

Non-Syndromatic Hypo Hyperdontia in Mandibular Anterior Region: A Case Series

Dr. Divya Bhadran¹, Dr. Sreeraj Rajappan², Dr. Anandaraj S³

¹Assistant Professor, Department of Paedodontics & Preventive Dentistry, Government Dental College, Vandanam PO, Alappuzha

²Assistant Professor, Department of Periodontics, Government Dental College, Vandanam PO, Alappuzha

³Professor, Department of Paedodontics & Preventive Dentistry, PMS College of Dental Science and Research, Trivandrum

Abstract: Dental anomalies of tooth number, which is hypodontia and hyperdontia in primary, mixed and permanent dentition, are quite common; however combined occurrence of hypo and hyperdontia in the same dental arch and in non-syndromic situation is extremely rare. Herewith presenting a case series of children with missing mandibular central incisors and an erupted mandibular supernumerary tooth. The case series focuses on the presence of mixed numerical superiority and inferiority of the human dentition, in the mandibular incisor region, which is a very rare phenomenon, when it occurs in the same dental arch and in a non-syndromic situation.

Keywords: concomitant hypo-hyperdontia, supernumerary, microdont. Oligopleiodontia, non-syndromic

1. Introduction

When the mandibular mesiodens co-exists with agenesis of mandibular central incisors, an uncommon condition of coexistence of partial anodontia and supernumerary teeth, it becomes a distinct and debatable entity [1]. Both conditions represent extremes of spectrum in the development of dentition.

Disturbances in tooth development which involves signaling interplay between embryonic stomadeal epithelium and underlying mesenchyme, results in changes in tooth number, size, morphology, and cytodifferentiation [2]. The simultaneous occurrence of hypodontia and supernumerary teeth, is termed 'concomitant hypo-hyperdontia' or oligopleiodontia [3]. Rarity of this condition of mixed numerical superiority and inferiority of human dentition in the mandibular incisor region prompted this case series.

2. Case Series

2.1 Case No.1

A 7½-year old male reported to the Department of Paedodontics and Preventive Dentistry (PMS College of Dental Science and Research, Trivandrum, Kerala, India) with a chief complaint of fractured restoration in the upper right back tooth. The restoration was fractured six months back and was associated with dull pain on chewing food. Medical history and family history were non-contributory. The patient was the younger of two siblings born to parents of a non-consanguineous marriage. Complete physical examination revealed no syndromic features. The boy was of normal built, height and with a normal I.Q. All vital signs were within normal limits. Intraoral examination revealed a physiologically mobile mandibular right deciduous lateral incisor and its successor erupting lingually. On the left lower anterior aspect, an overretained deciduous central incisor with lingually erupting conical shaped tooth was noticed (Fig.1). Deep dentinal caries was also observed in relation to upper and lower right second deciduous molars

and also the second deciduous molars in the upper left quadrant. Root stumps of lower right first deciduous molar were also noticed.



Figure 1: An intraoral view of the anterior segment

Lower occlusal anterior topographic radiograph was recommended and it revealed presence of midline supernumerary tooth and absence of permanent lower left central incisor (Fig.2). A final diagnosis of mandibular anterior hypohyperdontia was drawn based upon the history, clinical features and radiographic findings.



Figure 2: Lower anterior occlusal radiograph

Pulpectomy was done on the upper and lower right second deciduous molars, pulpotomy was performed on the upper left deciduous second molar with stainless steel crowns as the final restoration. The lower right deciduous first molar was extracted followed by crown and loop space maintainer. To ensure optimum function and aesthetics, aesthetic rehabilitation for the mandibular anterior region was done with an interim restoration-a composite resin buildup. (Fig.3)



Figure 3: Eesthetic rehabilitation of mandibular anterior region & crown and loop in relation to lower right deciduous second molar

2.2 Case No.2

A 9-year old female reported to the Department of Paedodontics and Preventive Dentistry (Government Dental College, Alappuzha, Kerala, India) with a chief complaint of lingually erupting lower anterior teeth. Patient had a history of natal teeth. No significant family and medical history was found. The girl was of normal built, height and with a normal I.Q. All vital signs were within normal limits. Intraoral examination revealed a physiologically mobile mandibular left deciduous lateral incisor and its successor erupting lingually. On the left lower anterior aspect, a conical shaped tooth was noticed. (Fig.4)



Figure 4: Intraoral view of anterior segment

Lower anterior topography revealed reduced root formation which favours the diagnosis of supernumerary teeth. The retained primary left central incisor was extracted for guiding the labial movement of the erupting permanent lateral incisor. Aesthetic rehabilitation of the anterior region is planned after the eruption of permanent cuspids.

3. Discussion

The exact etiology for this condition is unknown and the role played by any specific genes or enzyme defects has not yet been ascertained. Concomitant hypo-hyperodontia (CHH) is found more frequently in the permanent than in the mixed or primary dentitions. A correlation appears to exist between CHH and CLP and with some syndromes such as Down and Ellis van Creveld [3]. Patients with hypo-hyperodontia usually do not present any symptoms and are detected during examination for other causes or on radiographic examination of the jaws [4]. The present case was recognized only when the patient came with a fractured restoration.

Hypodontia may be associated with other dental abnormalities, as well as with more than 50 syndromes. The etiology is multifactorial. The most supported theory suggests a polygenic mode of inheritance, with epistatic genes and environmental factors exerting some influence on the phenotypic expression of the genes involved [5]. Differences in tooth size and the whole distribution of the dentition may also be observed, particularly in more severe cases of oligodontia. The molecular basis of the defect is not completely understood, although identification of several mutations in MSX1 and PAX9 genes seem to be crucial for tooth agenesis [6].

Single tooth hyperdontia occurs more frequently in the permanent dentition and 90% present in the maxilla with a strong predilection for anterior region [7]. Hyperdontia /supernumerary teeth may occur in both dentitions, unilaterally or bilaterally, and in one or both jaws. The available data on the etiology suggest a pattern of multifactorial inheritance that gives rise to hyperactivity of the dental lamina. [8]

In our case, the possibility of a microdont central incisor cannot be excluded. However, the distinct conical shape of the midline tooth that bears no resemblance to central incisor and also reduced root formation as compared to mandibular lateral incisors are the possible rationale why the tooth cannot be contemplated as central incisor. The presence of the conical shaped tooth in exact midline also favors the diagnosis of supernumerary tooth. Therefore, the diagnosis of mandibular midline supernumerary tooth associated with agenesis of mandibular central incisors was performed.

4. Conclusion

The present case series are unique cases of hypohyperdontia with combined hypodontia of the mandibular incisors and the presence of a mandibular mesiodens. Multidisciplinary treatment planning that takes into account growth and development of the dentition and the compliance of child is essential.

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Author Profile



Dr Divya Bhadran received the B.D.S degree in 2009 from Century Dental College, Kasaragod and M.D.S. degree in Paedodontics and Preventive dentistry in 2014 from PMS Dental College, Trivandrum, Kerala, India. She worked as Assistant Professor in Pedodontics & Preventive dentistry in Azeezia College of Dental Science in 2015 and as Assistant Professor in Government Dental College, Alappuzha during 2016.