

# Management of A Non-Syndromic Case of Maxillary and Mandibular Supernumerary Teeth: A Clinical Report.

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## Abstract

Additional teeth to the normal set of primary or permanent dentition are referred to supernumerary teeth. They may occur in both dentitions, located in either jaw unilaterally or bilaterally. Supernumerary teeth are classified based on their morphologies and locations in the dental arch. The supernumerary tooth that occurs distally to the third molar is called distomolar. Usually multiple supernumerary teeth are associated with genetically determined syndromes, but non-syndromic multiple supernumerary cases can be seen even though they are very rare. There is no exact treatment protocol for the management of supernumerary teeth in literature. The routine use of radiographic images during examination is a valuable tool that helps to make the early diagnosis of these types of abnormalities. This case report presents clinical management of a 38 years old male patient with maxillary and mandibular supernumerary teeth as well as impacted third molars.

## INTRODUCTION

The existence of excess number of teeth or tooth-like substance in usual dental configuration of twenty deciduous, and thirty-two permanent teeth is defined as hyperodontia and the additional teeth are called "supernumerary" by many authors<sup>1-3</sup>. Hyperodontia may occur unilaterally or bilaterally in both dentitions and in one or both jaws<sup>4,5</sup>. Reported incidence of supernumeraries is 1-2 % of general population and they are twice more common in the permanent than in the primary dentition<sup>1</sup>. The prevalence of supernumerary teeth ranges from 0,8 to 3,6% in deciduous and permanent dentition respectively<sup>6,7</sup>. Less frequent reporting of deciduous supernumerary teeth may be because of less detection by parents or late initial dental examination after eruption and exfoliation of deciduous anterior supernumerary teeth<sup>8</sup>. From aspect of gender, they are twice more commonly detected in males than females. Supernumerary teeth can be seen in four different locations such as: the region of incisor (mesiodens), beside premolars (para-premolar), beside molars (paramolar) and distal to the last molar (distomolar)<sup>6</sup>.

The etiology of hyperodontia is supported by different theories in literature<sup>2,9,10</sup>. Supernumerary teeth are considered to develop as a result of horizontal proliferation or an independent, local and conditioned hyperactivity of the permanent or deciduous dental lamina<sup>1,11</sup>. Another theory is

dichotomy of the tooth bud which can be the reason that supernumerary teeth usually closely resemble the group of the teeth they belong<sup>11,12</sup>. Genetics may partly be related as supernumerary teeth are more commonly found in relatives of affected individuals than the general population<sup>7</sup>. The phylogenetic process of atavism and syndromes is also suggested<sup>13</sup>.

Gardner's syndrome, cleidocranial dysostosis, and cleft lip and palate are common syndromes showing multiple supernumerary teeth along with other specific conditions. Checking for syndromal involvement in all cases exhibiting multiple supernumerary teeth is advised<sup>14</sup>. Family history of supernumerary teeth could point to the presence of a genetically determined syndrome<sup>13</sup>.

Supernumerary teeth can present shape anomalies and have smaller size or have normal morphology<sup>1,2,9</sup>. Four different morphological types of supernumerary teeth have been described; conical, tuberculate, supplemental and odontome<sup>15,16</sup>. Another main characteristic of supernumerary teeth is their impacted or inverted position<sup>17</sup>. The majority of reported supernumerary teeth, are malformed and / or dwarfed. They may also show invaginations in maxillary anterior region<sup>18</sup>.

Effects of supernumerary teeth on the developing dentition may vary. There may be no effect and supernumerary teeth

may be discovered either following their eruption or as a chance during radiographic examination. Failure of eruption and/or ectopic eruption of adjacent permanent teeth is the most frequently reported occurrence in almost 30 to 60 per cent of cases<sup>13</sup>. Crowding may occur when multiple supernumeraries are present. Supernumerary teeth may also cause root resorption, malformation of adjacent teeth such as dilaceration, diastema and loss of vitality of adjacent teeth<sup>14</sup>.

A very few cases of mandibular distomolars have been reported in the literature. The purpose of this report is to present a clinical case of maxillary and mandibular distomolars as well as impacted third molars in a patient with no other associated disease or syndrome.

### **CLINICAL REPORT**

A 38 year old male patient, was referred to Department of Dentistry at Acibadem Kadikoy Hospital, Istanbul, Turkey with a complaint of pain in the right mandibular third molar area. There was no relevant medical history or family history of dental abnormalities. Panoramic radiographic examination revealed the presence of horizontally positioned fully impacted mandibular right and left third molars, partially impacted mandibular right distomolar, bilateral vertically positioned fully impacted maxillary third molars and a maxillary vertically positioned fully impacted left distomolar (Figure 1).

#### **Figure 1**

Figure 1. Panoramic radiograph showing the supernumerary mandibular and maxillary distomolars.



Clinical examination disclosed pericoronitis of mandibular right distomolar. The supernumerary tooth was causing food impaction and repeating inflammation of the pericorony soft tissue. There were occlusal and approximal cavities in the permanent molar teeth. Radiographic findings included proximity of the upper bilateral impacted third molars and

upper left distomolar to the maxillary sinuses. Mandibular bilateral horizontally impacted third molars were positioned close to inferior alveolar nerve canal. Our patient refused further computerized tomographic investigation in order to determine the position of the supernumerary teeth and impacted third molars in relation to the anatomic structures. The patient was given the pros and cons of surgical removal of all impacted teeth under general anesthesia versus leaving them in their respective positions. The patient preferred removal of the mandibular right impacted distomolar and leaving the rest impacted and supernumerary teeth in their positions. Prior to surgery, the patient signed the consent form about the risks of surgical extraction. Intraoral and extraoral antisepsis was performed with 0.12% chlorhexidine gluconate (Klorhex, Drogan, Istanbul, Turkey) and povidone iodine (Poviodeks, Kimpa, Istanbul, Turkey), respectively.

The sterile operating field was placed. 4 ml of local anesthetic (Ultracaine D-S fort, Sanofi Aventis, Istanbul, Turkey) was administered in order to get right mandibular anesthesia. Envelope incision was performed with an oblique incision and mucoperiosteal flap was reflected. Bone covering the root of mandibular right impacted distomolar was partially removed with a surgical handpiece under sterile saline cooling. The roots and crown was split using a tungsten fissure bur and carefully removed in two pieces. The flap was placed on its original position and sutured with a non-resorbable 3.0 suture. A week later sutures were removed. Healing was uneventful and no complications was observed. Distomolar supernumerary tooth was in normal tuberculate form, however it was smaller than the regular molars. One year later, the patient visited our clinic for follow-up and panoramic radiograph was taken (Figure 2). At that time, he had no active complaints.

**Figure 2**

Figure 2. Panoramic radiograph of the patient six months after surgery.



**DISCUSSION**

Supernumerary fourth molars are rare anomalies of the dentition that are more common in the maxilla than in the mandible. Grimanis et al. reported supernumerary molars are found with a percentage of 79% in the maxilla where Menardia et al. stated this percentage as 86.8%<sup>19,20</sup>. The location frequencies of the supernumeraries are reported as follows; maxillary incisor region 64.3% with mesiodens accounting for 32.4% of such presentations. In decreasing order of frequency came supernumeraries in the maxillary third molar region 29.6%, mandibular third molar region 7.0%, mandibular premolar region 7%, mandibular incisor region 4.2%, and maxillary premolar region 4.2%<sup>9,10,13</sup>. In present case both maxillary and mandibular supernumerary teeth were in third molar region.

In literature there is no exact treatment protocol for the management of supernumerary teeth. Treatment options for supernumerary teeth include observation and extraction. Observation involves no treatment other than monitoring the patient clinically and radiologically<sup>21</sup>. In situations where supernumerary tooth development precipitate a variety of complications such as crowding, delayed eruption, development of a diastema, cystic lesions such as dentigerous cysts and resorption or rotation of adjacent teeth, extraction should be considered<sup>1,6</sup>. The presence of an unerupted supernumerary tooth in a potential implant site may also compromise implant placement. In such a case, extraction may be required prior to implant placement<sup>12</sup>. Radiographic studies play a major role detecting the position of supernumerary teeth in relation to other anatomic structures. The risk factors associated with surgical extraction should be evaluated carefully and communicated

to the patient clearly. Therefore appropriate and thorough radiographs are essential for correct diagnosis and management of multiple supernumeraries<sup>1,3</sup>. Periapical, occlusal and panoramic radiographs generally provide the necessary information, however these images are not as precise as the three dimensional ones<sup>22</sup>. Our patient refused further computerized tomographic investigation in order to determine the position of the supernumerary teeth and impacted mandibular 3rd molars which show close proximity to inferior alveolar channel. As a treatment plan, extraction of the horizontally positioned mandibular distomolar and observation of the maxillary distomolar and impacted molars was preferred.

Supernumerary teeth present greater variety of morphology in permanent dentition than in deciduous dentition. Their shape and size may resemble the group of teeth at the site where they are found in the jaws or there may be little or no resemblance at all<sup>15,16</sup>. Their roots may be completely or incompletely developed<sup>23</sup>.

Most of the distomolars found in the mandible were reported morphologically normal<sup>24</sup>. In present case, extracted mandibular distomolar was also in tuberculate form and roots was completely developed however it was smaller than the mandibular second molar. Maxillary distomolar was rudimentary in shape and root development was incomplete.

Eventhough, no significant sex distribution is reported for supernumerary teeth, males are effected approximately twice as frequently as females in permanent dentition<sup>12</sup>. Hogstrum and Andersson<sup>26</sup> also reported a 2:1 ratio of sex distribution while Luten<sup>27</sup> found a sex distribution of 1.3:1. In some Asian surveys, the predominance of male patients is 6.5:1, but this sexual dimorphism is not observed in the primary dentition<sup>23</sup>.

Several theories have been suggested for the occurrence of supernumerary teeth. The association of heredity has also been suggested and most cases are determined by multifactorial inheritance<sup>1</sup>. Obtaining a complete medical history is critical when a patient with multiple supernumeraries is to be treated because multiple supernumerary teeth are rare in individuals with no other associated diseases or syndromes<sup>23</sup>. In order to consider multiple supernumeraries as nonsyndromic, associated conditions like cleft lip with or without cleft palate and syndromes such as cleidocranial dysostosis and Gardner Syndrome should be ruled out<sup>1</sup>. The frequency of

supernumeraries in patients with cleidocranial dysplasia ranged from 22% in the maxillary incisor region to 5% in the molar region<sup>12</sup>. In our case, there was no family history of dental abnormalities or syndrome association.

Supernumerary teeth may erupt normally, remain impacted, appear inverted or assume an ectopic position or an abnormal path of eruption. Approximately, two-thirds of primary and one quarter of permanent supernumerary teeth erupt normally.

The rest remain unerupted and may produce complications<sup>25</sup>. In literature, occurrence frequency of supernumerary molars is reported as 0.4-0.5% and are found to lead to the impaction of adjacent teeth in one quarter of cases. They are most frequently appear to be in the area distal to the third molars in the maxilla<sup>6</sup>.

In present case, maxillary supernumerary tooth was impacted and positioned adjacent to impacted maxillary left third molar. Mandibular distomolar was horizontally positioned over the third molar. Supernumerary teeth might have lead the horizontal impaction of the mandibular right third molar and maxillary left third molar.

## CONCLUSION

The occurrence of fourth molar in the mandibular arch is not a common phenomenon. In many cases the presence of supernumerary teeth is clinically asymptomatic and often remain undetected during routine dental examinations. In deciduous and permanent dentition, periapical and panoramic radiographs should be made or new diagnostic techniques should be used if necessary for detection, localization, and evaluation of supernumerary teeth, in order to prevent any potential pathological changes associated with them.

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