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Dental Concrescence with Indication of Extraction: Case Report and Literature Review

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Abstract

Concrescence is a rare dental abnormality, with an estimated prevalence of 0.8-1.4% in permanent dentition. The correct diagnosis prior to any treatment, surgical or not, is relevant. The purpose of this study is to report a concrescence case between a tooth with indication of extraction and an embedded third molar. A 32-year-old male patient, with a negative past medical history and unknown allergies, consulted due to intermittent pain in right maxillary zone. The periapical radiograph of the maxillary right posterior quadrant revealed a large carious defect and a periapical lytic process on the second molar, an impacted third molar in horizontal position and a root overlapping of both teeth at the apical and mid-level with no evident periodontal space between them. With the diagnosis of asymptomatic apical periodontitis on tooth 1.7, the patient requested extraction. The previous informed consent was signed and the extraction of the second molar attached to the third molar was performed, without provoking neither oro-antral communication nor fractures of alveolar plates. The diagnosis of dental concrescence between teeth 1.7 and 1.8 was established. It is important to emphasize that the knowledge of these abnormalities by the professional, is essential to achieve the best results in our patients.

KeyWords: *Dental Cementum; Fused Teeth; Oral Surgery; Tooth Abnormalities; Tooth Extraction*

Introduction

Concrescence is a dental abnormality where two completely normal and formed tooth are attached below the amelo cemental limit at the level of their roots, without evidence of periodontal space between them. It is caused by the fusion of both dental cementum surface, without the confluence of the underlying dentin, and therefore asymptomatic [1,2]. Despite this, cases of crown-root unions have been reported [3]. Unlike dental fusion and germination,

concrescence may originate in the tooth development or from inflammatory causes when the tooth has already erupted. The concrescences generated during development commonly happen in the posterior maxillary region, involving a second molar whose roots are in proximity to a neighbouring third molar embedded. The inflammatory origin usually involves a molar with either caries or trauma, where its roots overlap with the roots of a horizontal or disto-angular third molar [4]. Despite of being widely known by dental professionals, there are cases where these incidental findings can cause serious problems when being treated.

The purpose of this study is to report a concrescence case between a tooth with indication of extraction and an embedded third molar.

Case Report

A 32-year-old male patient with negative past medical history and unknown allergies consulted due to intermittent dental pain in right maxillary zone. The patient did not present relevant findings on the clinical exam, neither general nor extra oral. At the intraoral clinical exam, it was observed complete permanent dentition, generalized gingivitis and multiple dental caries. The right superior second molar presented a wide coronary destruction and caries, with a positive percussion. A periapical retroalveolar radiography of the posterior right maxillary region showed tooth 1.7 with occluso-mesial caries over projected in the pulp chamber, a thickened apical periodontal ligament and periapical lytic lesion. Also, an embedded third molar in horizontal position was observed, with its roots overlapped on the second molar ones, without appreciation of the apical periodontal line between them [Figure 1].

Figure 1: Periapical retroalveolar radiography of the posterior right maxillary region. An over projected caries in the pulp chamber of the second molar, an embedded third molar on horizontal-distal position with a thin alveolar plate covering it and an overlap of the roots on the periapical level are observed.

Under the endodontic diagnosis of asymptomatic apical periodontitis on tooth 17, patient refused endodontic and rehabilitation treatment and requested the extraction. Due to the radiographic findings, it was explained to the patient of a possible attachment between both teeth (17 and 18) on the apical region and consequent extraction of third molar. Informed consent was signed by the patient.

Surgical Procedure

In supine position, the patient received 2% lidocaine with 1:200.000 epinephrine with a vestibular and palatal infiltration technique. Antisepsis with chlorhexidine gluconate 2% in the perioral area. Sterile field conformation. Crevicular syndesmotomy. Despite not having evident radiographic abnormalities in the root

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morphology (for example, dilacerations), the luxation presented more resistance than usual. The extraction was performed with forceps, taking the precaution of making bimanual palpation in bone plates and controlled movements. The second upper right molar was extracted without fracture neither of the maxillary tuberosity nor the plates and attached to the third molar at the level of the root apical third. No oroantral communication or damage to the alveolar mucosa was observed.

Due to the large bone defect and progressive bleeding, it was decided to use hemostatic resorbable gelatin sponge (Gelita-Spon, Gelita Medical GmbH, Eberbach, Germany) at the surgical site. Finally, tissue synthesis with 3-0 silk (Ethicon, Johnson & Johnson, Somerville, New Jersey, EE. UU.) suture was performed to achieve secondary wound closure. The patient was notified of the dental anomaly concrescence between both teeth and prescribed amoxicillin 1000 mg every 12 hours for 7 days, ketoprofen 100 mg every 12 hours and acetaminophen 1000 mg every 8 hours for 4 days. Finally, verbal and written postsurgical indications were done plus an immediate post-surgical picture [Figure 2].

Figure 2: Concrescence of teeth 17-18. A: Buccal view. B: Distal view. C: Palatine view. Soft and hard tissue attached to the crown of the third molar are observed.

A follow-up was performed 7 days, 14 days, and 1 month after the procedure. At the 7th day control, suture removal was performed and a regenerating mucosa without alterations was observed. The patient reported pain in the affected area until day 14 using ketorolac 10 mg as rescue medication. In the overall pain, it was controllable with pain relievers and progressively decreasing. At the first month control, the mucosa was completely regenerated, and no further findings were observed. Currently, the patient remains asymptomatic and with the intention of continuing his entire dental treatment.

Discussion

Concrescence is a rare dental abnormality, according to the few reports, its prevalence is estimated between 0.2 - 3.7% in primary dentition and 0.8% - 1.4% in permanent dentition, without being influenced by ethnic, sex or age features [5-7]. It occurs by cementum union between two teeth, which is a non-uniform mineralized connective tissue of multiple varieties that maintains a progressive growth throughout life [8]. According to some literature, this alteration mainly affects posterior maxillary teeth such as the first, second or third molar.4 Nevertheless, it has also been seen in relation to mandibular supernumeraries or anterior teeth [9,10]. This abnormality should not be misdiagnosed or confused with others, such as fusion or germination, since it corresponds to a different entity and its treatment is often also different. Fusion commonly occurs in the anterior region of the maxilla and is characterized by a union involving enamel and dentin of two teeth. On the other hand,

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germination is more prevalent in the anterior mandibular region and generates a bifid crown and a single root canal. Generally, the clinical diagnosis of concrescence is impossible because it does not affect the crown of the teeth, and it is also difficult to identify by means of a two-dimensional radiograph due to the overlapping of structures [10,11]. This would explain the reason why the reports are made after the extraction. The alternatives of treatment vary between surgical, endodontic, or orthodontic options. Foran et al., reported a case of endodontic treatment in teeth with concrescence, where an altered morphology of the roots canal was observed [12].

Various imaging techniques have been used for its analysis, mainly conventional methods such as panoramic or periapical retroalveolar radiographs; as well as three-dimensional techniques such as cone-beam computed tomography (CBCT) [13]. The latter technique can be crucial in case we intend to maintain a tooth affected by concrescence, for example, in complex root canals or extractions where osteotomy and/or tooth sectioning is needed [14]. The extraction of these teeth can be quite invasive and complex due to the large intraosseous volume. In front of a great resistance in the procedure, differential diagnoses such as ankylosis or hypercementosis, should always be considered [15]. In the present case, the embedded third molar was located in the maxillary tuberosity and presented a horizontal distoversion with a thin alveolar bone surrounding the crown. These factors, added to a strong union between the cemental tissues of both teeth, may cause complications such as fracture of the alveolar plates and tuberosity, hemorrhage from a highly vascularized area, or oroantral communication. These are the reason why the radiographic examination prior to the procedure, the informed consent of the patient and a calm and meticulous surgical technique are essential [16].

Conclusion

Consideration should be given to the possible occurrence of concrescence in certain clinical or radiological signs, such as abnormalities of eruption/position of a tooth or radiographic overlap between two dental roots without periodontal space between them. When the extraction of both teeth is indicated, it is strongly suggested to perform it under previous informed consent of the patient, with enough time and in the hands of a professional with some previous surgical experience. Finally, it is important to emphasize that the knowledge of these abnormalities by the professional, is essential to achieve the best results in our patients.

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