Case Report

Concomitant hypodontia and hyperdontia: A report of two cases

ABSTRACT

"Concomitant hypodontia and hyperdontia" is a very rare dental anomaly of number, having a prevalence rate of 0.002%–3.1%. It describes the simultaneous presence of hypodontia or missing teeth and supernumerary teeth in the same individual. It represents the opposite forces of nature acting simultaneously. Two rare cases of this anomaly involving different jaws and a classification based on the literature review have been presented here.

Keywords: Hyperdontia, hypodontia, mesiodens, oligo-pleiodontia

INTRODUCTION

The term “concomitant hypodontia and hyperdontia” was introduced by Camilleri to describe the simultaneous presence of hypodontia and supernumerary teeth in the same individual.[1] This is a very rare dental anomaly of number, representing opposite forces of nature acting simultaneously.[2] It has also been described as “Oligo-pleiodontia” by Nathanail or simply “Hypo-hyperdontia” by Gibson.[3,4]

Its etiology is difficult to explain, however, disturbances in migration, proliferation, and differentiation of neural crest cells or interactions between the epithelial and mesenchymal cells during the initiation of odontogenesis have been described as its possible causes.[2,3,5]

The review of dental literature revealed very few reported cases till date. This anomaly of number is known to involve both primary and permanent dentitions. The anomaly may occur in the same region of a jaw as reported by Ferguson,[3] Das et al.[6] and Segura et al.[7] or may occur in different regions in the same jaw as described by Matsumoto et al.[11] Zhu et al.[3] has described it to involve opposite jaws while Sharma[2] and Anthonappa et al.[14] have reported it in both maxilla and mandible. It has not been shown to have any gender predilection, though several researchers have stated a male dominance.[4] The reported prevalence of hyperdontia varies with the race; 0.15% and 3.9% for caucasians and higher than 3% in mongoloids. In contrast, hypodontia excluding the third molars has a reported prevalence of 1.6%–9.6% in the general population. The prevalence rates for hypohyperdontia range from 0.002% to 3.1%.[4]

The supernumerary teeth or missing teeth, when present alone, can lead to an imbalance in the dental arch. Simultaneous occurrence of these two anomalies creates an unusual clinical condition. This article presents two rare nonsyndromic cases of concomitant hypodontia and hyperdontia.

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How to cite this article: Tewari N, Pandey RK, Singh S. Concomitant hypodontia and hyperdontia: A report of two cases. Natl J Maxillofac Surg 2017;8:75-7.
CASE REPORTS

Case 1
A 13-year-old boy reported with the chief complaint of malaligned upper front teeth. He had an insignificant medical history with no previous dental treatment. No consanguinity was reported in the parents.

The oral examination revealed the presence of a mesiodens along with another supernumerary tooth palatal to permanent maxillary left central incisor. Both the supernumerary teeth had a conical crown. Their presence resulted in anterior crowding and proclination of the permanent maxillary left and right central incisors [Figure 1].

Radiographic findings
The orthopantomograph and intraoral periapical radiograph of maxillary anterior region revealed two conical supernumeraries in relation to permanent maxillary central incisors and left lateral incisor. It also exhibited completely developed roots of the supernumerary teeth. The most striking but chance finding was the absence of all the permanent maxillary and mandibular third molars and permanent mandibular left second premolar [Figure 2a and b].

Case 2
A 10-year-old girl reported with the chief complaint of tooth decay and malaligned upper front teeth. The medical history was noncontributory with no history of past dental treatment. No consanguinity was reported in the parents.

The oral examination revealed the presence of a mesiodens resulting in proclined permanent maxillary right central incisor and maxillary anterior crowding. The mandibular arch also revealed anterior crowding [Figure 3b].

Radiographic findings
The orthopantomograph and intraoral periapical radiograph of maxillary anterior region revealed one conical supernumerary tooth (mesiodens) in relation to permanent maxillary central incisors with completely developed root. The most striking but coincidental finding was the absence of permanent mandibular right second premolar [Figure 3a and c].

Treatment approach
This unusual and rare juxtaposition of the opposite forces of nature demands a comprehensive treatment planning with a long-term follow-up. Both the cases in the present report were also explained the comprehensive treatment plan comprising of extraction of the supernumerary tooth and fixed orthodontic treatment. The primary tooth (without successor) was proposed to be retained as a natural space maintainer followed by the prostodontic rehabilitation of congenitally missing tooth. Both the patients were not ready for the long-term treatment and did not turn up for follow-up.
DISCUSSION

The anomalies of number, though more common in certain syndromes of head and neck, are rare in the nonsyndromic patients. Ectodermal dysplasia, Down syndrome, cleft lip and palate, hypoparathyroidism, and pseudohypoparathyroidism are more commonly associated with missing teeth while supernumerary teeth are seen more commonly in cleidocranial dysostosis and Gardner’s syndrome. Concomitant hypodontia and hyperdontia have been reported in patients with Down syndrome, Dubowitz syndrome, Ellis–van Creveld syndrome, fucosidosis, and conditions such as cleft lip and palate. Ranta has described the anomaly of hypohyperdontia as an uncommon entity with an obscure etiology.

This anomaly involves the problems not only associated with the supernumerary teeth but with the missing teeth too. The supernumerary teeth create a space crisis leading to several orthodontic challenges and an occlusal imbalance. The associated hypodontia adds another dimension to this situation. When both anomalies coexist in the same region: “intra arch‑intra for the prosthetic quadrant” [Table 1], the presence of supernumerary (supplemental) tooth can be advantageous rehabilitation.

According to Matsumoto et al., when this condition is present in different regions: “intra arch-inter quadrant, inter arch

| Classifications | Characteristics |
|-----------------|-----------------|
| Intra arch- intra quadrant | When hypo and hyperdontia exist with in the same arch and the same quadrant of a jaw |
| Inter arch- intra quadrant | When hypo and hyperdontia exist in different arches but the quadrant in both arches is same |
| Compound inter arch | When hypo and hyperdontia exist in different arches and different quadrants |

and compound inter arch,” it exhibits two problems of conflicting nature [Table 1]. Similar situation presented in both cases where OPG served as key diagnostic aid to establish it. Since the hypodontia of permanent teeth in this anomaly is generally asymptomatic, it usually is discovered as a chance finding. Exact etiopathogenesis which drives the agenesis of tooth germ in one part and hyper‑genesis in other is still debatable as mentioned by several authors. A combined interdisciplinary approach between the pedodontist, orthodontist, oral surgeon, and prosthodontist along with early detection and long-term follow-up has been recommended for the majority of cases of concomitant hypodontia and hyperdontia.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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