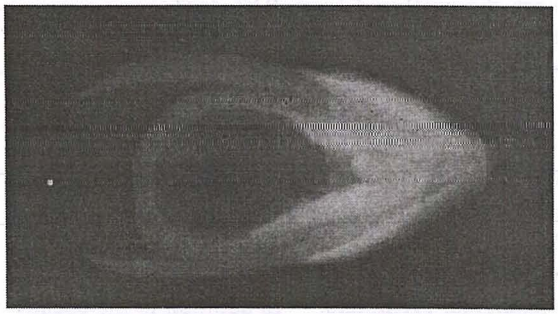


Fig 4: The periapical radiograph of the extracted tooth showed that the invagination was rather large, dilated, ended in a blind sac and associated with disturbed tooth formation (dilated odontome)

The Dens Invaginatus is broadly divided into coronal and radicular types. Depending upon the depth of invagination, the coronal variant has been classified by Oehler's as:

Type I: an enamel-lined minor form occurs within the crown of the tooth and not extending beyond cemento-enamel junction;

Type II: an enamel-lined form which invades the root as a blind sac and may communicate with the dental pulp;

Type III: a severe form which extends through the root and opens in the apical region without communicating with the pulp. [2]

In the present case, a supernumerary tooth (mesiodens) is associated with a large invagination extending from the crown well past the cementoenamel junction ending in a blind sac (coronal dens invaginatus type II / dilated odontome). This is rather a rare occurrence.

Mesiodens are frequently associated with various craniofacial anomalies, including Cleft lip and Palate, Gardner's Syndrome and Cleidocranial dysostosis.[3] However, the patient had no symptoms suggestive of a syndromic background.

Mesiodens is best detected through clinical and radiographic examination. If permanent incisors are retained or their eruption is disturbed or ill-positioned, a radiographic examination must be performed.[11] The most common complication associated with mesiodens is the eruption disturbance that may occur in the maxillary anterior region as was seen in our case. About 25% of mesiodens presenting in the maxilla erupt into the oral cavity. In children and adolescents, extraction of mesiodens has been recommended in order to avoid possible effects on adjacent teeth as well as cyst formation.[12] In the early mixed dentition stage, extraction of the mesiodens has been suggested to facilitate spontaneous eruption, alignment of incisors, while minimizing intervention, space loss and midline shift, loss of vitality and tolerance of the patient to the surgery.[13]

Early diagnosis of dens invaginatus is crucial and requires thorough clinical examination of all teeth. These invaginations act as a niche for bacterial growth and may lead to inflammation and necrosis of pulp.[14] This anomaly is clinically important because even the minor form frequently leads to pulpal necrosis and periapical infection. Severe form often causes periapical cyst formation in the early age. Early diagnosis and management are important to avoid complications

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periodontics and prosthetic dentistry, premolarisation has received acceptance as a conservative and dependable dental treatment and teeth so treated have endured the demands of function.

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Congratulations.