CLINICAL CASES

Dent. Med. Probl. 2016, 53, 2, 291–295
DOI: 10.17219/dmp/61348

© Copyright by Wrocław Medical University and Polish Dental Society
ISSN 1644-387X

EWELINA GOLUSIŃSKA-KARDACH^{A–F}, MALINA SOBIESZCZYK^{A–F}, JERZY SOKALSKI^{A–F}

A Rare Case of Concrecence of Impacted Maxillary Molars

Rzadki przypadek wystąpienia zrośniętych zatrzymanych zębów trzonowych w szczęcie

Department of Dental Surgery, Poznań University of Medical Sciences, Poznań, Poland

A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation; D – writing the article; E – critical revision of the article; F – final approval of article

Abstract

Concrecence of teeth represents a rare developmental anomaly of tooth formation in which correctly formed teeth are joined solely via the cementum overlying the roots. In most cases, concrecence occurs in the posterior part of the maxilla and affects molars. A correct diagnosis based on radiological imaging poses difficulties for clinicians. Subsequently, the lack of a correct diagnosis may cause multiple complications such as the formation of an oroantral fistula or palatine tuberosity splintering.

The patient, female, age 32, came to a dental surgery clinic for a planned extraction of a partially impacted tooth 17 that had caused a palatal abscess and considerable pain. During the surgical procedure it was discovered that the problem tooth (17) was completely joined with impacted tooth 18.

Because of the rare occurrence of both anomalies simultaneously, the authors present a case of concrecent impacted teeth in the lateral segment of the maxilla. The aim of this paper is to make dentists aware of the possibility of encountering this unusual anomaly (**Dent. Med. Probl. 2016, 53, 2, 291–295**).

Key words: impacted teeth, concrecent teeth, lateral segment of the maxilla.

Słowa kluczowe: zęby zrośnięte, zęby zatrzymane, boczny odcinek szczęki.

Many structural and functional anomalies of tissues and organs are observed in the human body. Each of them inspires scientists to carry out research and discuss their findings. This paper focuses on diagnostic and treatment difficulties in concrecent and impacted maxillary molars.

There are varying kinds of developmental dental anomalies. They may affect the shape, number or structure of the teeth. One very interesting anomaly group is the odontogenic conjoining of neighboring teeth also known as twinning defects. They are divided into concrecent teeth, fused teeth and geminated teeth [1]. Some of the etio-pathogenetic factors that cause those defects are genetic mutations, infectious diseases, avitaminosis, mechanical injuries and specific and non-specific infections [1, 2]. The formation of twinning defects is linked to anomalies in the division or

fusion of tooth germs in different developmental phases of odontogenesis [3]. Geminated teeth are a developmental defect connected with the partial division or split of the tooth germ in an early stage of proliferation. The result is a tooth with a wide crown with a sulcus on the labial surface. Radiological imaging shows a common pulp chamber. This anomaly most commonly affects central incisors and wisdom teeth [1, 3, 4]. A different twinning defect is called fused teeth. This is caused by the fusing of two or more tooth germs by dentin and enamel. Radiological imaging shows separate or joined chambers depending on whether the fusion is partial or complete [1]. The most commonly occurring twinning defect is known as concrecence [3]. In this anomaly, the roots of two neighboring teeth are fused together by cementum and the crowns develop separately with an indi-

vidual root system. The most common cause for this anomaly is the deterioration of the interdental septum between the two germs, which in turn causes their misplacement and crowding [3, 5, 6]. This defect most commonly affects wisdom teeth and the second molar and is difficult to both diagnose and treat. Additionally, concrescent teeth may also be partially or completely impacted, which may hinder the eruption of neighboring teeth and cause occlusal anomalies. Concrecent teeth may also lead to an inadvertent extraction of a neighboring tooth [7].

An impacted tooth is a tooth that has remained in the bone tissue after the period of physiological eruption. Impaction is divided into two types – complete and partial. The completely impacted tooth is fully surrounded by bone and the partially impacted one has a crown outside of the bone but it is covered with gingiva [8]. Because the simultaneous occurrence of both anomalies is so rare, the authors are presenting a case of concrescent impacted teeth in the lateral segment of the maxilla.

Case Report

A 32-year-old female patient came to the clinic run by the Chair of Dental Surgery in Poznań University of Medical Sciences. In her history, she reported that two weeks prior a palatal abscess had appeared near the first maxillary molar on the right side (tooth 16). The symptomatic treatment initiated by the attending doctor consisted of opening and draining the abscess. Subsequently, the patient was referred to the above-mentioned clinic to undergo radiological imaging and specialized surgical treatment. On the day of admittance, in her interview, the patient did not indicate any systemic diseases or pharmaceutical treatments. External examination showed no deviation from the norm. The intraoral clinical examination showed swollen and reddened mucosa and the presence of a pathologic pocket behind tooth 16. Partial impaction of tooth 16 and the lack of the second and third maxillary molar on the right side were also diagnosed. On palpation, the area was diagnosed to be painful. A pulp vitality test was also carried out with the use of ethyl chloride. Tooth reaction was normal. The patient was later referred to the radiology room for an orthopantomogram (OPG). The OPG showed the impaction of the second and third maxillary molars (teeth 17 and 18) on the right side (Figs. 1–2).

Based on the clinical and additional tests, it was diagnosed that the above-mentioned symptoms were caused by the impeded eruption of

Fig. 1. A fragment of an orthopantomographic picture showing the concrescent molars

Fig. 2. Palatal view of concrescent right maxillary second and third molar post-extraction

tooth 17. The treatment plan included a surgical extraction of the impacted tooth 17.

Under local anesthesia, 4% Ubistesin 3.4 ml, one incision was made on the alveolar ridge and the second (unburdening) incision was made near tooth 16. After dissecting the mucoperiosteal flap, the maxillary tuberosity closest to tooth 17 was made visible. An osteotomy of the alveolar process was performed and the crown of the tooth made visible. Due to difficulties in dislocating tooth 17, the bone of the alveolar process was gradually cut to make the crown of tooth 18 visible. The concrescence of teeth 17 and 18 was observed. Using Bein's elevator, the concrescent teeth were extracted. Oroantral fistula was not observed (Figs. 2–4).

The wound was dressed with 4 single knot Dafilon 4.0 sutures. The patient was given post-

Fig. 3. Apical view of concrescent right maxillary second and third molar post-extraction

Fig. 4. Buccal view of concrescent right maxillary second and third molar post-extraction

operative instructions and prescribed the antibiotic Clinadamycin 0.6 g two times a day for 7 days. Post-operatively, it was without complications. The sutures were removed after 1 week. The concrescent teeth were kept to be further diagnosed.

Discussion

The frequency of occurrence of concrescent teeth in permanent dentition is at 0.1% and is a rarely occurring anomaly. In primary dentition, however, it is much more common and is at 0.5% [2]. According to Mlosek [9], most concrescent teeth occur in the lateral segment of the maxilla and usually affect only two teeth. A similar point of view is expressed by other authors [5, 10, 11], who claim that the anomaly mostly affects maxillary molars. Those teeth can be erupted or partially or completely impacted.

As the exact etiology of the concrescence has never been fully explained, scientists keep exploring this matter. According to Thoma and Goldman [12], concrescence occurs later in life than fusing or geminating. It is observed only after the roots have been fully developed. Some authors [10, 13, 14] are searching for a reason in the crowding and injuries to teeth in their development phase, as this is when resorption of bone in interdental spaces may occur along with anterograde buildup of cementum which leads to the fusion

of roots. According to Khedgikar and Khedgikar [14], the cause for this anomaly could be found in excessive occlusal forces and local infections. Liśniewska-Machorowska [15] adds genetic predispositions, ionizing radiation, infectious diseases or allergies to the list. A predilection towards the race, age or sex of the patients who have the anomaly has never been observed in professional literature [10].

The etiology of tooth impaction has been much more extensively explored. Systemic factors include a history of rickets, hormonal imbalance or hereditary predisposition. Local factors include the underdevelopment of maxillary bones, lack of space in the arch, and premature removal of primary teeth as well as bone inflammation, cysts and prior injuries [8].

Impacted teeth may cause odontogenic peri-maxillary inflammation as well as chronic and recurring pain. Quite often, impacted teeth do not cause any pain or any other disturbances in the stomatognathic system, and they are discovered by accident on an X-ray done for other purposes [16]. Such teeth do not require surgical intervention. In the case described in this paper, the concrescent impacted teeth caused an abscess and a chronic inflammation of the soft tissue around tooth 16.

Clinically, concrescent teeth are almost impossible to diagnose due to the lack of enamel engagement in the fusion process. Even after complete eruption, they present correctly. Badjate and Cariappa [17] point to the possibility of concrescence that may complicate endodontic, orthodontic, prosthetic and surgical treatment. Partial diagnosis and not informing the patient about this anomaly prior to a surgical procedure may even have legal repercussions [17]. The presence of an impacted tooth on an orthopantomographic image alone, does not, in many cases, cause suspicion of concrescence with the neighboring tooth [10]. However, a thickening of the roots around the teeth combined with a lack of visible periodontal space may indicate the presence of such anomaly. Whaites underlines that, based solely on the dental X-ray, it is impossible to verify if the concrescent teeth are joined only by cementum [7, 18]. According to Khedgikar and Khedgikar [14], if this anomaly is suspected, several photos in different projections should be made. In an unclear situation, Ferreira advises to resort to computer tomography with 3D imaging to supplement the basic radiological diagnosis (Figs. 5–7). This will make possible a more precise planning of the procedure, which in turn minimizes the risk of complications such as palatine tuberosity fracture or development of an oro-antral fistula. Additionally, the test results will be proof for the patient, who may think that removing two teeth was unsubstantiated [5, 7, 19]. Un-

Fig. 5. CBCT of concrescent teeth 17 and 18

Fig. 6. Cross section of root system of concrescent teeth 17 and 18. Lack of connection by canal system and dentin is visible.

fortunately, most of the time, concrescence is first diagnosed during the extraction procedure which is quite often problematic and frustrating both for the patient and the doctor.

Fig. 7. 3D visualization of concrescent teeth 17 and 18 from computer tomography (apical view)

Conclusion

When planning an extraction of impacted teeth, clinicians should be aware of the dental anomaly which is concrescence. Conventional radiological imaging is usually insufficient to diagnose this anomaly. In a case of impacted maxillary molars, it is advised to perform an additional CBCT exam to precisely define the location of the teeth. This exam will make it possible to plan and evaluate problems that may occur during the procedure and to visually present to the patient the necessity of removing both teeth at once in case of their concrescence.

References

- [1] JAŃCZUK Z.: Stomatologia zachowawcza zarys kliniczny. PZWL, Warszawa, 2008, 100–101.
- [2] JANAS A., STELMACH R., OSICA P.: Bilateral fused teeth in jaw in patient with Down syndrome. TPS, 2015, 4, 39–41 [in Polish].
- [3] MOHAN B.: Hypercementosis and concrescence of maxillary second molar with third molar: a case report and review of literature. Oral Health Dent. Manag. 2014, 13, 558–561.
- [4] AJITH S.D., SHETTY S., HUSSAIN H., NAGARAJ T., SRINATH M.: Management of multiple impacted teeth: A case report and review. J. Int. Oral Health 2014, 6, 93–98.
- [5] STRECHA J., JURKOVIC R., SIEBERT T.: Fusion of the second maxillary molar with the impacted third molar. Bratisl. Lek. Listy 2012, 113, 569–571.
- [6] SZYSZKOWSKA A., HAMWI R.: Selected dental abnormalities. Dual teeth: fused teeth, concrescent teeth, twin teeth. Supernumerary teeth. Poradnik Stomatol. 2010, 10, 226–231 [in Polish].
- [7] KACZKOWSKI H., PAWLAK W.: Report of concrescent teeth in the posteriori maxilla. Dent. Med. Probl. 2005, 42, 671–675 [in Polish].
- [8] SANTOSH P.: Impacted mandibular third molars: review of literature and a proposal of a combined clinical and radiological classification. Ann. Med. Health Sci. Res. 2015, 5, 229–234.
- [9] MLOSEK K.: Radiologia stomatologiczna i szczękowo-twarzowa. Meddent-press, Warszawa, 1995, 85–116.
- [10] ROMITO L.: Concrescence: report of a rare case. Oral Surg. Oral Med. Oral Pathol. Oral Radiol Endod. 2004, 97, 325–327.
- [11] KHANNA S., SANDHU S., BANSAL H., KHANNA V.: Concrescence – a report of two cases. Int. J. Dent. Clin. 2011, 3, 75–76.
- [12] THOMA K., GOLDMAN H.: Oral pathology. C.V. Mosby Company. St. Louis, 1960, 5th ed., 81–85.
- [13] BELLAPU V., NAGARAKANTI S.: Concrescence of erupted second molar and impacted third molar: A rare case report. IJDS, 2009, 8, 2.

- [14] KHEDGIKAR J.S., KHEDGIKAR S.B.: Concrescence of maxillary first and second molar: a case report. *J. Res. Med. Den. Sci.* 2015, 2, 1.
- [15] LIŚNIEWSKA-MACHOROWSKA B.: *Ortopedia szczękowa. Zasady i praktyka.* PZWL, Warszawa 1983, 129–139.
- [16] RAHNAMA M., SZCZERBA J., PUŁAWSKA M.: Rare cases of incidence of retained retromolar teeth. *Magazyn Stomatol.* 2012, 22. Date of access: 20.11.2015 [in Polish].
- [17] BADJATE S.J., CARIAPPA K.M.: Concrescence: report of rare complication. *NY State Dent. J.* 2008, 74, 56–57.
- [18] GRENHOFER K.J.: Concrescence of maxillary second and third molar. *J. Calif. Dent. Assoc.* 2009, 37, 479–481.
- [19] DOJS M., ROICKA A.: The usefulness of pantomographic X-ray pictures in estimating the position of the paramolar and distomolar teeth. *Ann. Acad. Med. Stetin.* 2007, 53, 83–85 [in Polish].

Address for correspondence:

Ewelina Golusińska-Kardach
Department of Dental Surgery
Poznan University of Medical Science
Bukowska 70
60-812 Poznań
Poland
E-mail: e.golusinska@interia.pl

Conflict of Interest: None declared

Received: 02.12.2015

Revised: 21.12.2015

Accepted: 11.01.2016