



DENS IN DENTE WITH A LARGE RADICULAR CYST-CASE REPORT

Dental Science

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ABSTRACT

Dens invaginatus is a developmental malformation that occurs as a result of an invagination of enamel organ into the dental papilla, beginning at the crown and sometimes it may extend into the root before calcification occurs. This condition is most commonly associated with permanent maxillary lateral incisors, followed by maxillary central incisors, premolars, canines and less frequently in the molars. The malformed teeth shows a morphologic variations and frequently results in early pulp necrosis. Root canal treatment may present severe problems because of complex anatomy of teeth. Here we present a case describing the a large radicular cyst, with maxillary permanent lateral incisor in a thirty-year-old female.

KEYWORDS

Dense in Dente, Radicular cyst, Pulp Vitality

INTRODUCTION

Dens in dente is a developmental anomaly which results from the infolding of the enamel into the tooth structure, during the early stages of tooth bud formation. As the hard tissues are formed, the invaginated enamel organ leads to formation of a small tooth within the future pulp chamber.¹ Dens in dente is a rare developmental anomaly of the tooth affecting mostly the permanent maxillary lateral incisors and less commonly, the other permanent teeth and the primary dentition.² The coronal type of invagination is lined with enamel while the radicular type of invagination is lined with cementum.³ The incidence of dens invaginatus is reported to range between 0.04 to 10%. Dens invaginatus is commonly diagnosed as an incidental radiographic finding unless the patient presents with pain or swelling associated with the involved tooth. This case report describes a rare case of radicular cyst associated with radicular dense invaginatus.

A CASE REPORT

A 30 year old female patient visited the department of Oral Medicine and Radiology of VSPM's Dental College and Hospital with chief complaint of swelling in the right palatal region since 1 year. Fig 1

Fig-1 swelling in the right palatal region



Swelling was insidious in onset and gradually increased to attain the present size of about 3x2cm. Patient also gave history of intermittent pus discharge from the swelling. No extraoral abnormality was noted. Intra oral examination revealed a discolored right lateral incisor. On the anterior palate on right side a well defined swelling, measuring about 3x2cm, roughly oval in shape associated with 11, 12 was seen. Mucosa over the swelling appeared inflamed. The swelling was tender on palpation and soft to firm in consistency. On pulp vitality testing 12 showed no response while 11 and 13, 14 showed delayed response.

Intra Oral Periapical Radiograph and occlusal radiograph of upper anterior region were made which showed folding of radioopacity extending from incisal edge of the crown upto apical 1/3rd suggested

that maxillary right lateral incisor was invaginated till the apical third of the root with the presence of periapical radiolucency. CBCT report showed altered radiographic morphology of 12 along with labial surface grooving involving enamel, dentin and pulp suggestive of Dense invaginatus. Hypodense, expansile lytic lesion in anterior maxillary palatal region shows well defined but intermittent corticated borders with respect to 12. Extension of the lesion from periapical region of 21 upto periapical region of 13 and superoinferiorly from interdental alveolar bone with 11 12 upto nasal floor. Root resorption with wide open apex with 12 which was suggestive of infected radicular cyst wrt 12. Fig 2, 3, 4, 5

Fig-2 Occlusal radiograph showing radicular cyst



Fig-3 Intraoral periapical radiograph of 11, 12

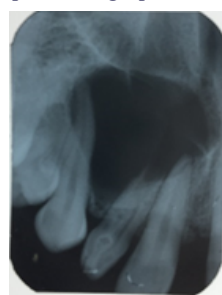


Fig-4 Axial section of CBCT showing cystic dimension

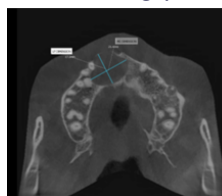
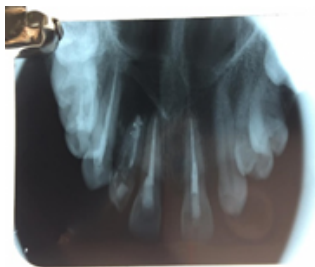


Fig-5 Saggital section of CBCT showing Dense in dente with 12

Cytology report of the aspirate showed RBC's throughout the smear and dense acute inflammatory cell chiefly lymphocytes and neutrophils suggestive of Radicular cyst. Patient was advised for root canal treatment with 11,13,14,21 along with apicectomy with 12 as on pulp vitality testing 12 showed no response whereas 11 and 13 showed delayed response followed by enucleation of cystic lesion. Fig-6

Fig-6 Post treatment occlusal radiograph

DISCUSSION

Dens invaginatus is a developmental malformation that occurs as a result of an invagination of enamel organ into the dental papilla, beginning at the crown or may extend into the root before calcification occurs. This condition is most commonly associated with permanent maxillary lateral incisors, followed by maxillary central incisors, premolars, canines and less frequently in the molars.⁶ A number of other terms have also been used to describe the condition, in 1897 Buschfirst suggested the use of 'dens in dente' which implies the radiographic appearance of a tooth within a tooth. However, Hunter (1951) suggested the term 'dilated composite odontome' which infers an abnormal dilatation of the dental papilla while Colby (1956) recommended the use of 'gestant anomaly'.⁷ Rushton proposed that the invagination is a result of rapid and aggressive proliferation of a part of internal enamel epithelium invading the dental papilla. In contrast Kronfield suggested that it results from a focal failure of growth of internal enamel epithelium.⁸ Atkinson (1943) suggested that the problem was the result of external forces exerting an effect on the tooth germ during development. Such forces could be from adjacent tooth germs.⁹ Oehlers considered that distortion of the enamel organ during tooth development and subsequent protrusion of a part of the enamel organ will lead to the formation of an enamel-lined channel ending at the cingulum or occasionally at the incisal tip.⁹ The prevalence of this pathology may range between 0.04 to 10%. Tooth affected by this condition is at increased risk of developing caries and periradicular pathology as the invagination allows entry of irritants into pulp tissues by only a thin layer of enamel and dentin that lead to development of infection. The thin layer of the infolding enamel could be chipped off easily, providing entrance for microorganisms into the tooth canal. The aberrant anatomy of these teeth may increase the complexity of dental treatment.

In cases with radicular cyst, if there is no history of caries or trauma, in such cases clinician should suspect the presence of Dens invaginatus as the microorganisms from the oral cavity cause bacterial contamination of the invagination causing pulpal and periapical inflammation, therefore clinician should pay attention towards an unusual crown morphology i.e. peg shaped, barrel shaped, dilated may provide important clue for diagnosis. With this knowledge, the diagnosis of dens in dente is easier; and only radiographic examination will guide for final diagnosis. An early detection and sealing of its opening with acid etch resin can effectively prevent further complications. It requires the follow-up for such teeth in order to avoid peri-radicular complications that could influence the outcome of the

endodontic treatment. Treatment for radicular cyst associated with dens in dente ranges from restorative procedures, nonsurgical root canal therapy, or extraction.

CONCLUSION

Clinicians should be careful of the possibility of Dens invaginatus when a tooth presents pulpitis without a history of trauma or caries and examine the suspicious tooth and periodontium radiographically. Early diagnosis with timely treatment is necessary for the prevention of large lesion occurring in association with dens invaginatus, such as that seen in the present case.

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