

## Case Report Article

# Multiple fourth molars: surgical treatment in young patient

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## Abstract

**Introduction:** The abnormal development of one or more teeth exceeding the number considered normal is defined as hyperdontia, or supernumerary teeth. Supernumerary teeth are usually diagnosed by routine radiographs, because in most cases they are asymptomatic and do not erupt. The prevalence of supernumerary teeth is low, ranging between 0.1 and 3.8%. **Objective:** To report a case of multiple non-erupted fourth molars. **Case report:** Patient M.N.S, 16 years old, female, leucoderma, in good health status attended the dental clinic referred by the orthodontist. On panoramic radiography, the germs of the teeth #18, #28, #38 and #48 were detected and retained. Also, the presence of three fourth molars distally to the teeth #18, #28 and #38 were observed. The surgical removal of all third and fourth molars was performed under local anesthesia, in two steps: left and right sides. The patient has been followed for 1 year. Fourth molar prevalence is higher in males (2:1), differing from the patient of this case report. A few cases of multiple supernumerary teeth in non-syndromic patients are reported in the literature. **Conclusion:** Both early diagnosis and treatment are important to prevent crowding, failure of eruption, displacement of teeth, impairment of orthodontic treatment, gingivitis, and formation of abscess, cysts, and odontogenic tumors.

## Introduction

Hyperdontia is a development anomaly constituted by one or more teeth exceeding the normal tooth number, also so-called supernumerary teeth [17, 20, 22]. This alteration affects both the mandible and maxilla [25]. The etiology is not fully clarified, and many theories have been proposed. The most accepted theory is that of dental lamina hyperactivity at the initiation phase, producing a greater number of tooth buds [7, 21, 23, 25]. The division theory states that a new tooth is formed, known as dichotomy [18, 21, 28]. Other theories cited by literature are: formation through dental lamina remnants, resulting in extra tooth [28]; atavistic theory (regression to the primary ancestral of *Homo sapiens*) [7, 17]; association with disturbs such as Gardner syndrome, cleidocranial dysostosis and cleft lip and palate [19, 25]; heredity [5, 6, 21]; and influence of local factors in odontogenesis such as trauma and inflammation [7, 12, 21].

The prevalence of supernumerary teeth ranges from 0.1 and 3.8% in general population [11, 13, 20, 26], with low frequency in primary teeth, around 0.03 to 1.9%. The male/female ratio is 2:1 [3, 26], evidence gender predominance. The maxilla/mandible ratio is up to 9:1, mostly in anterior area [21, 26]. The most frequent tooth areas are: maxillary central incisor, followed by molar (mainly maxillary), pre-molars, lateral incisor, and canine. Also, supernumerary teeth can be classified according to these aforementioned areas. The teeth located at maxillary central incisor area are so-called *mesiodens*; fourth molars are also called distomolars; the supernumerary tooth located close to molars is called paramolar [17, 21]. Concerning to shape, the supernumerary can be normal- or conical-shaped (primary teeth), conical-shaped or tuberculate shape (permanent teeth) [16].

The supernumerary teeth are normally found by routine radiograph because they are

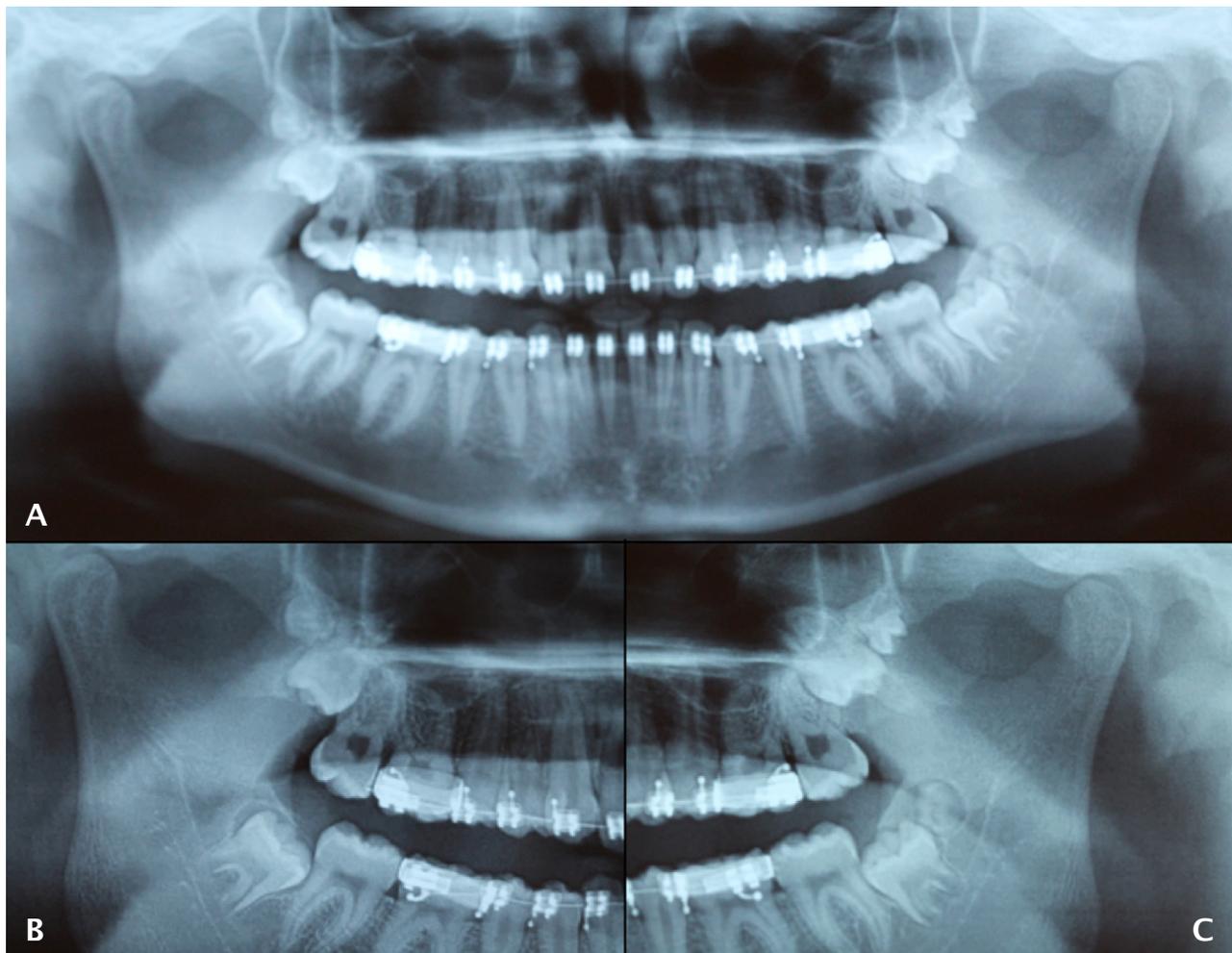
mostly asymptomatic and do not erupt. When erupted (25%), they are promptly diagnosed, and many times, they altered the patient's occlusion [11]. The panoramic radiograph is very used for supernumerary diagnosis, mainly in cases of fourth molars [9]. Hyperdontia may cause the following problems: crowding, eruption failures, tooth displacement, impairment of alveolar bone grafts and implants, impairment of orthodontic treatment, associated pathologies, pericoronaritis, gingivitis, and formation of odontogenic abscesses, cysts, and tumors [8]. The early diagnosis leads to a good prognosis, aiming to avoid worse problems in the surrounding teeth, such as bone resorption [21].

The treatment planning varies according to the patient's condition and tooth position. In most cases, the supernumerary tooth is extracted. Some authors have recommended that it is more favorable to wait the complete root formation of the adjacent teeth, to extract supernumerary teeth, unless the latter is interfering in the eruption chronology [7]. Accordingly, the interference in tooth chronology demands the immediate extraction [8]. Both the removal and maintenance of supernumerary tooth will depend on the cost-benefit ratio for each patient [5].

## Case report

Patient M.N.S, female, leucoderma, aged 16 years, attended clinical practice referred by the orthodontist to undergo retained third and fourth molars. At anamnesis, the patient did not report any systemic alteration.

The panoramic radiograph (figure 1A) showed the teeth #18, #28, #38, and #48 retained, and the presence of the fourth molars retained distally to teeth #18 (figure 1B), #28, and #38 (figure 1C). The surgical planning comprised the extraction of all third and fourth molars at two phases under local anesthesia.



**Figure 1** - A) Panoramic radiograph; B) Close view of tooth #18 and adjacent fourth and tooth #48; C) Close view of teeth #28 and #38 and adjacent fourth molars

At the first surgical stage the left side third and fourth molars were extracted; at the second stage, the right side third and fourth molars were extracted.

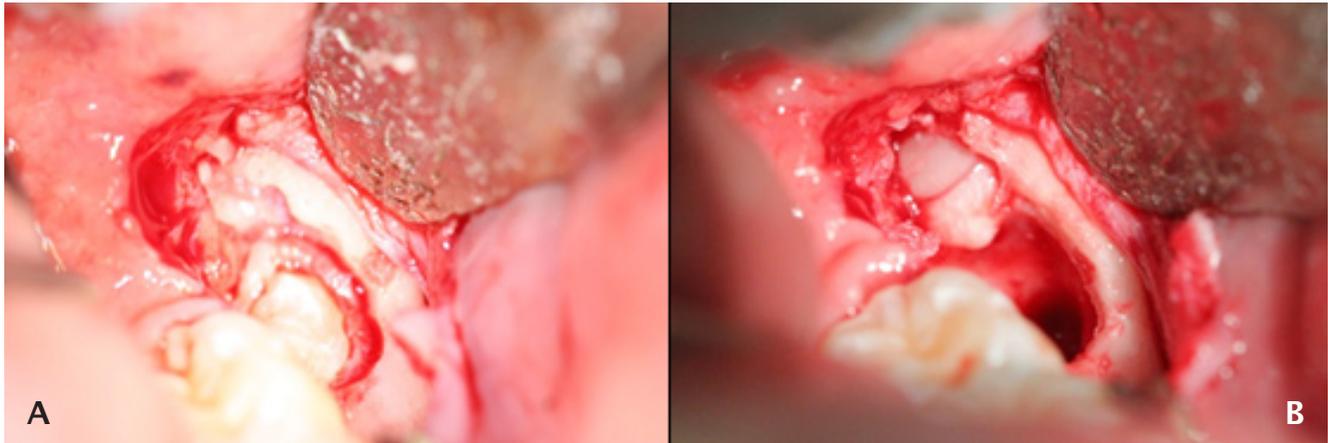
Previous to the surgical procedure, all vital signs of the patient were assessed and were normal. Next, intraoral asepsis was performed with 0.12% chlorhexidine and extraoral asepsis with topical povidone-iodine. Following, local infiltrative subperiosteal anesthesia of posterior superior alveolar nerves; local infiltrative submucous anesthesia of greater palatine nerve; anesthesia of inferior alveolar, lingual and buccal nerves were executed. After the incision, a mucoperiosteal flap was raised and osteotomy

was performed with the aid of no. 4 round bur at low speed straight handpiece under copious irrigation with 0.9% saline solution (figures 2A and 3A).

Third molars were extracted with the aid of dental surgical levers through type II technique. The third molar sockets allowed seeing the fourth molars and their extraction (figures 2B and 3B). After that, the cavities were cleaned and sutured by simple sutures with nylon thread 4.0. Amoxicillin 875 mg (at every 12 hours for seven days) and ibuprofen 600 mg (at every 8 hours for three days) were prescribed. The suture was removed after seven days and the soft tissues presented good healing, compatible to that of the period.



**Figure 2** - A) Exposure of the retained fourth molar adjacent to tooth #28; B) Extraction of the left-side fourth molar



**Figure 3** - A) Exposure of tooth #38; B) Socket of tooth #38 and exposure of the adjacent fourth molar

## Discussion

The prevalence of supernumerary molars is 1% according to Stafne [24], 1.9% according to Backman and Wahlin [2], and: two in the maxilla and one in the mandible. Most of the authors reported that supernumerary molars are more frequently found in the maxilla than in mandible, with a percentage of 79% according to Grimanis *et al.* [9], 88.9% according to Stafne [24], and 91% according to Spauge [23]. Cassetta *et al.* [4] reported that among maxillary supernumerary teeth, 75% are molars.

In this case report, the fourth molars had a smaller size than that of the third molars. Although most of maxillary fourth molars had a size smaller than that of maxillary third molars, a normal size could occur [24]. Supernumerary fourth molars may exhibit different shapes. Casseta *et al.* [4] described a case in which eight out of 13 supernumerary

molars had tuberculate shape, while the other five had conical shape.

Some hyperdontia cases are related with syndromes, differently from this case report. Concerning to gender, Watanabe *et al.* [26] affirmed that male/female ratio is 2:1; according to Yusuf [27] is 9:2. Unlikely, the patient of this case report is female.

Treatment type is based on the patient's clinical condition. Lima *et al.* [12] stated that the supernumerary treatment options – either surgical or conservative – are based on some parameters, such as age and systemic conditions. Thus, some professionals prefer to follow-up the case, because they have close relationship with the alveolar inferior nerve [1]. Notwithstanding, the authors have also indicated the surgical removal with favorable conditions [7, 12, 13].

Concerning the surgical technique, Kruger [10] cited that fourth molar removal demands the same

cautions that of retained third molar because they also cause odontogenic cysts and tumors [17, 21], once they occur after the last molar tooth [15]. Still, according to Garvey *et al.* [8], treatment is guided by the location, type, and tooth position. In this present case report, due to the orthodontic need, the fourth molars were extracted together with the third molars at the same surgical step.

## Conclusion

Most of supernumerary cases are retained, so that the diagnosis is through routine radiographs. The early diagnosis and treatment are important to prevent problems, such as crowding, eruption failure, tooth displacement, damaging to alveolar bone grafts and implants, associated pathologies, gingivitis, abscesses, and odontogenic cysts and tumors.

Treatment should be tailored according to each case. For the patient of this case report, surgical treatment was referred by the orthodontist, so that both the third and fourth molars did not interfere in tooth movement. All characteristics were favorable for surgical intervention because patient did not exhibit contributory diseases.

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