



## Supernumerary tooth and hypodontia two in one: A radiographic evaluation of an interesting case report and literature review

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### Abstract

Supernumerary tooth is termed as developmental anomaly and derives from multiple etiologies. As to hypodontia, it is the most prevalent craniofacial anomaly in the populations. The existence of hypodontia and supernumerary tooth together in the same patient is a rare condition in dentistry. This condition is termed as hypo-hyperdontia and in the present case, according to clinical and radiographic examination, hypo-hyperdontia was diagnosed. The occurrence of this numeric anomaly especially in the anterior mandible is very rarely reported. A case of supernumerary tooth and missing teeth in the same patient is presented. This article reviews the literature about hypo-hyperdontia.

**Keywords:** supernumerary tooth, hypodontia, tooth abnormalities, radiography

### Introduction

Tooth development is a uninterrupted period and some physiologic growth processes and several morphologic phases interact to create the final form and structure of the tooth. Intervention to the starting phase can cause single or multiple missing teeth (hypodontia or oligodontia respectively) or supernumerary teeth<sup>[1]</sup> which is additional to the normal series and may be observed in any region of the dental arch<sup>[2]</sup>.

Camilleri mentioned a term named as concomitant hypohyperdontia to determine the existence of hypodontia and supernumerary teeth at the same time<sup>[3]</sup>.

The etiology of hypohyperdontia is still unclear. There are probably various remarks to enlighten the togetherness of these two different dental anomalies. The reasons can be proliferation, impairment in migration, and neural crest cells differentiation in course of the odontogenesis starting<sup>[4]</sup>.

There may be some changes resulting from supernumerary teeth as retained teeth or delayed eruption of neighbouring teeth, ectopic eruption, dental malposition, occlusal problems, diastema and rotation<sup>[5]</sup>. However, the patients with hypodontia has some problems such as aesthetic, functional, psychosocial, and financial problems<sup>[6]</sup>.

Very few cases were found with this situation in the literature. This report presents a case that supernumerary and missing tooth altogether.

### Case Report

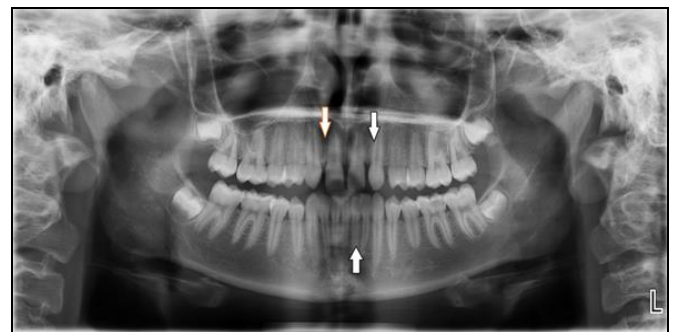
A 14-year-old female patient visited the Department of Dentomaxillofacial Radiology with a chief complaint of esthetic problem in 2017. She referred to our clinic for the first time. Her medical and dental history was non-contributory.

Clinical examination revealed dental calculus, the caries of right upper 1st molar and 2nd molar, left upper 1st and 2nd molars, left lower 1st and 2nd molars and right lower 1st and 2nd molars in addition to missing of right and left upper

lateral teeth, supernumerary tooth in anterior mandible and malocclusion.

A panoramic examination of the teeth and jaws revealed an erupted supernumerary tooth in anterior region of mandible and also the congenitally missing teeth in the maxilla anterior region. There was maxillary anterior spacing with midline diastema. The crown and root appeared well developed and third molar development was present in both jaws. The panoramic view is shown in Figure 1.

The patient was referred for orthodontic treatment and was called for regular follow up.



**Fig 1:** Orthopantomogram showing supplemental tooth in anterior region of mandible and also the congenitally missing teeth in the maxilla anterior region. (arrow head)

### Discussion

It is an uncommon situation to be observed hypodontia and hyperdontia together. There are many terminologies for this anomaly in the past such as “concomitant hypodontia and hyperdontia” termed by Callimeri<sup>[3]</sup>, and oligopleiodontia termed by Nathanail<sup>[7]</sup>, besides, nowadays the term of “hypohyperdontia” is preferred as reported by Gibson<sup>[8]</sup>.

Hypohyperdontia uncommonly occurs without syndrome and is observed with over fifty syndromes particularly cleft lip and

palate, Down, Ellis van Creveld and many others [9, 11]. The prevalence for this anomaly has been reported to range from 0.002% to 3.1% [9]. In our case, the hypohyperdontia was

found in nonsyndromic patient. Table 1 shows some published case reports of hypohyperdontia in literature.

**Table 1:** Published some reports of hypohyperdontia in the literature.

Author	Year	Age	Gender	Localisation of hypo-hyperdontia	Medical situation
Cammilleri [3]	1967	17	Female	12,22 hypodontia Mesiodens	–
Mercer [18]	1970	20	Male	15,35,45 hypodontia Mesiodens	–
Nathanail [7]	1970	11	Female	35,45 hypodontia Mesiodens	–
Moore [19]	1980	11	Male	13,23 hypodontia Supernumerary tooth between 12 and 11	–
Zhu <i>et al.</i> [11]	1996	14	Male	Bilaterally maxillary lateral incisors-missing Supernumerary tooth in the apical region of the right mandibular first molar	–
Chow and O'Donnel [20]	1997	12	Female	15,45 hypodontia Supernumeraries in the 32 and 42 region	Down syndrome
Hattab <i>et al.</i> [1]	1998	9	Male	12, 22, 31, 32, 33, 41, 42, 43 hypodontia Mesiodens	Ellis–van Creveld syndrome
Acerbi <i>et al.</i> [21]	2001	12	Male	15,25,34,35,45 hypodontia Mesiodens	Down syndrome
Matsumoto <i>et al.</i> [22]	2001	8	Female	25,32 hypodontia Supernumerary in 22 region	–
Oliveira <i>et al.</i> [23]	2002	9	Female	35,45 hypodontia Mesiodens	–
Sharma [24]	2008	7	Male	Maxillary left second premolar-missing Maxillary mesiodens	In identical twins
Nayak <i>et al.</i> [14]	2010	28	Male	Mandibular lateral incisors-missing Mesiodens	–
Manjunatha <i>et al.</i> [17]	2011	26	Male	Mandibular anterior teeth-missing supernumerary lateral incisor	–
Verma <i>et al.</i> [25]	2012	15	Male	Mandibular central incisors-missing Mandibular anterior mesiodens	–

According to the several reports, the supernumerary tooth is commonly found in maxilla, especially the premaxillary region with the rate of 95%, followed by mandibular premolar and maxillary molar regions [9, 11]. However, the loss of mandibular second premolars and the maxillary lateral incisors is frequently observed [12, 13]. In this patient, variously, there was a supernumerary tooth in anterior region of mandible and also similarly the congenitally missing teeth in the maxilla anterior region.

In the studies, males were more frequently affected from this anomaly although there seems to be no predilection gender. Varela *et al.* [10] evaluated 2108 non-syndromic orthodontic patients and found 7 patients with concomitant hypohyperdontia (0.33%), male to female rate was found as 4:3. In contrast with this situation, in this case, supernumerary tooth was in mandible and the patient was female. Hypohyperdontia occurs more commonly in permanent dentition than in primary and mixed dentitions [4]. Similarly, in this case, hypohyperdontia was observed in permanent dentition.

Similar to our case report, Nayak in 2010 observed the coexistent hypo-hyperdontia with the loss of lateral incisors and erupted mandibular mesiodens [14].

Hypodontia is most frequently observed in the second mandibular premolar followed by the upper lateral incisor, and the upper second premolar. Bilateral presence of hypodontia is rarer than unilateral presence. But, bilateral occurrence of missing upper lateral incisors is more frequently observed than unilateral occurrence of this dental anomaly [15]. Similarly, in this case, maxillary lateral incisors were missing and there was also bilateral agenesis of upper lateral incisors. It is interesting that when the third molar is observed as congenitally missing, the presence of hypodontia elsewhere in the permanent dentition is observed as 13 times greater than normal population [16]. In this case, it is an interesting situation that all third molars buds existed.

Patients who have hypohyperdontia generally don't have any symptoms and this anomaly are generally observed during intraoral examination for different reasons or on radiographic examination of the patients [9]. The current case previously knew that she had missing teeth and it was her complaint for referring to the clinic but she didn't know anything about supernumerary tooth, she was informed about the supernumerary tooth which was observed in clinical and radiological examination.

Few cases of hypohyperdontia was reported and many of them was observed with dento-facial irregularities or syndromes [17]. But, in this case, the patient had no syndrome with a supplemental supernumerary tooth in the mandible arch and there was no crowding or the other major esthetic, functional and phonetic problems.

If a dental anomaly is noticed, a detailed intraoral examination is performed, with using of radiographs. Panoramic radiographs are fundamentally the best imaging modality for showing the all teeth-bearing segment of the jaws and supporting structures in a single image [9]. So that, in this case, the panoramic radiography modality was used.

In conclusion, it is important to diagnose and know treatment alternatives of these rare anomalies for the patient comfort. To our knowledge, this rare case report will be useful for the future studies.

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