

A Finding of Concrescence of Upper Molars after a History of Maxillofacial Trauma

Annie Addo-Yobo^{1*}, Owen Jermyn¹ and Emma Quartey²

¹*Oral and Maxillofacial Surgery, Royal London Hospital, United Kingdom*

²*Oral Surgery, Royal London Hospital, United Kingdom*

***Corresponding Author:** Annie Addo-Yobo, Oral and Maxillofacial Surgery, Royal London Hospital, United Kingdom.

Received: March 06, 2019; **Published:** April 29, 2019

Abstract

Concrescence is defined as the fusion of teeth at the cementum only. It is relatively uncommon and can affect both primary and permanent teeth. Most frequently, it involves the maxillary molars, and is most widely reported affecting the maxillary third molar and a supernumerary tooth. The aetiology of concrescence is unknown but it is thought that space restriction, local infection and trauma may all be contributing factors.

This case report will present a case of concrescence of the maxillary molars after a history of childhood trauma to the maxilla.

Keywords: *Concrescence; Twinning; Fusion; Trauma; Delayed Eruption; Failure of Eruption*

Abbreviation

CT: Computerised Tomography

Introduction

Concrescence is a rare developmental anomaly. The aetiology is unknown but it is thought that space restriction, local infection and trauma may all be contributing factors. This case report will present a case of concrescence of the maxillary molars after a history of childhood trauma including fracture of the maxilla.

Case Presentation

A 12-year old male patient was referred to our oral surgery clinic from his orthodontist for removal of an unerupted upper left second permanent molar. The tooth in question had an abnormal appearance on a dental panoramic radiograph and the aim of this treatment plan was to facilitate orthodontic alignment. Medical history revealed that he had no relevant health problems but did have a history of maxillofacial trauma. At the age of five, the patient was a pedestrian involved in a road traffic collision. He suffered significant craniofacial injuries including fractures of the left orbital bones and a complex fracture of the left maxillary antrum involving lateral medial and anterior walls with fracture lines extending into the alveolar process of the maxilla (Figure 1). The patient underwent open reduction and internal fixation with titanium plates of the maxillary and orbital fractures and was followed up by the maxillofacial surgeons for one year. As he entered the permanent dentition, primary failure of eruption of the upper left second permanent molar and a Class II relationship was noted. There was a normal appearance of the upper left first permanent molar.

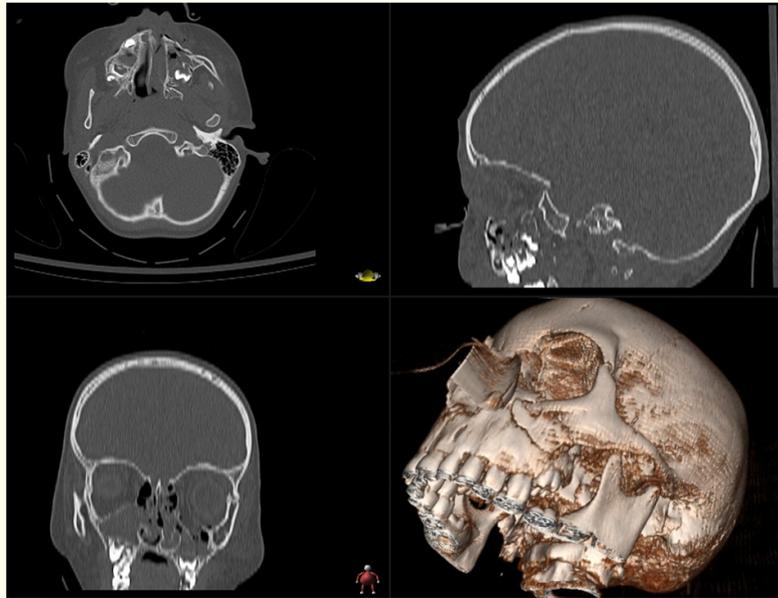


Figure 1: *Caption: Axial, sagittal, coronal and three-dimensional views of the CT scan taken post trauma.
Location: To be placed in the case presentation section.*

After referral to the oral surgery department, a cone-beam CT scan was taken (Figure 2). The radiographic report showed fusion of the upper left first and second molar roots. Additionally, the upper left second molar was malformed, with the crown communicating abnormally with the follicle of the developing upper left third molar, showing that all three upper left molars were communicating. Any extraction would therefore be difficult and involve removal of all three upper left molar teeth. The patient was reviewed in the orthodontic-oral surgery joint clinic where it was decided that he could be treated orthodontically on a non-extraction basis, with no movement of the upper left first permanent molar.

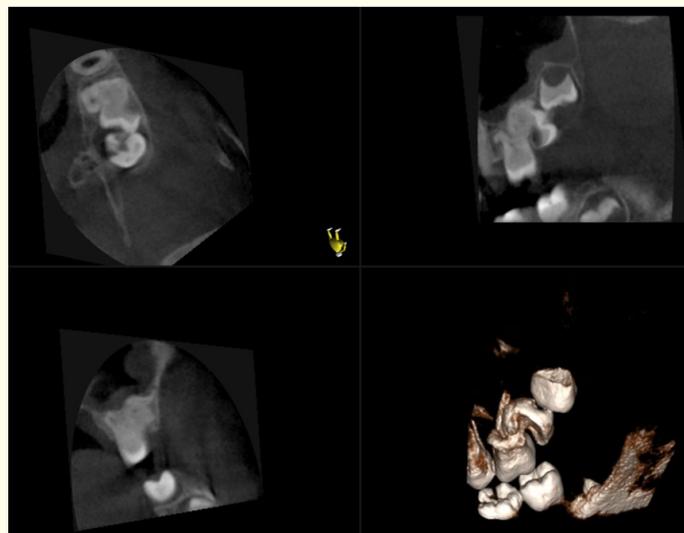


Figure 2: *Caption: Axial, sagittal, coronal and three-dimensional views of a cone-beam CT scan of the maxilla taken showing the abnormal relationship of the upper left first, second and third molars.
Location: to be placed at the end of the case presentation section.*

Discussion

Twinning anomalies of teeth are a well-known cause of abnormal morphology. Fusion, gemination, double teeth and concrescence are all terms used to describe the various ways in which teeth can combine with others. Fusion occurs when two tooth buds join together, combining dentine and enamel at the crown. The teeth may have separate root canal systems. On examination, it may appear as though a tooth is missing. In contrast, gemination occurs when one tooth bud splits to form two teeth. Similarly, to fusion, the teeth are joined at by the enamel and dentine. However, the two teeth often share on root canal system and clinically; it appears that the patient has an extra tooth. The term concrescence describes fusion of teeth at the level of the cementum only without involvement of the dentine [1]. It most frequently occurs in the posterior maxilla and can involve teeth of normal or abnormal morphology. There have not yet been any reported cases of age, race or gender predisposing patients to concrescence. The teeth involved often appear clinically normal if present, although some involved teeth may erupt only partially or fail to erupt at all. Fusion of the cementum may occur after completion of root formation of during the radicular phase of tooth development [2] and so overlapping roots are often present on plain radiographs.

The exact aetiology of concrescence is unknown, but local trauma, infection and space restriction have all been proposed as possible causes as these factors may lead to resorption of interdental bone and fusion of roots at the cementum [2]. In this particular case, there is a known history of trauma to the maxilla at the age of five. In figure 1, it is clear to see the extent of the fracture line in the left maxilla, showing it passing adjacent to the completed crown of the upper left first molar and the developing germ of the upper left second molar. Fixation was achieved with titanium screws and miniplates placed on the alveolar process of left maxilla with further plating more superiorly. By this age, the crown of the upper first permanent molar is complete in its development, but root development and cementogenesis is on-going. The upper left second molar is still undergoing crown development, and initial calcification of the upper left third molar has not yet begun [3]. It is therefore conceivable that the trauma in itself may have disrupted the development of the upper left molar teeth, causing the cementum to fuse between the upper left first and second permanent molars and the abnormal relationship of the crown of the upper left second molar to the follicle of the upper left third molar. Additionally, space restriction is likely to have occurred due to the internal fixation, meaning the developing teeth were abnormally closely positioned and therefore leading to concrescence.

The patient was followed up by the oral and maxillofacial surgery department for one year after surgery and was warned that there may be abnormalities of the developing teeth as a result of surgery. It would have been beneficial to warn specifically of failure of eruption and reiterate the importance of regular dental reviews. Concrescent teeth normally require no treatment unless they are symptomatic or causing great aesthetic concerns, but appropriate diagnosis is important for treatment planning. Where teeth are symptomatic, extraction and endodontics are viable options. Due to the separate pulp canals; there are cases of successful endodontic treatment of erupted concrescent teeth [4]. When an extraction is undertaken on a concrescent tooth that has not been diagnosed, the treatment complications include inadvertent removal of the tooth it was fused to, difficult surgical extraction, damage to adjacent structures such as the maxillary tuberosity and perforation to the floor of the maxillary sinus [5]. It is sometimes only then that teeth are identified as concrescent. To prevent these adverse outcomes, it is important that clinicians are aware of the characteristics of concrescence.

Conclusion

Concrescence of teeth is often not diagnosed until during a difficult extraction, and this can be distressing for both the patient and the clinician. To ensure adequate planning and preparation; when overlapping roots are indistinguishable in radiographs, it would be advisable to take a second radiograph at a different angle to confirm that the teeth are separate and not fused. Where there is paediatric trauma to the jaws, patients and their family must be warned of dental abnormalities including abnormal appearance and failure of eruption.

Acknowledgements

We would like to thank the orthodontic and dental radiology departments at Royal London Dental Hospital for their advice in the diagnosis and treatment of this patient.

Conflict of Interests

There were no conflicts of interests, financial or otherwise, in the reporting of this case.

Bibliography

1. Killan CM and Kroll TP. "Dental twinning anomalies: The nomenclature enigma". *Quintessence International* 21.7 (1990): 571-576.
2. Shafer WG., *et al.* "Textbook of oral pathology, Fourth Edition". Philadelphia: Saunders (1983): 38-40.
3. Ash M and Nelson S. "Wheeler's dental anatomy, physiology and occlusion". Philadelphia: Saunders (2003): 32, 45, 53.
4. Foran D., *et al.* "Concrescence of permanent maxillary second and third molars: case report of non-surgical root canal treatment". *Journal of Oral Science* 54.1 (2012): 133-136.
5. Romito L. "Concrescence: Report of a rare case". *Oral Surgery Oral Medicine Oral Pathology Oral Radiology* 97.3 (2004): 325-327.

Volume 18 Issue 5 May 2019

©All rights reserved by Annie Addo-Yobo., *et al.*