CASE REPORT

NON-SYNDROMIC HYPO-HYPERDONTIA – TWO CASE REPORTS

Dr. Pradip Kumar Mandal*, Dr. Chiranjit Ghosh,
Dr. Santanu Mukhopadhyay***, Dr. Sudipta Kar****, Dr. Sinjana Jana*****

Abstract

Numeric disturbances in the human dentition are quite a common occurrence in the general population. When less than the normal teeth develops, it is termed as hypodontia, whereas hyperdontia is a condition with an excess number of teeth developing. Therefore, though both conditions manifest as changes in the number of teeth, they represent the opposite ends of the spectrum in the development of the dentition. The literature contains numerous reports of the exclusive occurrence of these anomalies; however coexistent oligodontia, hypodontia, and supernumerary teeth or hyperdontia is a rare manifestation of the human dentition.

Key Words: Primary teeth, supernumerary teeth, supplemental lateral incisor

INTRODUCTION

Numeric anomalies in the human dentition are quite a common occurrence in the general population and frequently encountered in practice. Agenesis of one or more teeth in primary or permanent dentition is known as hypodontia, whereas hyperdontia is a condition of having extra teeth. Agenesis of teeth in a patient with associated supernumerary tooth/teeth is one of the rare numerical anomalies in human dentition. This numerical anomaly is termed as hypo-hyperdontia[1] or oligoplieodontia.[2] All existing reports on concomitant hypo-hyperdontia(CHH) refer either to a single arch or to both arches, the maximum number of cases occurring in the maxillary arch. There are very few reports of both the conditions manifesting simultaneously as it is an extremely rare situation. Even rarer is the presence of this condition in the same arch and rarest in the mandibular anterior region.[3] The reported prevalence ranges from 0.002% to 3.1%.[7] The etiopathogenesis of this simultaneous hyper-hypodontia is obscure. Disturbance in migration, proliferation and differentiation of the neural crest cells, and interaction between the epithelial and mesenchymal cells during the initiation stage of tooth development has been suspected as a possible cause.[4] Few cases have been reported with the condition manifesting in maxillary arch but rarely in the mandibular arch.[3] The present cases describes a CHH case in the mandible.

CASE REPORT -1

A 7 year-old girl attended the Department of Paedodontics and Preventive dentistry for regular dental check-up. Her medical and family history was non-contributory. At the time of his presentation she had mixed dentition, and her oral hygiene was inadequate. Intra oral examination revealed that teeth 52,54,61,64,74,75,85 were extracted due to tooth decay and 55, 16,62,63,65,73,84,46 were carious (Figure 1 &2), there was also anterior & posterior cross bite present. In the mandibular arch, a microdontic and conical-shaped tooth was noticed in tooth 31 regions (Figure-3). Extra-orally, she presented with a protuberant mandible with mid face depression.

Panoramic radiographic examination (Figure 4) confirmed the missing left mandibular central incisor and presence of a mesiodens in the midline which exhibited incomplete root formation. Based upon the history, clinical

ABOUT THE AUTHORS

* **Senior Lecturer,** Department of Pedodontics & Preventive Dentistry, Institute Of Dental Science, Bhubaneswar
**Senior Lecturer, Department of Pedodontics & Preventive Dentistry, Haldia Institute of Dental Science & Research
***Associate Professor, Department of Pedodontics & Preventive Dentistry, Dr. R. Ahemed Dental College & Hospital
****Senior Lecturer, Department of Pedodontics & Preventive Dentistry, Guru Nanak Institute of Dental Science & Research
*****Senior Lecturer, Department of Pedodontics & Preventive Dentistry, Haldia Institute of Dental Science & Research

Figure -1

Figure -2

Figure -3

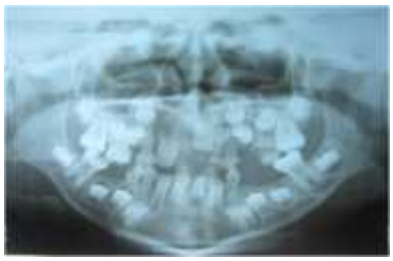

Figure -4

Figure -5

Figure -6

Figure -7

Figure -8

Figure -9

features and radiological investigations the final diagnosis of mandibular anterior hypohyperdontia was made.

The patient was advised full mouth rehabilitation followed by orthodontic intervention. The supernumerary tooth in mandibular midline was planned for esthetic restoration using composite resins.

CASE REPORT -2

A 10-year-old male child visited the Department of Pedodontics and Preventive Dentistry, with a chief complaint of pain in the left lower back tooth since 2 days. This was the patient's first dental visit with no prior experience of having undergone any dental procedure. Medical history and family history were noncontributory. Intraoral examination revealed multiple carious lesions in 54, 55,16,65,26, 36, 84, 85 and 46 (Figure 5&6). Intraoral examination further revealed the absence of the mandibular central incisors (31, 41) and presence of a microdont conical shaped supernumerary tooth in the midline (Figure7). An orthopantomogram confirmed the absence of both mandibular central incisors and the presence of a conical mesiodens with complete root formation in the midline as well as absence of all four third molars (Figure 8). An intra oral periapical radiograph of the mandibular anterior region showed a close apposition of mesiodens with incisor (Figure 9). The mesiodens also exhibited complete root formation with no evidence of any pathologic periapical changes. So based upon the history, clinical features and radiological investigations the final diagnosis of mandibular anterior hypohyperdontia was made and advised to full mouth rehabilitation after antibiotic prophylaxis followed by esthetic restoration of mesiodense using composite resins.

DISCUSSION

The simultaneous occurrence of hypodontia and hyperdontia is an extremely rare anomaly in the human dentition. The reported prevalence for hypo-hyperdontia from various studies has been calculated to range from 0.002% to 3.1%.[7] Many terminologies have been used in the past to describe this condition, such as "concomitant hypodontia and hyperdontia," and oligopleiodontia ("Oligos" meaning few; "Pleion" meaning more or extra in Greek),[5] however, now the preferred term is "hypo-hyperdontia" as suggested by Gibson[6] and reported by Anthonappa et.al.[7] The exact etiology for this condition is unknown and the role played by any specific genes or enzyme defects has not yet been ascertained. Mutations in Genes PAX9, MSX1 and AXIN2 have been implicated as probable cause for the agenesis in

non-syndromic hypodontia[17] Hypo-hyperdontia is rare in isolation and has been associated with syndromes (Down syndrome, Dubowitz syndrome, Ellis–van Creveld syndrome, fucosidosis, G/BBB syndrome, Marfan syndrome orodigitofacial dysostosis, Hallermann Streiff, cleidocranial dysplasia syndrome,and other conditions, such as cleft lip and palate).

Hypo-hyperdontia does not usually manifest in the same arch and very rarely in the same area of an arch.[8] Most of the reports suggest that the supernumerary tooth occurs most commonly in the maxillary arch, in particular the premaxillary region (95%), followed by mandibular premolar and maxillary molar regions.[9] In Asian populations, the mandibular incisors are the most commonly missing teeth, followed by the mandibular second premolars.[10] In the present cases, there were missing mandibular central incisors; however the supernumerary tooth was a mandibular mesiodens, a rare occurrence by itself.[11] Similar cases were observed by Das et al.[8] and Karthik et al.[12] Nayak observed the coexistent hypo-hyperdontia with missing lateral incisors and erupted mandibular mesiodens. [13]

Panoramic radiographs are the best screening modality when any numeric anomaly of the dentition is noted; additional information about the root morphology and root development, periapical pathology can be obtained using intra oral periapical views. In case -2, the age of the patient (10 years) precluded any possibility of late development of at least the mandibular central incisors, as some radiographic evidence would have been noted. The association of third molar agenesis with missing teeth accordance with the findings of Garn et al.,[14] Bailit[15] and Nuvvula et al.[16] that third molar agenesis is associated with missing teeth from other classes of teeth. The case-2 shows agenesis of all the third molars (18, 28, 38, and 48) and the mandibular central incisors (31, 41) with the presence of a midline supernumerary tooth (hypo-hyperdontia). However, it should be emphasized that in most cases supernumerary as well as unerupted teeth go undetected and clinicians have to make the effort to determine these conditions by a thorough clinical as well as radiographic examination. Such rare situations can at times significantly alter the treatment plan and enough latitude should be considered in managing such clinical circumstances.

CONCLUSION

Due to the rarity of combined hypodontia of the mandibular incisors and the presence of the mandibular mesiodens, treatment of affected children is generally multidisciplinary. Different treatment options that take account of growth and development of the dentition and of the compliance of child can lead to a treatment plan that can produce desirable interim results, which do not compromise any future treatment.

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