Case Report

A Concrescence between Second and Third Molars

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Abstract

Background: Concrescence is a rare dental anomaly in which juxtaposed teeth are united in the cementum but not in the dentin. The incidence of Concrescence teeth is reported to be highest in the posterior maxilla. It often involves a second molar with roots in near proximity to those of a third molar. It is more common on maxillary third and second molars and may be inadvertently diagnosed during a tooth extraction. Although the exact etiology of concrescence has not yet been explained, it is usually suspected that space restriction during development, local trauma, excessive occlusal force or local infection after development play an important role. Unexpected complications arising from the concrescence may lead to legal issues.

Case Report: Extracting right maxillary second molar in a 33-year-old female patient with a chief complaint of toothache in a right maxillary second molar. It became evident that the second and third molars were attached between the roots. So both teeth were extracted traumatically and healing was uneventful.

Conclusion: In fact, concrescence is not common anomaly, so the clinician should always consider it, especially in the case of maxillary molars, and the patient should be informed about its complications. A small fused area may be separated during the extraction. But a broader connected area (like in this case) may lead to the extraction of both involved teeth.

Keywords: Dental, Anomaly, Concrescence, Germination, Fusion

Introduction

Dental anomalies usually include changes in size, shape, or number of teeth [1]. More than 500 anomalies with genetic etiology and a similar number with multifactorial etiologies have been identified in orofacial fields [2]. The most important anomalies of shape are fusion, gemination, and concrescence [3]. Concrescence is a rare dental anomaly in which juxtaposed teeth are united in the cementum but not in the dentin. The incidence of Concrescence teeth is reported to be highest in the posterior maxilla. It is more common on maxillary third and second molars and may be inadvertently diagnosed during a tooth extraction [4]. Although the exact etiology of concrescence has not yet been explained, it is usually suspected that space restriction during development of the dental follicle, local trauma, excessive occlusal force or local infection after development play an important role. Unexpected complications arising from the concrescence may lead to legal issues [5].

Case Report

A healthy 33-year-old woman which had visited a general dentist for a toothache in right maxillary second molar was presented to a maxillofacial surgeon with a chief complaint of discomfort in his upper jaw for surgical extracted an impacted third molar beside the sore tooth. No sign, pain, or swelling was present. The patient had a class I occlusion. No periodontal diseases, anomalies, or pathologic lesions were found in clinical and radiographic examinations. Family and medical histories were
inconclusive. Radiographic evaluation showed that second and third molars had separate pulp chambers, with roots in near proximity and connected (by cementums, Figure 1).

![Figure 1](image1)

Figure 1

All other third molars had been extracted before, without any specific complications (Figure 2).

![Figure 2](image2)

Figure 2

The patient did not remember any histories of head and neck trauma. There were 15 maxillary teeth which this number was normal because a third molar had been extracted. Finally a decision to surgical the impacted right maxillary third molar was taken after careful evaluation and informing the patient of the clinical findings and his treatment options.

**Treatment**

Once local anesthesia was performed by infiltration technique, a triangular mucoperiostal flap with a releasing incision on the mesial of second right maxillary molar was prepared to access the area. After removing the surrounding bone and dividing the crown, the remaining tooth structures were tried to be extracted. But there was no movement, so it was assumed that the lack of mobility associated with tooth No. 8 was due to ankylosis, concrescence, or an abnormal root curvature. Therefore, the surrounding bone was removed to the apical level of the second molar. Still, there was no tooth mobility. When directly observing, it was found that there was a complete union between the roots of No. 7 and 8, but there was no evidence of a root/crown or crown/crown junction. Therefore both teeth were extracted (Figure 3).

![Figure 3](image3)

Figure 3
All roots of the maxillary right second and third molar appeared to be bulbous, suggesting hypercementosis. There was no abnormal pathology such as a cyst lining or periapical granuloma upon examining the extraction site. This should be noted that the extracted second molar was excessively carious and according to the radiography it needed root canal therapy but this patient did not dispose to do it, because of the economical reason. The teeth were kept for examination. Serial sections were obtained and examined to determine the odontogenic tissues involved in the union of the affected teeth. Microscopic examination of the ground section further confirmed that both of the teeth were united together by a thick layer of cellular cementum (Figure 4).

**Postoperative Management**

After extracting the teeth, the sockets were curettage to ensure the removal of tissue debris, bony spicules, and to smooth sharp edges of the supporting bone. The extraction site was thoroughly irrigated with normal saline to remove tissue debris or bone pieces. The flap was sutured with a 3/0 silk suture with simple-C technique to approximate the mucoperiosteal tissue overlying the buccal plate to the adjacent palatal gingiva. Firm pressure was applied to the surgical site and cotton gauze was inserted to help maintain hemostasis. For postoperative analgesia, the patient was prescribed in uptake 4 doses of ibuprofen 400 mg per day over a course of five days and 3 doses of amoxicillin 500 mg per day over a course of 7 days. Prophylactic antibiotics were administered because of the complexity of the extraction coupled with the significant size of the extraction site, age of the patient, and poor access to specialty care. The patient was returned to follow up appointments on 7, 14, and 28 days after the surgery.

**Discussion**

Developmental dental anomalies are an important category of dental symptomatology; which their incidence can provide valuable genetic and phylogenic information. This information can assist to grasp a better understanding of various variables between human populations. The size and shape of teeth are usually affected by the genetic factor, although internal and external factors such as trauma, radiation, hormonal changes, or nutritional deficiencies can as well affect the number, shape, or the quality of teeth [6]. Odontogenic anomalies caused by the division or fusion of tooth germ include gemination, fusion, and concrescence [5]. Gemination is a division of tooth germ; which leads to the formation of a tooth with two crowns but usually
with a single root and a root canal. Fusion is the procedure of merging two separate tooth germs by dentine which leads to the formation of one tooth. Gemination and fusion are clinically similar and may be distinguished by counting the number of teeth. Another anomaly is concrescence which its development pattern usually affects a second molar with roots near to roots of an impacted third molar [3]. It is more common on maxillary third and second molars. However, its prevalence is not related to age, gender, and race. This is stated that concrescence occurs during root formation or after the radicular phase of tooth development [7]. The one occurring during root formation is categorized as developmental anomaly, while the other one which occurs after the root formation is known as post inflammatory which might be due to chronic inflammatory responses to non-vital teeth. On radiographs, distinguishing it from superimposed roots may be difficult [3]. Multiple films are taken from different angles, different exposure parameters are used, and there is a substantial amount of cementum deposit. However, even if all three of these conditions exist, it may still be difficult to distinguish actual concrescence from superimposed teeth [7-9]. In this case, the diagnosis of concrescence was considered when the second maxillary molar in the non surgical extracting procedure did not have any mobility. Since concrescence usually involves an unerupted maxillary molar, the practitioner must consider its presence he or she will be able to make the appropriate modifications to his or her surgical technique in order to prevent any undesirable surgical complications. However the concrescence is usually undetectable in radiographs; because teeth are connected only by cementum [8, 9].

Conclusion

Although the concrescence is not common, the clinician should always consider it, especially in the case of maxillary molars; and the patient should be informed about its complications. If the fused area is small, it may be separated during the extraction. But a broader connected area (like what was reported in this study) may lead to the extraction of both involved teeth [9]. The surgical treatment plan for concrescence cases may result in certain complications such as maxillary sinus exposures, fractures of tuberosity or buccal plate, and inadvertent removal of proximal teeth. Therefore, a clinician who is planning to surgically treat the concrescence should be capable of diagnosing its clinical indices and overcoming any occurred complications. Informed consent must be taken from the patient; and the surgery should be carried out with most accuracy [10].

References


