



A Female Child with Oligodontia in Primary Dentition – Report of a Rare Case

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Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Aims: Non-Syndromic congenital absence of primary dentition is rare. A female child with congenital absence of primary incisors (n=6) is presented.

Presentation of Case: A 4 year-old non-syndromic female child reported with missing several teeth. Intraoral examination revealed absence of (n=6) all four Mandibular Primary Incisors and two Maxillary Primary Lateral Incisors. Radiographic examination revealed absence of corresponding permanent tooth buds.

Discussion: The management of this situation is critical for the child and parent point of view due to higher number of missing teeth and early age of reporting. The hypodontia leads to speech problems with lowered self esteem and restricted diet causing malnourishment. Management options include Removable partial denture, Speech therapy, orthodontic jaw expansion, Mini implants.

Conclusion: This report presents a rare case of Oligodontia in female child of 4 years old and various management options.

Keywords: Anodontia; hypodontia; oligodontia; primary dentition.

1. INTRODUCTION

Teeth play an important role in esthetics, phonetics, mastication and growth of the jaws. Absence of teeth can impair these functions and the condition can be classified into anodontia, oligodontia, hypodontia based on number of missing teeth. The term anodontia is used to describe the extreme form where there is total absence of all the teeth. When six or more teeth, excluding the third molars, are congenitally missing, the term used is oligodontia. Hypodontia is a condition in which only one to five teeth are developmentally absent. [1-4] Absence of teeth can occur in primary as well as permanent dentition with varying prevalence rates [5]. Hypodontia in primary dentition is rare and tooth agenesis occurs due to result of disturbances in the stages of initiation and proliferation during the formation of teeth [6]. The ill effects of this condition may be severed by concomitant absence of underlying permanent dentition, inability to withstand occlusal stresses by primary dentition [7]. This article describes a case with six primary teeth congenitally missing.

2. PRESENTATION OF CASE

A four year-old female child was referred to the Department of Pedodontics and Preventive Dentistry, St Joseph Dental College, Duggirala, Eluru, Andhra Pradesh, India, with a chief complaint of several missing teeth. The child was in good health and the medical history did not reveal any systemic disease, child was born to non-consanguineous parents. Mother reported uneventful pregnancy and no significant family history. According to the mother, the child had not lost any tooth previously due to trauma, extraction or even exfoliation. Extra oral examination revealed neither facial asymmetry nor skeletal malocclusion. (Figs. 1 & 2) The child was examined with particular attention to hair, nail, eyes and ears, all of which appeared to be normal. No sweating abnormality was reported by the patient's mother. Intraoral examination revealed absence of (n=6) all four Mandibular Primary Incisors and two Maxillary Primary Lateral Incisors (Fig. 3) and radiographic examination revealed the same with absence of underlying permanent teeth (Figs. 4, 5 & 6).

3. DISCUSSION

Hypodontia may appear as part of a recognized genetic syndrome or as a non- syndromic,

familial form, which occurs as an isolated trait. The presence of associated structures affected include hair, skin, nails and sweat glands indicate Ectodermal Dysplasias in various forms. The diagnosis is primarily based on clinical examination and radiographic investigations. The prevalence of partial anodontia in primary dentition ranged from 0.6-2.6 with maxillary lateral incisor the commonest missing tooth in those studies [5].



Fig. 1. Full length photograph showing normal child



Fig. 2. Extra oral photograph showing normal facial profile

The number of missing teeth was always great in number ranging from 8 to 18 by various studies. Ooshima reported 8 missing teeth in 2 year old male child with canine and first molar of smaller dimension [8] and 9 missing teeth were reported in a 3 year old male child by Shashikiran [4]. Shilpa and Nirmala reported 14 missing primary teeth, [7,9] while 18 missing teeth were reported by Venkataraghavan [3]. Earlier studies reported the occurrence of hypodontia commonly in males. In the present case Oligodontia in female child makes this case rarer. The type of teeth missing included central incisors, lateral incisors, canines, first molars with rarely second molars in both the arches.[3,4,7-9]

Recent advances in the fields of molecular biology and human genetics have improved our understanding of tooth development and suggested that genes involved in non syndromic

hypodontia in humans includes genes encoding transforming growth factor beta (TGF- β) and transcription factors (MSX1 and PAX9), which play a critical role during the craniofacial development, as well as genes encoding a protein involved in Wnt signaling pathway (AXIN2). MSX1 and AXIN2 genes, involved in the early stages of odontogenesis, are associated with tooth agenesis. However these genes were responsible for agenesis of teeth in permanent dentition and studies on anodontia in primary dentition were few and etiology is unknown [10].

The management of this situation is critical for the child and parent point of view due to higher number of missing teeth and early age of reporting. The hypodontia may lead to speech problems with lowered self esteem and restricted diet causing malnourishment [11,12].



Fig. 3. Missing lower primary incisors & upper primary lateral incisors



Fig. 4. Ortho pantamograph showing missing lower primary incisors & upper primary lateral incisors

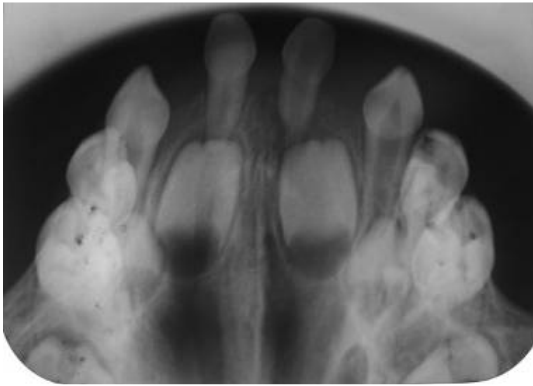


Fig. 5. Maxillary occusal radiograph showing bilateral missing primary lateral incisors as well as corresponding permanent tooth buds

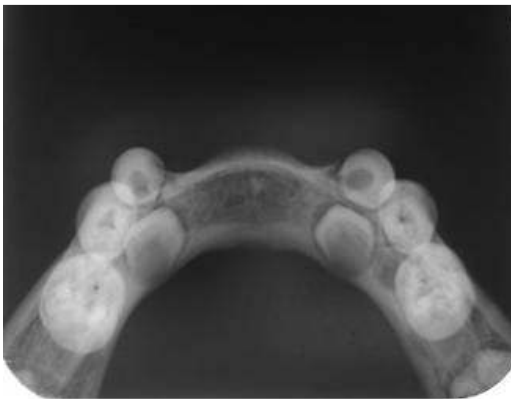


Fig. 6. Mandibular occusal radiograph showing bilateral missing primary incisors as well as corresponding permanent tooth buds

Treatment options available and most commonly suggested were complete dentures and partial dentures. The partial dentures maintain vertical dimension, are adjustable, acceptable, easy to care and will not affect growth and come with disadvantage of child compliance. They improve esthetics and aid in mastication and speech. The teeth present in the oral cavity should be emphasized on preventive care with early recognition and treatment of the dental disease and psychological counseling and speech therapy for improvement in language and confidence of the child [12,13]. In the present case this is the treatment option given to the child but the child and parents refused the treatment stating that they will come at a later date for treatment.

Mini implants remain a suitable option in the near future accommodating the growing maxilla and

mandible. They can be placed in children as early as five years of age without any disturbance to tooth buds requiring prosthesis remodeling due to implant submergence at a later stage [14].

The presented case was identified as nonsyndromic oligodontia in primary dentition.

4. CONCLUSION

This article reports an occurrence of partial anodontia in primary dentition in a 4 year old female child with concomitant absence of underlying permanent teeth. The case is rare and measures to manage are discussed.

CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images.

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki."

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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