



Concrescence of a Maxillary Second and Third Molar

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ABSTRACT Background: Concrescence is a rare dental anomaly that may be inadvertently diagnosed during a tooth extraction.

Case Description: While extracting a maxillary second and third molar, it became evident that the teeth were attached between the roots. Both teeth were extracted atraumatically and healing was uneventful.

Clinical Implications: Concrescence may increase the likelihood of certain complications to occur during a tooth extraction. Practitioners should consider concrescence prior to surgery when obtaining informed consent from patients.

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A healthy 30-year-old black male presented to the dental department for an oral surgery consultation appointment. The patient's teeth were asymptomatic and he had no history of sensitivity, pain, or swelling in the maxillary left or right posterior quadrants. However, the patient stated he wanted his wisdom teeth removed while he was still in the military.

The intraoral examination revealed that both maxillary third molars were soft tissue impacted. The maxillary second molars were nonfunctional and hypererupted due to the absence of teeth Nos. 17, 18, 31, and 32 (FIGURE 1). There were no clinical or radiographic indicators of caries, periodontal disease, anomalies, or pathologic processes associated with the dentition. After informing the patient of

the clinical findings and his treatment options, he elected to schedule teeth Nos. 1, 2, 15, and 16 for dental extractions.

Treatment

At a follow-up appointment, the patient presented to the clinic for the extraction of his maxillary second and third molars. After achieving anesthesia, an incision was made along the buccal alveolar crest extending from the distal of No. 3 to the mesiobuccal aspect of the maxillary tuberosity. A full thickness mucoperiosteal flap was reflected to expose the crown of No. 1.

A purchase point was located and the tooth was elevated repeatedly, but there was no movement. A small amount of bone was removed along the buccal aspect of No. 1 to create a better purchase point for elevation and to expose more of



FIGURE 1. Preoperative panoramic film taken on March 6, 2008.



FIGURE 2. Coronal view showing the absence of crown involvement in the union of teeth Nos. 1 and 2.



FIGURE 3. Palatal view of the cemental union between teeth Nos. 1 and 2.

the clinical crown in order to engage the maxillary forceps. Still, there was no tooth mobility upon elevating and luxating with the forceps. It was assumed that the lack of mobility associated with tooth No. 1 was due to either ankylosis, concrescence, or an abnormal root curvature. Therefore, tooth No. 2 was elected to be extracted first in order to gain better access and visibility at the third molar site.

Upon releasing the attached gingiva circumferentially, tooth No. 2 was elevated from the mesiobuccal aspect. Within minutes, there was a moderate amount of mobility associated with the tooth, but there was still an abnormal amount of resistance. After elevating repeatedly without coming any closer to extracting the tooth, maxillary forceps were engaged around the crown of tooth No. 2. After luxating the maxillary second molar for several minutes, it was extracted along with the maxillary third molar. There was a complete union between the roots of No. 1 and 2, but there was no evidence of a root/crown or crown/crown junction (**FIGURES 2 AND 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 cystic lining or periapical granuloma upon examining the extraction site. Besides removing a small portion of buccal bone adjacent to tooth No. 1, all of the supporting bone at the extraction site was intact and uncompromised. There was no sinus communication and the maxillary tuberosity was intact. Bleeding was well-controlled and only a small tissue tear located posterior to the extraction site of tooth No. 1 resulted from the extraction.

Postoperative Management

After extracting the teeth, a curette and bone file was used to ensure the removal of tissue debris, bony spicules, and to smooth sharp edges of the supporting bone. The extraction site and subperiosteum was irrigated with normal saline due to the large surface area of exposed bone and potential for debris to become trapped in underlying soft tissue. Two interrupted 3.0 chromic sutures were required 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. Because teeth Nos. 15 and 16 were asymptomatic and the potential for concrescence existed, no treatment was rendered on the left side.

For postoperative analgesia, the patient was prescribed ibuprofen (800 mg) and acetaminophen (325 mg) to be taken over a course of five days. The patient was also prescribed penicillin VK (500 mg) to be taken over a course of seven 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 returned for follow-up appointments on postoperative days 2, 7, 14, and 28. The patient had no postoperative sequelae and the surgical site healed within normal limits.

Discussion

The classification of odontogenic anomalies resulting from the division or union of tooth germs includes gemina-

tion, fusion, and concrescence. Gemination is best described as an attempt of the tooth bud to divide.¹ The result is two completely or incompletely separated crowns originating from a single root and root canal.² Depending upon the degree of crown separation, this anomaly may give the impression that there is an extra tooth in the mouth and it is most often seen in the anterior dentition.^{2,3} Fusion is a condition in which two separate tooth buds have a joined crown of normal size, enlarged size or a bifid shape.^{1,2}

When counted, the number of teeth is reduced by one and it is most often seen in the deciduous dentition.^{1,2} Although its etiology is unknown, trauma, hereditary patterns, or pressure-induced contact between developing teeth may be possible causes.² Concrescence is a rare dental anomaly that can be best defined as the union of adjacent teeth involving only the cementum.¹⁻⁷

In order for concrescence to occur, the roots of the affected teeth must be in close proximity to each other, and an excess layer of cementum must be deposited to form the union between the roots of the adjacent teeth.^{2,5-7} Concrescence typically affects maxillary molars, especially maxillary second and third molars, but its prevalence is not influenced by age, gender, or race.^{1,3,4,6,7}

Concrescence is believed to occur during root formation or after the radicular phase of development is complete.^{1,2,6,7} If concrescence occurs during root formation, it is categorized as developmental and attributed to the close proximity of the developing

roots of the adjacent teeth.³ If concrescence occurs after root formation, it is categorized as postinflammatory and it may result from a chronic inflammatory response to a nonvital tooth.³

It is often very difficult to identify concrescence using radiographs or any other diagnostic tool. Since the teeth are joined by cementum only, concrescence will usually appear normal on a radiograph (FIGURE 1).

Concrescence may be identified on a radiograph if any or all of the following conditions are met: multiple films are taken from different angles, different exposure parameters are used, and there is a substantial amount of cementum deposition.^{1,2,6,7} However, even if all three of these conditions exist, it may still be difficult to distinguish actual concrescence from superimposed teeth.^{1,2,6,7}

Unfortunately, the diagnosis of concrescence is typically made inadvertently while extracting a tooth. In this case, the diagnosis of concrescence was considered when the elevation and luxation of tooth No. 1 did not result in any mobility. Since concrescence usually involves an unerupted maxillary molar, the practitioner must consider its presence when extracting an impacted tooth in the posterior maxilla.^{1,3,4,6,7} Concrescence should also be considered when the roots of one tooth appear inseparable radiographically from those of another, even with the help of multiple angulations.⁷ If a provider suspects a tooth planned for an extraction is concrescent, 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.

Conclusion

Even though it is very uncommon, patients need to know that concrescence does exist, especially in the case of maxillary molars. This is very important

because certain treatment complications may be more likely to result if an extraction is performed on a concrescent tooth. Oral surgery complications, including the inadvertent removal of an adjacent tooth, maxillary sinus exposures, tuberosity fractures, and buccal plate fractures, have all been documented in the literature when concrescence was detected at the surgical site.^{2,4,6,7} These reported complications healed unremarkably and it is likely that sinus communications and alveolar fractures were discussed at the oral

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surgery consultation appointment as possible risks associated with the procedure.

However, because concrescence is relatively uncommon and difficult to diagnose preoperatively, it is probably not addressed at most oral surgery consultation appointments nor mentioned in the oral surgery consent forms. Most patients are probably unaware that an additional tooth will likely need to be extracted if it is attached to the adjacent tooth. According to Mader, if the cemental union between the teeth is not too large or too strong, this union may fracture during the extraction of one of the teeth and produce no problems.⁷

However, if a more solid attachment exists between the teeth as in this case, the

cemental union will not fracture during the extraction and both teeth will have to be removed. The need to extract an additional tooth may be confusing and frustrating for patients, especially if the patient was informed midway through the procedure instead of at the oral surgery consultation appointment. Therefore, dentists performing oral surgery must be able to recognize the clinical indicators of concrescence so they can obtain informed consent and provide the highest level of care. ■■■■

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