CASE REPORTS

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Maxillary distomolars: case reports, differential diagnosis and literature review

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Abstract

Supernumerary teeth can be found anywhere in the oral cavity, during deciduous or permanent dentition, in males and females. They are rare, owned to various genetic or environmental factors and usually impacted. This article first reports three cases of young adult patients coming to the office for other reasons than their maxillary distomolars and without any pathology caused by them. The decision of keeping or removing these teeth was made based on other associated factors. The fourth case is one of a 40-year-old partially edentulous male patient, also with a good general health and no other associated condition, having a unilateral maxillary fourth molar; it was small, only partially erupted, with a normal morphology with crown and root and an impacted perpendicular position on the distal face of the third molar. It was extracted because of the periodontal and carious complications that it caused to the third molar facing it. The last reported case is a 64-year-old partially edentulous female patient with a maxillary tooth very similar to a distomolar because of its form and position; it was extracted because it interfered with the new removable partial denture treatment plan. The differential diagnosis between a distomolar and an anatomical variant of a third molar was difficult to make even using panoramic X-ray, also because of a very small inferior third molar. In young patients, distomolars are rather accidentally discovered during radiographic examination; later in life, they can cause both pathological issues and difficulties in diagnosis and prosthetic treatment.

Keywords: supernumerary teeth, distomolar, differential diagnosis.

Introduction

Teeth present in addition to the normal dentition on the upper or lower dental arches, more prevalent in males and in permanent dentition, are defined like supernumerary teeth [1–3]. Although they can be found anywhere in the oral cavity, they are more commonly found in the upper jaw [4]. Supernumerary teeth are called distomolars, if they are situated distal to the third molar and paramolars, if they are situated lingually or buccally to a molar. If the supernumerary tooth is located between the maxillary central incisors it is called mesiodens and often its shape is conical, the tooth being small and short, presenting a triangular crown. Another type of supernumerary tooth is parapremolar, which is situated in the premolar region and usually looks like a premolar.

The etiology of supernumerary teeth is not clearly known [5]. They are owned to various genetic or environmental factors and usually impacted; they can appear in case of DNA mutations, in cases associated with cleft of lips or palate or in other cases associated with general diseases like Gardner's syndrome and can be found in both permanent and deciduous dentition. As a morphology, they can be molars, premolars or incisors, conical, tuberculate or supplemental. The supplemental teeth present a morphology resemblance to the normal one.

Distomolars are often conical and they are smaller than the third molar. Distomolars can erupt on the arch or can be impacted. When they erupt, they can in some situations cause a malocclusion. Other complications generated by supernumerary teeth could be the delayed eruption of adjacent teeth, root resorption or decays of adjacent teeth, cyst formation, ectopic eruptions, teeth displacements and esthetic negative changes.

The phylogenetic tendencies in the evolution of the human dentomaxillary system are most often noticeable in third molars. In cases of old edentulous patients, with multiple extractions in the posterior zone of the arches, because of their uncommon dimension, form and position, third molars can sometimes be mistaken for distomolars and the differential diagnosis can be difficult.

Studies on Romanian population are scarce on this subject. A study on 1000 people reported the frequency of third molar microdontia in the studied sample of 2.72%, 95% of the teeth involved being located in the upper jaw [6]. The same study reported a 10.6% of third

molar anodontia cases and a 0.18% of supernumerary teeth cases in the molar area (atavism).

The aim of this article is to highlight the presence of these supernumerary molars in the Romanian population, to evaluate their pathological potential and to review the therapeutic decisions that have to be made in an inter-disciplinary approach, using several illustrative clinical cases.

Case presentations

Case No. 1

A 29-year-old female patient came in emergency for an abscessed 37. On the panoramic X-ray, we discovered the presence of three maxillary supernumerary teeth, all distomolars, all impacted, two of them situated on the right part of the maxilla, blocking an also impacted 18 and the third one situated on the left part of the maxilla, distally positioned of the 28's apex (Figure 1). Because the patient wanted to remove 28, erupted in vestibulo-position, the distomolar on that side was also removed; the other two remained in their place.

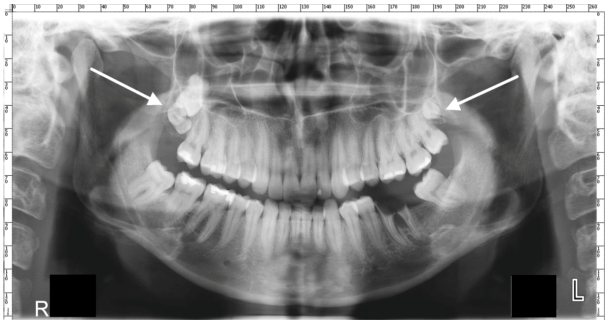

Figure 1 – ***Panoramic radiological investigation showing the presence of three distomolars in the upper jaw. R: Right; L: Left.***

Case No. 2

A 30-year-old male patient came to the dental office because of a pain located in the distal area of the upper jaw. After clinical and radiological examination, we found that the cause of the pain was the inflammation of the third molar's dental pulp (Figure 2). Also, we discovered the presence of a unique distomolar impacted near the root of 18. The patient wanted to keep both 18 and 18*bis*, so he was referred to an endodontist to perform a root canal procedure.

Figure 2 – ***Panoramic radiological investigation showing the presence of one distomolar in the right part of the upper jaw. R: Right; L: Left.***

Case No. 3

A 34-year-old male patient came to the dental office because of esthetical reasons related to dental crowding; he wanted an orthodontic treatment. He was explained the connection between the dental crowding, the degree of periodontal involvement and the malocclusion; on the orthopantomography we discovered the presence of two bilaterally situated upper distomolars (Figure 3) and it was recommended to him by the orthodontist to extract both distomolars and upper third molars for orthodontic reasons.

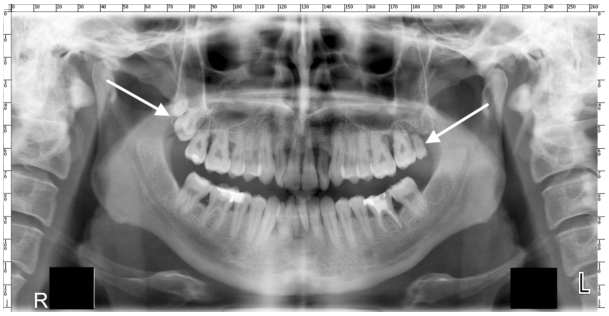

Figure 3 – ***Panoramic radiological investigation showing the presence of two distomolars bilaterally situated in the upper jaw. R: Right; L: Left.***

Case No. 4

A 40-year-old healthy male patient came to our Clinic for a general oral checkup and rehabilitation. The intraoral examination was followed by panoramic and retroalveolar X-rays. The patient signed the informed consent form. He presented multiple caries, simple or complicated, calculus and edentulous spaces. He was in a good general health, with no associated condition. On the right part of the upper jaw, the first molar was missing for more than 10 years and the edentulous space was narrowed. On clinical examination, we noticed a cuspid of an initially supposed supernumerary tooth, distally situated from the third molar, only partially erupted and perpendicularly impacted on the distal face of the third molar's crown. Radiographic examination confirmed an impacted distomolar, small and situated unilaterally, distal to the third molar 18 (Figure 4). The distomolar was smaller than a normal tooth but with a normal morphology, presenting crown and root. The distal face of the third molar's crown was already affected by caries and a periodontal pocket (Figure 5). The patient wanted it removed because of the continuous food retention that affected 18.

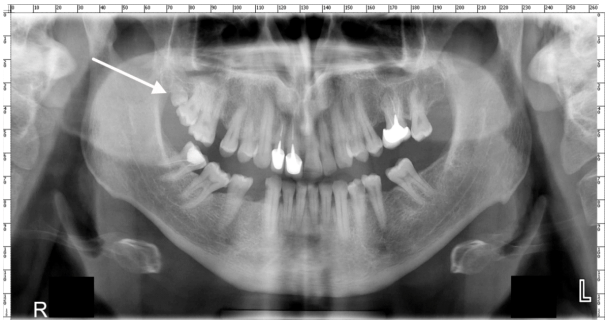

Figure 4 – ***Panoramic radiological investigation showing the presence of the distomolar in the right upper jaw. R: Right; L: Left.***

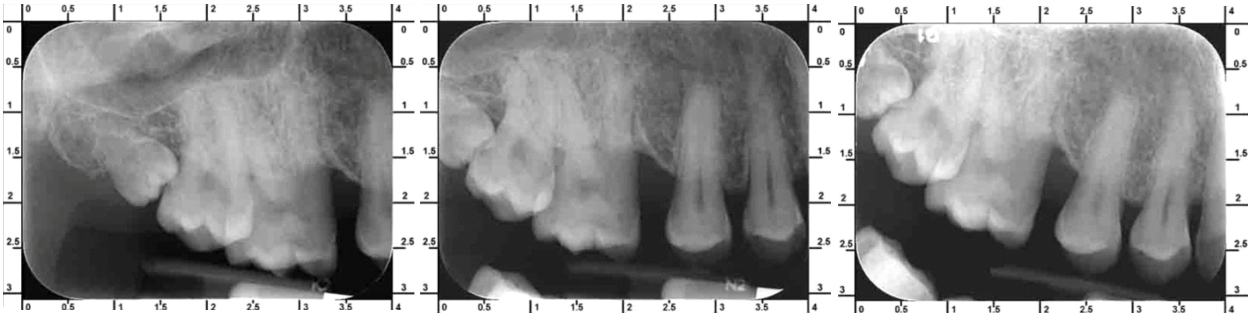

Figure 5 – ***Retroalveolar images from different incidences showing the distomolar's position and its consequences on the third adjacent molar.***

Case No. 5

A 64-year-old female patient came to our Clinic for a complete oral rehabilitation. The previous fixed prosthetic treatments were old, ill fitted, unaesthetic and fractured. During the intraoral examination, we noticed on the left part of the upper jaw a supposed supernumerary tooth, distally situated from the old bridge, completely erupted, on the level of the occlusal plane. This tooth was mesially tilted and smaller than a usual third molar; it presented an abnormal conical crown morphology, and a unique root. The patient was aware of its existence, but did not remember since when it was present on the arch nor if she ever had extracted any third molar in the area. The distal abutment of the bridge was the first molar. The second molar was missing. The diagnostic casts better revealed the strange shape of this tooth (Figure 6).

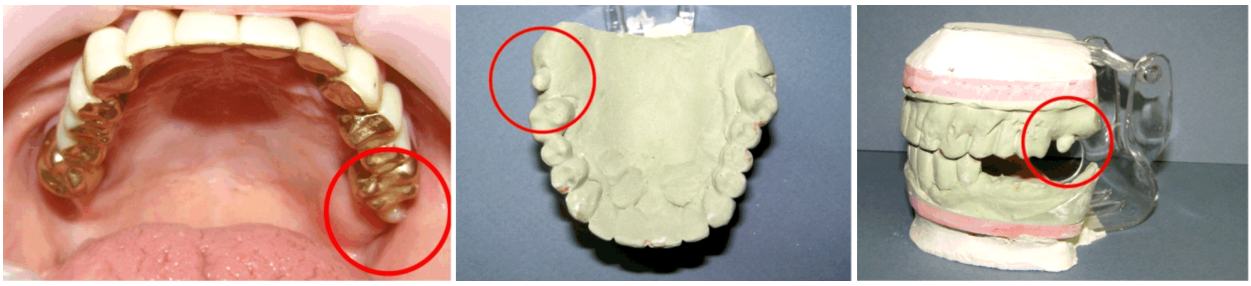

Figure 6 – ***Initial image of the tooth on the upper jaw and on the diagnostic casts.***

The radiological examination helped us in making a difficult differential diagnosis between a distomolar and a morphological variation of the maxillary third molar. Third molars show great anatomic variability and may have one to five roots. Still, the morphology of this tooth's crown was more common to a supernumerary tooth then to a third molar. On the panoramic X-ray, we noticed that the only other third molar present is 48, which also was smaller than usual and had a unique root. Because it was used as an abutment for the old fixed prosthodontic treatment, its crown was no longer visible but taking into account the diameter of the root, it is obvious that also the crown must have been rather small. In this case, we can assume that it is probably a case of third molars microdontia, positioned diagonally, but it is impossible to completely exclude that the upper tooth is a distomolar (Figure 7). The new prosthetic rehabilitation consisted of an upper removable partial denture with attachments and a lower overdenture with magnets, so the extraction of the upper molar was mandatory while, on the contrary, the lower third molar was kept and used as abutment. The patient signed the informed consent form (Figure 8).

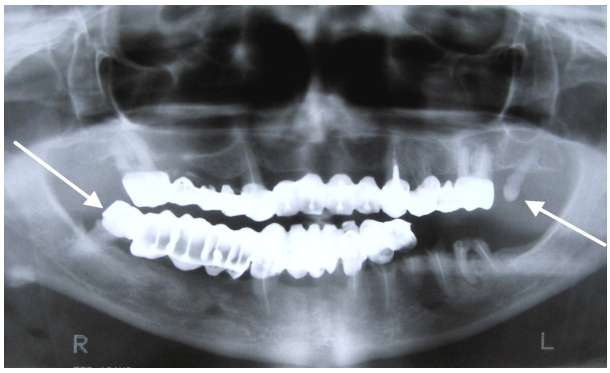

Figure 7 – ***Panoramic radiological investigation showing the supposed distomolar in the left upper jaw and third molar's microdontia in the right lower jaw. R: Right; L: Left.***

Figure 8 – ***The final aspect of the prosthetic rehabilitation necessitating the extraction of the upper distomolar.***

Discussion

Supernumerary teeth occur as a rudiment from the dentition of ancestor mammals (three incisors, one canine, four premolars and three molars in each half arch, both upper and lower jaw). The prevalence of the distomolar (the fourth molar) was studied and researches show its presence is rare and frequently this tooth remains impacted. Current data in the international literature shows that the prevalence of the supernumerary teeth in general population depends on various factors such as gender and/or associated pathologies. The literature showed cases of distomolars (fourth molar) but also fifth, sixth and even seventh molars were found. The prevalence of supernumerary molars was studied by Stafne [7], in 1935, and he reported a value of 1%. In a study conducted by Luten [8], the prevalence of supernumerary molars was 2%. Some authors found a percentage between 1% and 2.2% for distomolars [9–11]. In a research studying the prevalence of supernumerary teeth for a Caucasian population, a percentage from 1% to 3% was found. A similar study done for Nigerian population showed higher prevalence, as 12.7% [12]. The prevalence of supernumerary teeth for southern Chinese population was reported as 2.4% [13], for Japanese as 3.4% [14], and for American black people as 6% [15]. According to other researchers, the incidence of supernumerary teeth in Polish population registers a percentage between 0.2–0.3% [16, 17]. Studying the prevalence of distomolars for the adult Turkish population, Arslan *et al.* [18] reported a value of 0.57%. A similar study done for an Indian population conducted by Gopakumar *et al.* [19] showed that distomolars are found in 0.03% of cases. Other studies on Turkish population showed that the prevalence of distomolars was about 0.33% [20]. Shimizu *et al.* reports a case with four supernumerary molars in one maxillary quadrant [21]. The presence of four distomolars teeth situated in each quadrant of the same patient is not a common thing [22]. Rao *et al.* describes also a rare case with six distomolars [23]. Saraswati & Shivaprasad studied the prevalence of distomolars and presented a case with bilateral maxillary and mandibular fourth molars [24]. Arslan *et al.* reported that the occurrence of bilaterally distomolars is not common and that they are found in about 0.07% of the population [18]. Usually, this distomolars are discovered by chance, during routine radiological exams, because they remain impacted and they are not visible in the oral cavity [25]. Other authors reported isolated cases of fourth molars found in the mandible [26, 27]. Therefore, So (1990) found that in 76–86% of such cases is present only one supernumerary tooth, in 12–23% of cases there are two and in less than 1% of the cases there are multiple supernumerary teeth [28]. The presence of supernumerary teeth is an unusual phenomenon because the natural tendency is the missing of the third molars [29].

Díaz *et al.* showed a prevalence of supernumerary teeth between 0.5–5.3% for the permanent dentition and 0.2–0.8% for the primary dentition [30]. Scheiner & Sampson found a value between 0.1% to 3.6% in the permanent dentition on Australian population [31]. Regarding the child population, which present mixed dentition, Luten found that the prevalence of supernumerary molar is about 2% [8].

Supernumerary teeth as well as distomolars can be found associated with general diseases or in non-syndromic cases. Kaya *et al.* [32] reported a prevalence of supernumerary teeth of a non-syndromic Turkish subpopulation as 0.26%. When supernumerary teeth are associated with general disorders like cleft and lip palate, the prevalence can be higher, even up to 28% [30].

Some authors reported that incidence is higher in males [33]. Timocin *et al.* showed that supernumerary teeth are more common in males than in females [34]. Like other supernumerary teeth, distomolars are also seen more often in males than in females. In his study, Ghom [35] showed that distomolars are seen twice often in males than in females. A study conducted by Cassetta *et al.* [36] showed that ratio between males and females is about 2.5:1. Another similar study conducted by Liu [37] found that the ratio between males and females is 3:1.

Kokten *et al.* [10] and Menardia-Pejuan & Berini-Aytes [38] showed that the incidence of supernumerary teeth is higher in the maxilla than in the mandible. For the upper jaw, it was found an occurrence between 69% and 91% [18, 22, 39]. In a study conducted by Grimanis *et al.* [22], it was found that a percentage of 79% of supernumerary molars are seen in the upper jaw. The same thing was found by Menardia-Pejuan & Berini-Aytes [38], who reported a percentage of 86.8% supernumerary molars in the maxilla. A study done by Cassetta *et al.* [36] also regarding the distribution of supernumerary teeth reported 75% of them being present in the upper jaw. Also, regarding the frequent location of the supernumerary teeth, current data in the literature show that mesiodens, situated in the maxillary incisor region, is found in 64.3% of cases. It is followed by distomolars, situated in the maxillary third molar region, with a percentage of 29.6%. Supernumerary teeth located in the mandibular third molar area and mandibular premolar area have a percentage of 7%, while those located in the mandibular incisor area and maxillary premolar area represent 4.2% [40, 41]. A study conducted by Leco Berrocal *et al.* [33] showed that the most frequent location is represented by anterior medial area of the upper jaw, where the mesiodens is found in about 80% of all supernumerary teeth. This data showed that the second area in the maxilla, where supernumerary teeth are present is the superior distomolar zone, followed by inferior premolar, superior premolar, inferior distomolar, superior canine zone and inferior incisor. Türkkahraman *et al.* showed, in their study, that mesiodens is the most common supernumerary tooth, followed by upper distomolars, upper paramolars, lower premolars, upper lateral incisors, lower distomolars and upper premolars [42]. There are few reports in the literature of multiple distomolars situated bilaterally in both arches [23].

Another studied aspect was the shape of the supernumerary teeth. The shape of maxillary fourth molars called distomolars is usually conical but they can be also tuberculated, as it was found by Cassetta *et al.* [36]. In a study conducted by Kokten *et al.*, it was reported a case of bilateral upper distomolars whose morphology

was normal, but smaller than the third molar [10]. The conical shape is found in about 70% of cases, followed by 25% supplemental and 5% tuberculate. There are studies that show that conical shape is found from 31% to 75% and supplemental shape from 4% to 33% [4, 43, 44]. Usually, distomolars have a rudimentary shape [8]. Their size is smaller than that of the other molars (third or second) and the crown morphology is rather atypical. Still, the shape of some distomolars either can follow a normal anatomical structure presenting, like the third molar, a crown and a root completely separated from the other teeth, or its shape can diverge from the third molar.

Conclusions

Supernumerary teeth may erupt normally or in an ectopic position. Most frequently, they remain impacted; especially in young patients, they are discovered by chance, after a routine radiographic examination; later in life, they can cause pathological issues and difficulties in diagnosis and prosthetic treatment. In cases of old edentulous patients with previous extensive prosthetic treatments, the differential diagnosis between a morphological variation of a third molar and a distomolar can be difficult to make. The treatment decision depends on tooth position and its clinical and pathological implications; still, in cases of adult and aged patients, extraction becomes the best treatment choice.

Conflict of interests

The authors declare that they have no conflict of interests.

Author contribution

Authors #1 (CD) and #2 (MB) have equal contributions to this paper.

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