

CASE REPORT

Bilateral maxillary and mandibular fourth molars: a case report and literature review

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Keywords

fourth molar, maxillary, permanent dentition, supernumerary teeth, surgery.

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Received 2 February 2011; accepted 26 March 2011.

doi: 10.1111/j.2041-1626.2011.00075.x

Abstract

Supernumerary teeth are those present in addition to the normal set of teeth. These teeth are found in both the primary and the permanent dentitions, and are most frequently seen in the maxillary anterior and molar regions. Supernumerary molars are divided into two types, depending on their location: distomolars and paramolars. Distomolars usually occur in the form of a fourth molar distal to the third molar, while paramolars are rudimentary supernumerary teeth that might develop buccally or lingually to the molar series. The management of a supernumerary tooth should be part of a comprehensive treatment plan. This paper reports a rare case of a male patient with bilateral maxillary and mandibular fourth molars, and reviews the literature on supernumerary teeth.

Introduction

The term “supernumerary teeth” describes the presence of more than the normal number of teeth. Supernumerary teeth have been reported in both the primary and the permanent dentitions, but their occurrence is more prevalent in the permanent dentition.¹ They might be single or multiple, fully or partially impacted, partially or totally erupted, or lateral or bilateral.² Multiple supernumerary teeth are usually associated with syndromes, and the conditions commonly associated with an increased prevalence of these cases include cleft lip and palate, cleidocranial dysplasia, and Gardner syndrome.³

Supernumerary teeth are classified according to their morphology and location. Those that occur between or just posterior to the central incisors are referred to as mesiodens. Those that occur in the form of a fourth molar distal to the third molar are called distomolars, while paramolars are rudimentary supernumerary teeth that might develop buccally or lingually to the molar series.^{3,4} The location of supernumerary teeth can be presented in a decreasing order of frequency as follows: upper distomolars, upper paramolars, and proportionately far behind, lower premolars, upper lateral incisors, lower fourth molars, and lower central incisors.^{3,4}

Regarding the etiology of supernumerary teeth, most authors point to phylogenetic factors, specifically hyperactivity within the dental lamina, as causing the appearance of additional dental buds.^{5,6} Hereditary and environmental factors are also considered important etiological factors.^{7,8}

Supernumerary teeth are more frequently seen in the maxilla, and their prevalence in the permanent dentition has been estimated to range from 0.1% to 3.6%.⁹ The prevalence of supernumerary molars among all supernumerary teeth found in the maxilla has been reported as being approximately 75%.¹⁰ A previous study reported that single supernumeraries occurred in 76–86% of the cases evaluated, double supernumeraries in 12–23% of the patients, and multiple supernumeraries represented less than 1% of the cases.¹¹

Supernumerary teeth might or might not be erupted. Therefore, it is important to establish an early diagnosis so that proper treatment can be provided at the earliest time possible. Due to its normally asymptomatic nature, supernumerary teeth are usually found during routine radiographic examinations.¹² A panoramic radiograph is the most useful screening radiograph for these cases, as it shows all areas of the maxilla and mandible.⁹ More recently, computed tomography (CT) has been presented

as an excellent imaging diagnostic method for locating unerupted supernumerary teeth, providing precise information for planning and performing the surgical technique, while reducing the operative time and post-operative complications.¹³

The management of supernumerary teeth should be part of a comprehensive treatment plan and should not be considered in isolation. The approach for each case will depend on the type and position, as well the effects or potential effects of the supernumerary tooth on adjacent teeth and oral structures.³ Not all supernumerary teeth require extraction. If asymptomatic, they can be left *in situ* and kept under observation. The surgical removal of supernumerary teeth should always be based on the possible associated pathological sequelae.⁸ The use of CT scans has been useful for the planning of tooth extraction.^{7,13} This paper reports a rare case of a male patient with bilateral maxillary and mandibular fourth molars, and reviews the literature on supernumerary teeth.

Case report

A 22-year-old Caucasian, male patient was referred by his general dentist to the Dental Clinic of the State University of Paraíba, Campina Grande, Paraíba, Brazil, for third molar extraction.

The patient was in good health, and his medical and family histories were non-contributory. The intraoral clinical examination showed no signs of caries or periodontal disease, and revealed the presence of three partially-erupted third molars, which were not likely to erupt successfully and did not have indication for uprighting. A panoramic radiograph showed that the maxillary right and left and the mandibular right third molars were partially impacted, and that the mandibular left third molar was fully impacted. The radiograph also showed the presence of four impacted fourth molars distal to the third molars (distomolars), one in each hemiarch (Figure 1). The patient was not aware of the supernumerary teeth, and did not know about other cases in his family.

Surgical planning consisted of the removal of the four-third molars and supernumerary teeth in a single procedure under general anesthesia in a hospital environment. The results of the preoperative lab tests (complete blood count, coagulogram, glycemia, urea, creatinine, sodium/potassium) were within the normal limits, and there was no local or systemic contraindications for surgery. Axial and coronal CT scans of the maxillae were obtained for better planning and guiding of the surgical approach.

The impacted third molars and distomolars were successfully removed with no perioperative complications (Figure 2). For the control of postoperative pain and infection, the patient was medicated with endovenous

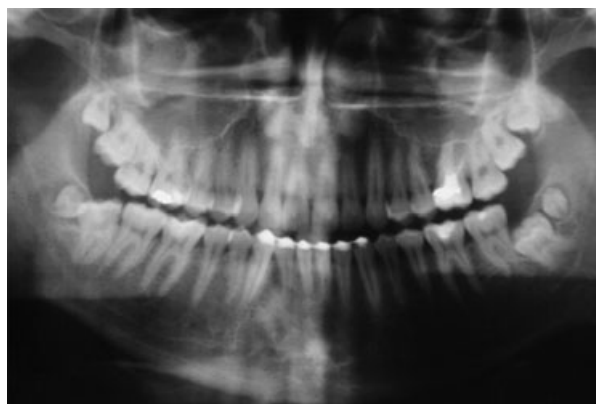


Figure 1. Panoramic radiograph showing the presence of four-fourth molars (distomolars), one in each hemiarch.



Figure 2. Third molars and distomolars after extraction.

administration of 20 mg tenoxicam every 12 h and 1 g cephalexin every 6 h during the 24-h in-hospital stay for observation. The sutures were removed 1 week after the surgical procedure, and the patient returned after 1 month for case follow up. The postoperative course was uneventful.

Discussion

Several theories have been proposed to explain the occurrence of supernumerary teeth, including the atavism, mechanical tooth germ separation, tissue induction, and dental lamina morphological disturbance. However, none of these theories alone offers a sufficient explanation for this phenomenon.¹⁴

Supernumerary teeth might occur singly, multiply, unilaterally or bilaterally in the maxilla, mandible or both.¹⁵ Fourth molars or distomolars are situated distal to the

third molars. These supernumerary teeth have a rudimentary shape and are usually seen as solitary and impacted teeth. The fourth molars are considered as the second^{16,17} or third more frequent group of supernumerary teeth.¹⁸ However, three or more supernumerary teeth are found in less than 1% of cases.¹⁹ Multiple supernumerary teeth are rare in individuals with no other associated diseases or syndromes.³ In the present case, the patient was completely asymptomatic, and the presence of four-fourth molars was an incidental finding. Cases of four distomolars with normal morphology are extremely rare, and have seldom been reported in dental literature in the USA,²⁰ Israel,²¹ and Italy.²²

In the case reported here, the presence of fourth molars was only detected with a panoramic radiograph, after the patient's referral to our dental surgery service for extraction of the partially-impacted third molars. Therefore, radiographic examination and interpretation of the presence of supernumerary teeth are important. A careful radiographic survey of both dental arches and an accurate diagnosis of supernumerary teeth can be made from panorex or full-mouth series. As conventional radiographs provide bidimensional images of 3-D structures limiting optimal treatment planning,¹³ a comprehensive and detailed interpretation of each film is necessary to avoid diagnostic errors.²³ For this reason, the use of CT scans and computed-assisted imaging methods

in the planning of more complex and extensive dental surgeries has become widespread. CT allows for supernumerary teeth location, the establishment of positional relations with other teeth, and the assessment of surrounding bone thickness, thus facilitating surgical access and technique choice, while reducing the procedure time.^{13,22}

The treatment of supernumerary teeth can be performed in two ways: (a) surgical extraction; or (b) maintenance of the asymptomatic tooth and periodic monitoring at least once a year.¹² The present case had a surgical indication, and the treatment of choice was the surgical removal of the third and fourth molars in a single intervention at a hospital facility. In view of case complexity, CT scans of the maxillae were done to guide the oral and maxillofacial surgeon for the best possible surgical approach and offer a better treatment perspective for the case.

Conclusion

This article documents a rare case in clinical practice. However, general dentists must be able to correctly diagnose the presence of distomolars, recognize the possible complications deriving from the presence of these supernumerary teeth, and discuss with the patient possible treatment options.

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