



SUPERNUMERARY TEETH OF THIRD AND FOURTH PREMOLARS: A RARE CASE REPORT

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<p>Article Info <i>Received 15/12/2015</i> <i>Revised 27/12/2015</i> <i>Accepted 09/02/2016</i></p> <p>Key words: Supernumerary teeth, Third and Fourth premolar, Mandible.</p>	<p>ABSTRACT Supernumerary third and fourth premolars are rare anomalies of the maxillofacial complex that are more common in the maxilla than in the mandible. This article reports a case of bilateral supernumerary third and fourth premolar in mandibular arch.</p>
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INTRODUCTION

Supernumerary teeth, or hyperdontia, are defined as an excess number of teeth when compared with the normal dentition. Classification is either based on time of appearance (predeciduous, similar to permanent, postpermanent, and complementary) or according to positions in the dental arch (mesiodens, paramolars, postmolars, or impacted) [1]. Various studies reporting the prevalence of supernumerary teeth and congenitally missing teeth have produced a range of occurrence rates [2-8]. Such variation may be attributed to study design and racial differences among the groups examined. Niswander reported a 3.4% frequency of supernumerary teeth among 4150 Japanese subjects [2]. In a study of 12-year-old Hong Kong Chinese, Davis found a 2.7% prevalence of supernumerary teeth [3]. From panoramic radiographs of 5- to 13-year-old Finnish children, Haavikko reported a 1.6% occurrence of supernumerary teeth [4]. This was similar to a report by Ravn and Nielsen who found a 1.3% frequency among 7- to 10-year-old schoolchildren from Copenhagen [5]. These reports seem to suggest a racial

variation in the prevalence of supernumeraries, with a higher frequency in the Asian population.

The occurrence of supernumerary teeth in the primary dentition is a less common finding, one-fifth of that seen in the permanent dentition [9]. The subsequent occurrence of supernumerary teeth in the permanent dentition of children with primary dentition supernumeraries is estimated at approximately 30% [10, 11]. Studies demonstrate a male predilection ranging from 2:1 in most populations [12, 13] to a 6.5:1 ratio in Hong Kong Chinese.

CASE REPORT

A 30 year old male patient was diagnosed with hyperdontia of both upper and lower arch with a complaint of pain in the region of the left mandibular jaw and wanted extraction of his tooth. There was no relevant family history of dental abnormalities.

Extra-oral examination revealed, swollen lower lips. On clinical examination, bilateral supernumerary third



and fourth premolars, one distal and one buccal to second premolar in both quadrants of mandibular arch was seen [Figure1,2]. Due to the presence of supernumerary teeth cheeks seem to be swollen bilaterally. The oral hygiene status was poor with generalized plaque, calculus and stains present. Generalized gingivitis was also present which was diagnosed by bleeding on probing, color, and loss of stippling. Dental caries was present in 26, 27, 28, 35, 36, 45, 46, and supernumerary teeth buccal to second premolar in 3rd and 4th quadrant were grossly decayed in mandibular arch.

The location where the camp took place was a small village and there were no nearby hospitals and clinics to take X-ray of the jaws.

So, the provisional diagnosis was four supernumerary teeth, one distal and one buccal to second premolar bilaterally in mandibular arch.

At camp, supernumerary teeth buccal to second premolar of the left mandibular jaw was extracted, under local anesthesia. The patient was referred to nearby dental clinic or hospital for further dental treatment.

Figure 1. Frontal view



Figure 2. Frontal view (intra-oral close-up)



DISCUSSION

Supernumerary teeth may be found in various locations in the jaws. Approximately 90-98% of all supernumeraries occur in the maxilla with a predilection for the premaxilla [12,13,24]. The most common supernumerary tooth is the mesiodens, located between the central incisors with a 0.15-1.90% prevalence in the Caucasian population [25,26]. Supernumerary teeth also may be found in the palate, the incisive suture, and in other areas, such as the nasal cavity, the ophthalmic conchae, and the maxillary sinus. To date, there are two cases where ectopic supernumerary tooth has been found situated between the orbit and the brain [27,28]. The prevalence of supernumerary molars is reported as 1% by Stafne [37], 2% by Luten [38] and 1.9% by Backmann [39]. It is reported in the literature that fourth, fifth, sixth, and seventh molars were seen [40- 42].

Causes of supernumerary teeth may include phylogenetic reversion (atavism), [29] split in the tooth bud (dichotomy theory) [30] and locally conditioned hyperactivity of the dental lamina [31]. In addition, genetic factors have been associated with supernumeraries and include cleidocranial dysostosis, cleft lip and cleft palate, and Gardner's syndrome [12,26,31-32]. According to previous reports [30-33] 80-93% of the supernumeraries are associated with pathologic changes. Foremost among such sequelae are delayed eruption and/or displacement of the adjacent permanent teeth. Occasionally supernumeraries may lead to the development of dentigerous or primordial cysts, cause root resorption or rotation of the adjacent teeth, or erupt ectopically into the

nasal cavity [31]. After third molars, mandibular second premolars are the teeth most commonly missing, followed by either the maxillary lateral incisor or the maxillary second premolar [3,4,17]. The Chinese population differs in that the mandibular incisors are the most frequently missing tooth, followed by maxillary second premolars and maxillary lateral incisors [5]. When a third molar is congenitally missing, the occurrence of hypodontia elsewhere in the permanent dentition was found to be up to 13 times greater than normal [34]. In the case reported here, it is interesting to note that all third molars buds were absent.

Congenital absence of teeth may arise from several causes including physical obstruction or disruption of the dental lamina, space limitation, functional abnormalities of the dental epithelium, or failure of initiation of the underlying mesenchyme [35]. It is well known that congenital absence of teeth may result from genetic factors although the modes of inheritance remain unclear [36]. To date, congenitally missing teeth have been reported in association with more than 50 syndromes of the head and neck [37].

The most common dental anomaly occurring in association with congenital absence of the permanent lateral incisor or second pre-molar is the absence of other teeth. Other sequelae include disturbances in spacing, tooth eruption, and exfoliation. The simultaneous presence of supernumerary teeth and the congenital absence of other teeth is very rare. To our knowledge, this is the first such case of congenitally missing maxillary permanent lateral



incisors in association with mandibular premolar hyperdontia. Mercer (1970) estimated that the probability of these anomalies coexisting is between 8 and 15 per 10,000. Rose (1974) reported a frequency of 13 in 10,000 patients. Gibson (1979) found 20 cases in 4598 orthodontic patients, a prevalence of 1 in 230 [40].

The etiology of these anomalies coexisting is unknown. Disturbances in migration, proliferation, and differentiation of the neural crest cells and interactions between the epithelial and mesenchymal cells during the initiation of odontogenesis have been suggested [37, 41]. Supernumerary teeth might cause dental abnormalities such as delayed eruption or impaction of permanent teeth, malposition of supernumerary teeth or displacement of adjacent teeth.

Such eruption disturbances can be prevented by early diagnosis and appropriate treatment. To determine an appropriate treatment plan for supernumerary teeth, it is important to evaluate their exact position and the moment at which the teeth might cause various disturbances [43].

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In the present case the supernumerary tooth contributed to disturb the eruption of the 3rd molar.

CONCLUSION

The occurrence of third and fourth premolar in the mandibular arch is an uncommon phenomenon. The supernumerary teeth should be extracted, as the preferable treatment of choice.

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STATEMENT OF HUMAN AND ANIMAL RIGHTS

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.



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