

A RARE CASE OF NON-SYNDROMIC MANDIBULAR CONCRESCENCE OF THIRD AND FOURTH SUPRANUMERARY IMPACTED MOLARS

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Abstract

Concrescence is a dental anomaly of morphology in which two teeth are fused together at the cementum level. We report an exceptionally rare case of an impacted mandibular third molar in concrescence with a supernumerary tooth in a 31-year-old male. The panoramic radiograph showed a radiopaque and tooth-like mass located in the posterior region of the third quadrant. After the surgery it was revealed that the tooth-like structure was a union of the impacted mandibular third molar with a supernumerary fourth molar, creating a dental concrescence. To our knowledge, only two more cases of inversely fusion of a maxillary third molar with a supernumerary tooth have been reported.

Keywords: *supranumerary, concrescence, impacted molars*

INTRODUCTION

Various terms have been used to describe dental twinning anomalies. Gemination, fusion, concrescence, double teeth and syndontia all suggest some kind of abnormality in which one tooth has combined with another or enlarged itself to the point of doubling or nearly doubling its substance.

Supernumerary teeth have been reported in both dentitions, primary and permanent. The prevalence in the permanent dentition is estimated to be in the 0.1% to 3.8% range [1]. Supernumerary teeth are

most commonly located in the premaxillary region, and 92.8% occur in the central incisor [2]. In the mandible, especially among mandibular molars, supernumerary teeth are rare.

Concrescence is a rare anomaly of development in which two fully formed teeth are fused along the root surfaces by cementum with no evidence of periodontal space in between [3]. Maxillary molars are the most frequently involved, especially third molars and a supernumerary tooth [4].

Very few cases have been reported regarding the concrescence of a third molar

and a supernumerary tooth and according to our current knowledge, there are only two more case reports in the literature in which concrescence is observed between a third molar and a supernumerary fourth molar in the mandible [5,6].

Extractions of these teeth may be difficult due to large mesiodistal dimensions and could result in the alveolar bone fracture and tooth fracture or can cause sinus opening, or mandibular ramus fractures. Various conventional two dimensional imaging techniques like periapical, bitewing, occlusal, and panoramic radiographs are commonly used in routine dental practices. Because these two-dimensional imaging techniques could induce challenges in delivering a complete diagnosis oftentimes due to overlapping and superimposition, Cone-Beam Computed Tomography (Cone-Beam CT) was proposed as an alternate and

more detailed method of evaluating such cases [6,7].

CASE REPORT

A 31-year-old male presented to “St. Spiridon” Hospital Iasi, Maxilo-facial Surgery Ambulatory, complaining of repeated pain in the left third molar area. His medical history revealed no important health problems or trauma. From inquiring about the family members history they did not have any dental anomalies as far as the patient knows. Generalized gingivitis and class II molar relationship was detected in intraoral examination.

The right mandibular first molar was extracted 3 years prior due to extensive caries. There were occlusal and approximal cavities in the permanent molar teeth. Panoramic radiograph revealed an impacted third molar and a supernumerary fourth molar in the left mandibular region (Fig. 1).

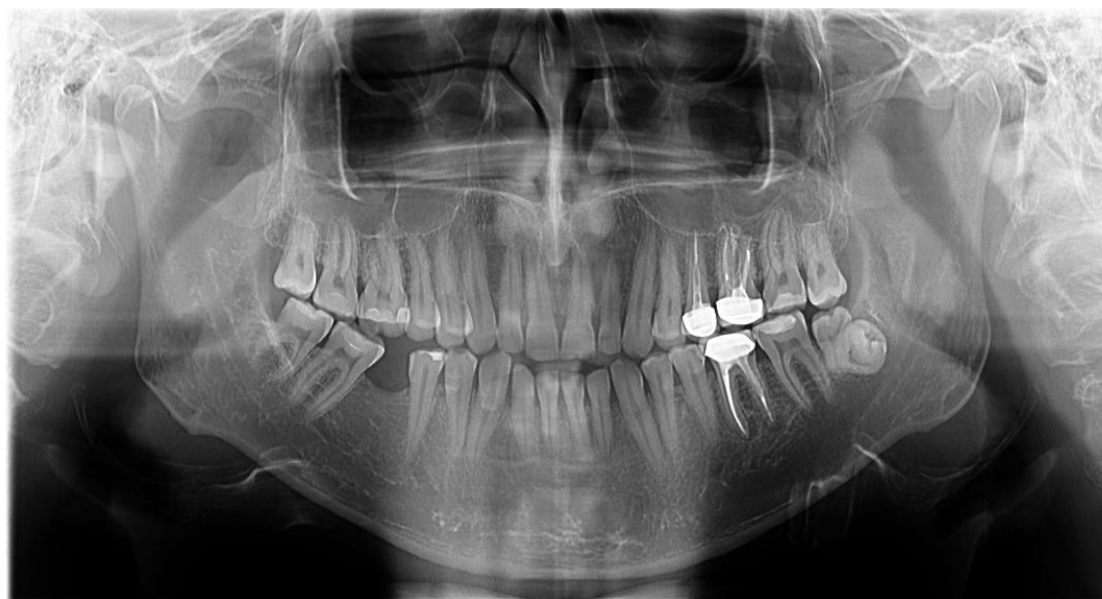


Fig. 1. Panoramic radiograph

The radiological aspect of 3.8 exhibited a possible supernumerary tooth that appeared to be fused with 3.8 at the root

level (Fig. 1). The radiographic impression of concrescence was made.

This anomaly could complicate the extraction procedure because of fusion with the root and the proximity of the tooth to the inferior alveolar canal. The patient was referred for appropriate treatment and was enrolled for removal of the concrescent third molar.

A local one-time block anesthesia in the inferior alveolar nerve, lingual and buccal nerve using a 2% lidocaine hydrochloride (1:200000 epinephrine) anesthetic solution was performed. Terminal infiltration of the buccal and distal region was made with the same anesthetic solution.

The incision began from the mesio-buccal and disto-buccal axial angles of the near tooth and was at 45 degree angle with the gingival margin. The distal incision began from the point of the second molar's distal gingival margin and extended posterior. After performing the flap and exposing the buccal cortical bone, the surgeon removed the necessary amount in order to extract the impacted concrescent teeth, with the help of a low-speed hand-piece with cooling. The postextractional area was sutured with a 3-0 silk thread (Fig. 2, 3, 4).



Fig. 2,3,4: Uncovering, removal and suture during surgery

The stitches were removed 7 days after the surgery. No complications appeared after the intervention.

The teeth were kept for examination and histological analysis (Fig. 5, 6)



Fig. 5, 6: Extracted concrescent molars

DISCUSSION

Abnormalities regarding teeth include morphological changes such as a change in size, shape, and a number of the teeth. Specific nomenclature has been used to describe the results of abnormal events in tooth development which manifest as twinning. According to the stage of tooth development, different degrees of union of cementum, dentine and enamel are possible. The majority of anomalies are genetic with a multifactorial etiology [8].

The most important anomaly associated with a disturbance in number is supernumerary teeth. Supernumerary teeth may occur as either single tooth or multiple teeth; they may be either unilateral or bilateral and in the maxilla or in the mandible [9]. The most important anomalies of shape are gemination, fusion, and concrescence which could simulate dental twinning anomalies [10].

Gemination is described as an attempt of the tooth bud to divide. This partial division is stopped before tooth development is completed. The end result is a single tooth with a bifid crown, and the total number of teeth is normal. Fusion on the other hand is a condition in which two separate tooth buds have a joined crown that resembles a bifid crown. When counted, the number of teeth is reduced by one. In the literature there have been suggested four types of these abnormal teeth [11]:

- concrescent teeth – two teeth fused by coalescence of their cementum,
- fused teeth – teeth joined by dentine in their developmental stage,
- geminated teeth – fusion of a tooth with a supernumerary one,

- dens in dente.

Concrescence is a form of fusion in which the union is in the cementum alone without confluence of the underlying dentine. This anomaly may take place with another serial tooth or with a supernumerary tooth [12]. It may occur during root formation (true concrescence) or after the radicular phase of development is complete (acquired concrescence) [13].

The developmental pattern often involves a second molar tooth in which its roots closely approximate to the adjacent impacted third molar. There are very few cases about the concrescence of a third molar and a supernumerary tooth [14].

There is no influence regarding race, age, gender, primary or permanent dentition. Although it is very difficult to find out the exact etiology for concrescence, local trauma, space restriction during development, supraliminal occlusal force, or local infection after development have been pointed out as possible causative factors.

The union may vary from one small site to a solid cemental mass along the entire extent of approximating root surfaces. Concrescence usually involves the posterior area of the maxilla [15]. However, in our case report, it involved the mandibular left posterior region. In our case as per patient history, concrescence most probably occurred during tooth formation, as there was no trauma recorded in the patient's history.

It is very difficult to detect concrescence clinically. When the condition is suspected on clinical examination, a radiograph is necessary to detect the concrescence. Radiographic examination may not always distinguish between concrescence and teeth that are in close contact or are simply superimposed. Additional radiographic projections at

different angles or even better, a CBCT may be necessary in order to detect the condition more clearly [6]. It is important to detect concrescence because the involved teeth may fail to erupt or may erupt incompletely.

Several approaches are available for the treatment of concrescence and the treatment of choice is determined by the patient's needs of clinical peculiarities [16].

In our case, the surgeon removing the dental anomaly had to carefully analyze the case and perform the surgery by making the appropriate modifications to the surgical technique as the concrescence was in close proximity to the inferior alveolar canal and

the risk for intraoperative accidents was high in order to prevent any undesirable surgical complications.

CONCLUSION

We reported a rare developmental anomaly – concrescence that is exceptionally seen in the mandible. This anomaly may pose serious difficulties to the dental practitioner in correctly establishing a diagnosis and implementing a proper treatment protocol, thus we found it of paramount importance to bring it to the attention of dental specialists.

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