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 concrescent 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 concrescent teeth, fused teeth and geminated teeth [1]. Some of the etiopathogenetic 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 concrescence [3]. In this anomaly, the roots of two neighboring teeth are fused together by cementum and the crowns develop separately with an indi-

---

**A Rare Case of Concrescence of Impacted Maxillary Molars**

Rzadki przypadek wystąpienia zrośniętych zatrzymanych zębów trzonowych w szczęce

Department of Dental Surgery, Poznan 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**

Concrescence 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, concrescence 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 concrescent 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, concrescent 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 concrescent 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 concrescent teeth, fused teeth and geminated teeth [1]. Some of the etiopathogenetic 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 concrescence [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 interden-
tal 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 di-
agnose and treat. Additionally, concrescent teeth may also be partially or completely impacted,
which may hinder the eruption of neighboring teeth and cause occlusal anomalies. Concrescent
teeth may also lead to an inadvertent extraction of a neighboring tooth [7].

An impacted tooth is a tooth that has re-
mained in the bone tissue after the period of phys-
iological eruption. Impaction is divided into two
types – complete and partial. The completely im-
 pacted 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 con-
crescent 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 treat-
ment initiated by the attending doctor consisted
of opening and draining the abscess. Subsequent-
ly, the patient was referred to the above-mentioned
clinic to undergo radiological imaging and spe-
cialized surgical treatment. On the day of admit-
tance, in her interview, the patient did not indicate
any systemic diseases or pharmaceutical treat-
ments. External examination showed no devia-
tion from the norm. The intraoral clinical exami-
nation 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 orthopanto-
mogram (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 symp-
toms were caused by the impeded eruption of
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 con-
crescence of teeth 17 and 18 was observed. Using
Bein’s elevator, the concrescent teeth were extract-
ed. 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-
operative instructions and prescribed the antibiotic Clinadamyacin 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 [5, 10, 11, 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 perimaxillary 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. Post-operatively, it was without complications. The sutures were removed after 1 week. The concrescent teeth were kept to be further diagnosed.

...
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**

Concrescence of Impacted Maxillary Molars


Address for correspondence:
Ewelina Golusinska-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