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Case of dental concrescence associated with Dens evaginatus on a mandibular permanent molar

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Summary

Our objective was to present an unusual clinical case of a dental concrescence that comes with a Dens evaginatus on a mandibular left sector molar. This is about a description of this dental morphologic anomaly. The content of this article includes the clinical, radiological and anatomy morphological features of this anomaly of dental development of a 19-year-old female patient. The particularity of our case was its rarity, its installation on a posterior mandibular tooth, its localization on the mesial dental side, and finally the association of both cases of dental development anomalies. The treatment decision is based on the tooth conservation priority. The lack of its antagonist to preserve dental occlusion and strengthen the masticatory system, a preventive treatment is made to block all decay progression, combined with a prosthetic and orthodontic treatment recommendation.

Key words: dental anomaly, concrescence, Dens evaginatus, permanent molar

1. Introduction

Dental anomalies are generally classified into developmental, eruption and structural anomalies. Dental concrescence is a developmental anomaly defined by the fusion of two adjacent teeth at the cementum level, whereas Dens evaginatus is a morphological anomaly that generates an additional cusp projected from the amelo-cemental junction surface towards the occlusal border[1,2,3]. The concrescence is of mechanical origin, due to compression of the germ, lack of space or neighboring infection. If cemental fusion occurs during root development, it is called true concrescence; if it occurs after root formation, it is called acquired post-inflammatory concrescence. It can only be discovered by taking an X-ray. The etiology can be genetic, hormonal or systemic, and the impact can affect both temporary and permanent teeth. This anomaly may be generalized or localized, affecting only the crown, only the root, or both the crown and the root. Its usual location is often

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between the upper permanent molars, and sometimes between a molar and a supernumerary tooth[3,4].

Dens evaginatus comes from a developmental defect during the morphological differentiation stage, generating an additional cusp projected from the amelo-cemental junction surface. It generally affects permanent teeth and is rarely observed in temporary dentition, in Mongolian descendants and exceptionally in blacks. The malformation affects the buccal and occlusal surfaces of the teeth, and is frequently located on the anterior teeth and premolars[4, 5,6,7]. These morphological malformations make the tooth susceptible to a high risk of decay. Their therapeutic treatment consists of either conservative or radical treatment of the anomaly, calling essentially on the practitioner's clinical sense. Apart from the dentistry conservative practice, this sometimes requirescollaboration between the orthodontist and the prosthetic technician, in order to restore aesthetics and maintain function. The main objective of our article is to report an unusual case of dental concrescence associated with Dens evaginatus and located on a permanent molar in the mandibular left sector. It is about to describe the clinical, radiological and pathological features of the anomaly, and justify our treatment choice.

2.Observation

Our observation concerned a 19-year-old Malagasy female patient who came to a specialized odontostomatology center of the Mahavoky Atsimo University Hospital in Mahajanga Madagascar. Her consultation reason was odontalgia stimulated by a brief thermal variation in the posterior left sector of the mandible. During the anamnesis, the patient does not have any general health problems, except for asthma. During the intraoral clinical examination, the reason for consultation was the left lower second molar. By a random discovery, we observed a coronal malformation on the mesial side of this same tooth, in association with occlusal dentin decay. Clinically, on the mesial side, a double protuberance projects from the amélo cemental junction towards the occlusal surface of the tooth (Figure 1 and Figure 2).

Figure 1: Preoperative photograph of 37 showing dens evaginatus in (a) and (b) on the mesial aspect. Occlusal view [Rafalimino,2019].

Figure 2:Preoperative photograph of 37 with coronal dental anomaly. In (a) and (b) on the mesial surface. Vestibular view [Rafalimino,2019].

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During our clinical examination, the survey allowed us to reveal a groove around the entire coronal margin and a groove around both protuberances, interrupted by the huge protuberance at the amelo-cemental junction. These areas are ideal niches for dental plaque.We noticed the presence of dentin decay in these grooves. The mandibular first molar had already been extracted six years previously. The mandibular second molar has three normal vestibular cusps.Retro alveolar radiography confirmed that the mesial root of 37 was cemental fused to the occlusal surface at the root half, with the root of a supernumerary tooth on its distal surface, and that the two roots bifurcated at the root apical third (Figure 3).We also note the absence of pulpal extension at the coronal level of the fused supernumerary tooth. Due to the presence of a mesial coronal malformation with bacterial plaque accumulation in the sulcus, in order to halt the carious process and prevent the reinstallation of caries on this tooth, our treatment plan was a dentin capping at the occlusal dentinite level combined with a preventive treatment of fluid composite placement around the evagination to ensure the durability of the tooth and prevent the evolution of dental caries (Figure 4).The patient was advised for a monthly visit to check for the presence of new decay, and the patient was referred to an odontostomatology specializing in prosthetics and orthodontics to study the management of the edentulous mandibular first molar.

Figure 3: Preoperative retro alveolar radiograph of 37 showing dental concrescence at the cementum level of the mesial root of 37 in (a) with the root of a supernumerary tooth on the distal surface in (b) [Rafalimino,2019].

Figure 4: Postoperative photograph of 37 receiving preventive treatment on the coronal tooth evagination and conservative composite treatment on the occlusal surface[Rafalimino,2019].

3.Comments

Concrescence anomaly is positively detected after radiography. This anomaly is defined by one of the common anomalies of tooth shape occurring in the posterior maxillary sector characterized by the union between adjacent teeth, only through cementum and not dentin[7,8,9].Our clinical case was diagnosed as an association between dental concrescence

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and dens evaginatus. According to the location of the anomaly, which involves the vestibular cusps, this case of Dens evaginatus was group 2 according to Lau's classification[9]. According to Ohelers' classification, based on the histological appearance of the pulp, our case was identified as anomalies without pulpal horn[10]. According to the literature, the complications associated with this anomaly are of three steps: carious pathologies, traumatic pathologies and complications linked to the presence of malocclusions and disharmonious tooth movement. In our case, the most anfractuous tooth morphology, combined with the presence accessory cusp contributes to plaque retention.Dens evaginatus (DE) is a dental anomaly with a supernumerary tubercle projection that typically contains dentin and pulp tissue. However, the tubercle projection can fracture, exposing the dentin and potentially the dental pulp, which induces pulpal diseases. This situation increases the risk of caries infiltration, which can lead to pulpal damage[11]. For this reason, the presence of this morphological anomaly calls for easier oral hygiene procedures. Root fusion can complicate endodontic treatment. In terms of pick-up of charge, a number of therapeutic variants have been suggested, depending on their usefulness. Surveillance therapy has been described as useful for early detection of complications. A preventive treatment would be the development of fluoridation or placement of Sealant or composite flow in pits and cracks, or a "grinding" treatment alone or with fluoridation. Conservative dentistry will be chosen in cases of carious pathology, or when polishing techniques are disrupted by the morphological anomaly. Endodontic treatment is chosen when pulpal complications or coronal fractures with pulpal exposure are present. Prosthetic and orthodontic treatment may be chosen depending on the therapeutic objective. Finally, surgical treatment may be chosen if the anomaly causes other, more iatrogenic anomalies[8,9]. According to the study by Dankner and all, this anomaly is predominant in the maxillar[12]. Depending on anatomical location, Mallinenne and his colleagueshave suggested that mandibular installation is rare[13]. Coronal morphological anomalies can lead to caries complications[9]. The clinical cases presented by Yoon and his colleaguescorroborate our own. Increased plaque retention in the pits and cracks created by the accessory cusp, leading to increased caries risk [14].

Conclusion

Dens evaginatus can be detected clinically, but the discovery of dental concrescence requires radiography. Depending on the morphology and volume of the anomaly to be treated, multiple therapeutic variants have been implemented. In terms of quality of care performance, many practitioners do not hesitate to combine all these options. The treatment of an evagination due to many possible complications is above all multidisciplinary. Updating the classification of concrescence associated with other developmental anomalies must be considered.

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Conflicts of interests

We, the authors of this manuscript, declare no conflicts of interest regarding the publication of this article.

Patient consent

The patient has given full permission for the publication other use of his clinical case and photographs.

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