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Case Report

Complications and treatment of dens in dente: case report

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ABSTRACT

Dens in dente is an anomaly of dental development characterized by focal or multifocal invaginations of the enamel in the dental papilla before its mineralization, it can result in additional layers of enamel, cementum, dentin or pulp tissue, it is also known as invaginated tooth or invaginated odontoma. The clinical case of an 18-year-old female patient is presented, she comes to the clinic for referring halitosis and purulent exudate for 1 month, a clinical and radiographic examination of tooth 22 was performed, a radiopaque invagination line was observed that penetrates the portion radicular in the cervical third, wide radiolucent area in the apical third, sinuous course and purulent exudate. Root canal treatment was performed with a flexible rotary system and canal obturation with a lateral technique and vertical compaction, restored with resin.

Keywords: Dens in dente, Odontoma, Flexible rotary system, Dental abscess, Dens invaginatus, Root canal treatment

INTRODUCTION

Dens in dente is an anomaly of dental development characterized by focal or multifocal invaginations of enamel in the dental papilla, being the result of folding of the enamel organ during the early stages of tooth development, before its mineralization, it can result in additional layers of thin enamel, absent or poorly formed as well as cementum, dentin or pulp tissue.[1,2] It is also known as invaginated tooth (dens invaginatus) or invaginated odontoma, a prevalence of 0.4 to 10% is calculated.[3]

Cameron et al in 2008 reported that it is more common in men, with a 2:1 incidence, it occurs more frequently in the permanent dentition, mainly affecting the upper lateral incisors and the upper central incisors, bilateral appearance is not uncommon and occurs in 43%.[4-6] Although rare,

some patients may develop endocarditis secondary to a dental abscess associated with a dens in dente, because the remains of food and microorganisms are difficult to clean in the groove where the invagination is located, being more susceptible to developing caries, exacerbating the infection causing pulpal necrosis and as a consequence apical lesions.[7-9]

It is very important to achieve a timely diagnosis and treatment, although due to the complex anatomical alteration, it can represent a real diagnostic challenge and a challenge for endodontic treatment.[10-15]

Dens in dente can be diagnosed clinically by unusual crown morphology, conical crown tip pits, claw-like cusp, deep palatal or lingual pit of incisors or through a coronoapical radiograph, however, tomography helps to evaluate the type of malformation since there are III types of invaginations, proposed by Oehlers in 1957 (Figure 1).[6]

Type I is minor enamel-lined invagination, within the limits of the crown and not extends beyond the cementoenamel junction. Type II is enamel-lined form that invades the root but remains as a blind sac; it may or may not communicate with the dental pulp. Type IIIA extends through the root and communicates with the ligament, there is no immediate communication with the pulp. The intussusception may be completely covered by enamel, but cement will often be found lining the intussusception. Type III B invagination penetrates through the root, perforating the apical zone and having a second foramen in the apical or periodontal zone.[16,17]

In 1972 Schulze and Brand proposed a classification of 12 variations starting from the incisal edge and the dysmorphic root configurations.[6]

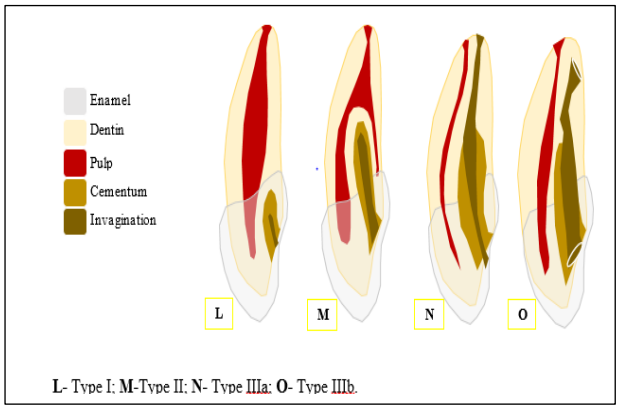

Figure 1: Oehlers classification.

Treatment

If a prominent cingulum is identified shortly after eruption, it is a priority to seal the fissure as soon as possible to avoid caries in the inaccessible site. If the radiograph establishes the presence of invagination, preventive treatment is essential. The condition can be bilateral and symmetrical.

The contralateral tooth must be monitored to give the opportune treatment. If caries has developed in the cingulate fossa, the risk of pulpal exposure should be determined before any intervention, a vital pulpotomy may be considered if the morphology is adequate, or a root canal subject to filling difficulty, if the apex is found to be difficult to fill. Open, apexification will be performed, if the necrosis gives rise to an abscess and is associated with cellulitis, drainage of the abscess will be performed along with appropriate antibiotic treatment.[2,8]

CASE REPORT

An 18-year-old female patient comes to the clinic complaining of halitosis and purulent exudate with 1 month of evolution, a clinical and radiographic examination of tooth 22 was performed, a radiopaque invagination line was observed that penetrates the root portion in the cervical third, wide radiolucent area in the apical third, sinuous course and purulent exudate. Orthopantomography, fistulography and pulp sensitivity tests with cold and heat were performed, diagnosing pulpal necrosis with chronic purulent alveolar abscess (Figure 2 and 3).

Endodontic treatment

After asepsis and antisepsis of the region, an anesthetic block was performed, it was isolated with a rubber dam and access was continued with a carbide bur followed by Endo-Z, the canal was permeabilized with a 10 file and the canalometry was taken with a foramen locator.

Apical, the canal was instrumented with a flexible rotary system, it was irrigated with 5.25% sodium hypochlorite solution and manually activated with gutta-percha, intracanal medication with calcium hydroxide was placed, after 8 days the intracanal medication was withdrawn, the obturation of the canal with lateral technique and vertical compaction, later it was obturated with resin (Figure 4).

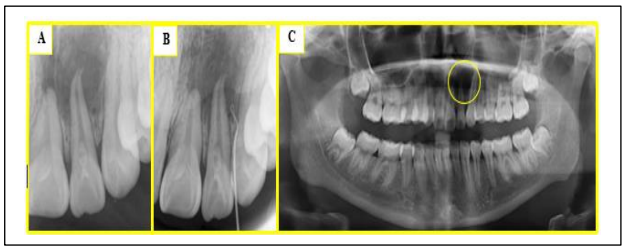

Figure 2: (A) Initial radiograph; (B) fistulogram of tooth 22, suggests the presence of a lateral canal; and (C) orthopantomography of tooth 22, apical region with rarefaction involving the root of tooth 21 (circle).

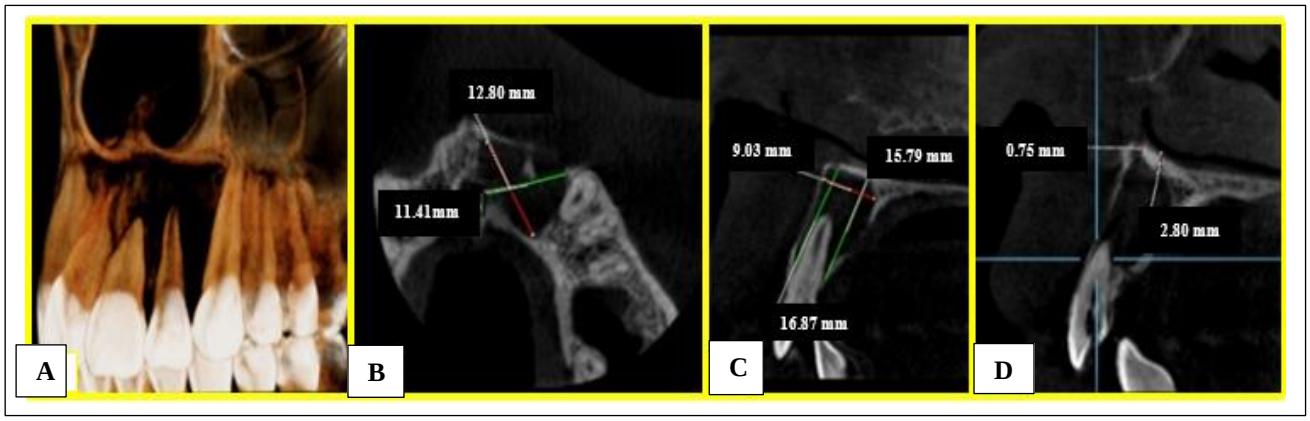

Figure 3: (A) 3D view of the apical lesion; (B) axial section of the apical lesion; (C) sagittal section, measures the size of the lesion in the vestibulo-palatine direction 9.03 mm and from the alveolar crest to the palatine process of the maxilla 15.79 mm; and (D) sagittal cut, it is observed that the lesion was 0.75 mm from draining through the nose.

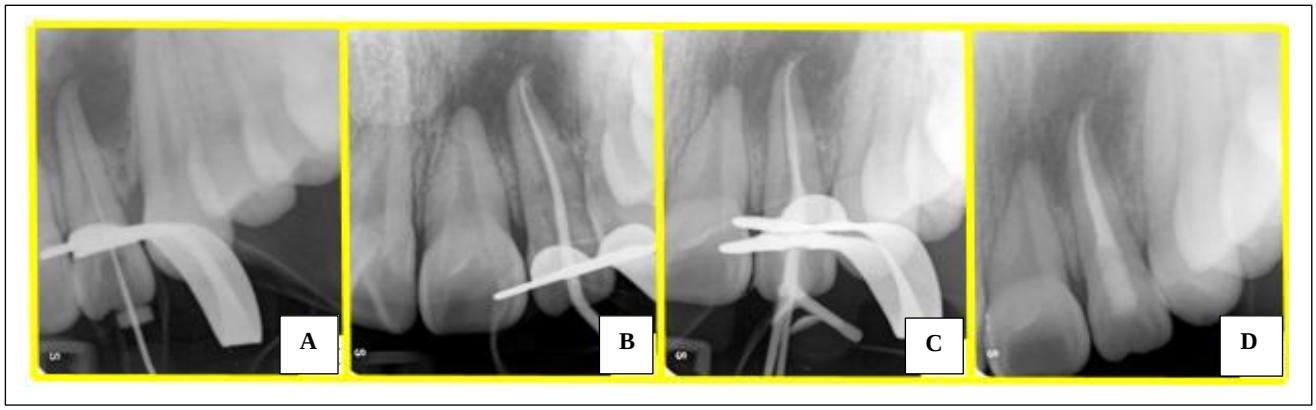

Figure 4: (A) Radiographic verification of the actual conductometric; (B) Gutta-percha main cone test; (C) Gutta-percha obturation technique by lateral condensation; and (D) Final radiograph with filling.

DISCUSSION

There are reports with different results on the prevalence by gender, in some series with evaluation by cone beam computed tomography, women have a higher prevalence than men (57.6 vs. 42.4%, respectively) in the Turkish population, compared to what was reported by Cameron and Widmer 2008 who reported that it is more frequent in men, with an incidence of 2:1, age peaked between 9 and 13 years, 92.7% of affected teeth were present in the maxilla, more frequently unilateral (75.8%) than bilateral (24.2%).[4,18-21] The most frequent tooth with dens invaginatus was the maxillary lateral incisor, its tooth anatomy being distorted within the crown and root.[9] The timely diagnosis of dens in dente is based on radiographic controls, since it can be asymptomatic, as well as other anomalies, however they can be diagnosed in a timely manner with routine radiographic studies and preventive treatments, hence the importance of having radiographic controls of annual routine, during treatment planning, assessment of pulpal status is essential.[8,22] In order to increase the efficiency in our treatment, a tomography was performed, allowing an accurate diagnosis of Dens in dente to distinguish the type of anomaly, being essential during treatment planning.[9] The invaginations at the level of the cingulum create a retentive zone for microorganisms, the enamel and dentin are thin or defective that facilitate the entry of irritants, producing an inflammatory response that can evolve causing necrosis of the pulp tissue, therefore the importance of radiographic controls and preventative treatments if diagnosed.

CONCLUSION

The invagination zone at the level of the cingulum created a retentive site for bacteria, which later allowed the entry of microorganisms into the root canal. It has been observed that the enamel and dentin in invaginated teeth may be absent, thin or defective with numerous fine channels that facilitate the entry of irritants and microorganisms producing an inflammatory response, causing necrosis of the pulpal tissue. Therefore, preventive treatment of this dental alteration is important to preserve pulpal vitality.

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