CASE REPORT

Dens Invaginatus with Radicular Cyst: A Case Report

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Abstract:

Dens invaginatus is a developmental defect characterized by the inward folding of a segment of the crown and/or root that occurs within the enamel organ during the process of odontogenesis. This invagination can manifest as a minor depression on the crown (coronal type) or as a more extensive anomaly that encompasses a significant portion of both the crown and root (radicular type), occasionally leading to the formation of an additional apical foramen. While a clinical assessment may identify a pronounced fissure or pit on the surface of an anterior tooth, imaging techniques provide a more accurate means of determining the severity of the invagination. This case presentation aims to document an unusual instance of a radicular cyst associated with dens invaginatus.

Keywords- Dens invaginatus, Radicular cyst, enucleation, apicectomy.

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INTRODUCTION:

Dens invaginatus is an uncommon developmental aberration characterized by an astonishingly diverse morphological spectrum. Many hypothesis has been given and one of the widely accepted theory is that It is a result of invagination of the crown and/or the root surface before mineralization happens.(1)

Dens invaginatus can manifest itself in both primary and permanent dentitions, with an estimated prevalence ranging from 1.7% to 10%. The condition exhibits a pronounced male predilection, with an observed male-to-female ratio of 3:1. we (2) Moreover, maxillary lateral incisors emerge as the most frequently affected teeth, followed in decreasing order of incidence by permanent central incisors, canines, and molars.(3)

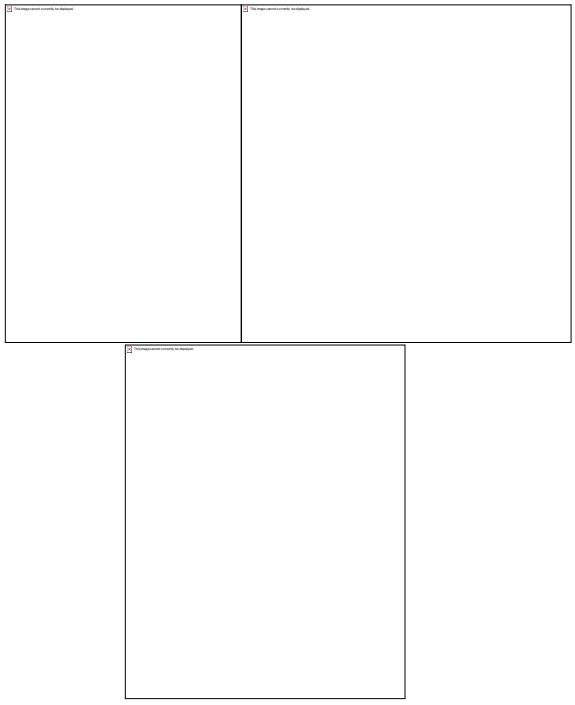
This anomaly is often associated with a constellation of other dental irregularities, including microdontia, gemination, supernumerary teeth, dentinogenesis imperfecta, further emphasizing its complex developmental nature making it susceptible for pupal pathology. (4,5)

Radicular/Periapical cyst is a pathology of jaw involving tooth classified as Odontogenic cyst by the WHO (6) has their etiology associated with necrotic pulp and has most prevalence as a cystic lesion of jaw (7) which can also involve healthy tooth in its cystic lesion leading to further damage at wide extent if go unnoticed (8)

Radicular/Periapical cyst which is commonly associated with carious tooth leading to pulp necrosis can also be associated with non carious dens-invaginetous as its structural anomalies make it susceptible for trauma and constant irritation from local environment further leading to formation of cystic lesion.

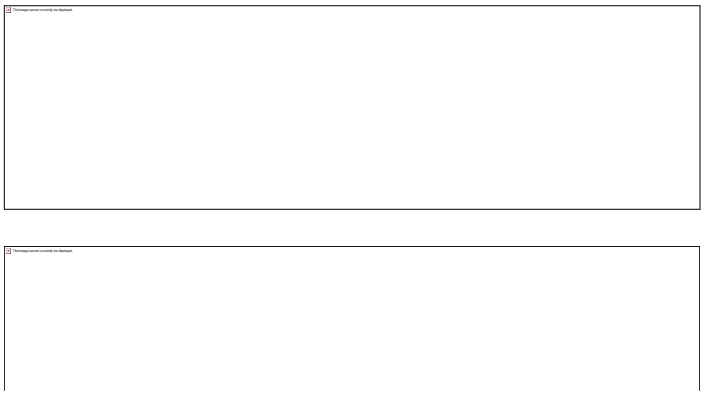
The purpose of this case report is to discuss in detail the association of periapical cyst with dens-invaginatus and its management by using combination of surgical and non surgical method.

CASE REPORT:



31 year old female patient reported in the dept. of Oral and Maxillofacial Surgery, MIDSR, Latur with chief complaint of swelling over upper lip on right side since 3-4 months. The patient's medical history was non-significant. Extra-oral examination showed diffuse swelling of approx 1.5X1.5cm present over upper lip extending from philtrum to nasolabial fold on right side leading to obliteration of nasolabial fold on same side. Intra-orally, a swelling of approx 1X1 cm, roughly oval present over upper labial vestibule with respect to 11, 12, 13 region extending from labial frenulum to distal to 13 and from mucogingival junction to labial mucosa with respect to 11 12 13. On palpation it was firm in consistency. Tender on palpation. The teeth were free of caries and discoloration. However, it was noted that 12 was microdontic and peg-shaped. Panoramic radiograph revealed the presence of a periapical radiolucency surrounded by a sclerotic border in relation to 12 extending up to 14. 12 showed the presence of a wide pulp chamber with radiopaque invagination from a lingual pit towards the root apex crossing the cement-enamel junction.

This invagination was approximately circular with a central core of radiolucency, which was consistent with the diagnosis of a dens invaginatus. After obtaining informed consent about treatment, treatment cost and consent for photography, treatment planned and proceeded for the case was to do endodontic treatment with 11 12 13 followed by enucleation of cystic lesion under general anesthesia along with an apicetomy with 11 12 13.



During enucleation it was observed that 12 has minimal bone support and was necessary to extract to remove sinus lining. Therefore, extraction of 12 was done. The enucleated cyst upon histopathological examination was diagnosed as periapical cyst.

DISCUSSION

Development of an invaginated tooth has been explained based on a number of hypotheses. The earliest hypothesis attributed the malformation to the incomplete fusion of two tooth germs or to the attempted division of a single tooth germ (Bruszt et

al) and the most recent hypothesis proposes dental invagination as a-consequence of the degeneration of the dental lamina which can lead to fusion, gemination or agenesia. Oehlers further classified the dens invaginatus into three forms:

- **Type I:** An enamel-lined minor form that occurs within the confines of the crown without extending beyond the amelocemental junction.
- **Type II:** An enamel-lined form invading the root but remains as a blind sac. May or may not have communication with the dental pulp.
- **Type III:** A form that penetrates through the root, perforates apical area showing a "second foramen" in the apical or in the periodontal area with no immediate communication with the pulp. The enamel may completely line the invagination, but frequently cementum can be found lining the invagination

CONCLUSION

Dens invagination frequently left unnoticed and allows the entry of irritants into an area, which is separated from the pulpal tissue by only a thin layer of the enamel. Even sometimes, the enamel lining may be incomplete or channels may exist connecting the invagination and the pulp making it difficult for the instrumentation.

Such anatomical variation may lead to pathology like radicular cyst if gets infected. Therefore if such anomaly is detected regular radiological follow up and/or prophylactic endodontic treatment should be performed to prevent further complications.

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