Genetics aspect of hypodontia in twins (Case report)

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Introduction

The term 'hypodontia' refers to absence of one or more tooth in developmental stage, either in primary or permanent dentition. Permanent dentition is more frequently affected than primary dentition, with incidence varies from 1.6% to 9.6% in the general population. A study conducted in Asian population indicates that the most frequent absent is mandibular incisor [1]. Fervently genetic influence in hypodontia has been established by many studies performed on families and twins [2]. This case report present 9 years old girls, twins, who has no mandibular lateral incisors but they did not aware about this.

Case Report

A 9 years old girl came to Pediatric clinic for general check up. During intra oral examination, mandibular lateral incisors was found missing. To confirm the condition, an orthopantomogram was taken, it was confirmed as a hypodontia. From alloanamnesis with the parents, the girl is twins. Next week, her sibling came to the Pediatric clinic. She has no mandibular lateral incisor as well. Orthopantomogram confirming the condition as a hypodontia.

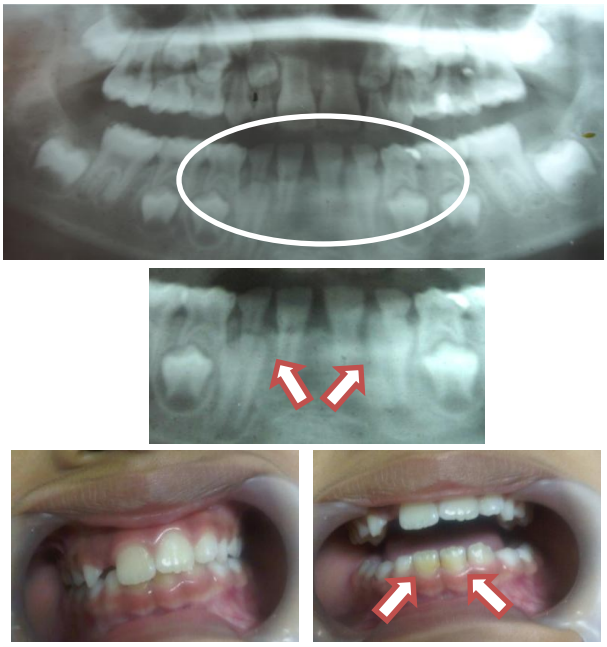

Fig1. Twin A orthopantomogram and intra oral photographs

Discussion

Known from the literature, the diagnose of hypodontia in permanent teeth was concluded on 12-14 years old children. The condition is re-confirm with orthopantomogram[3]. Several assumption came for this condition such as infections, toxins and chemotherapy. However, most cases were found connected with genetic factors. The heritability of congenital missing tooth has been shown in many studies. The importance of genetic factors is shown by appearance of multiple cases among families and higher concordance in monozygotic than dizygotic twins[4,5]. Those of particular interest in tooth development are the homeobox genes Msx1 and Msx2 which is known as transcription factors and controlling gene expression. In humans, genetic analysis of a twins has demonstrated a mutation in the Msx1 gene[5].

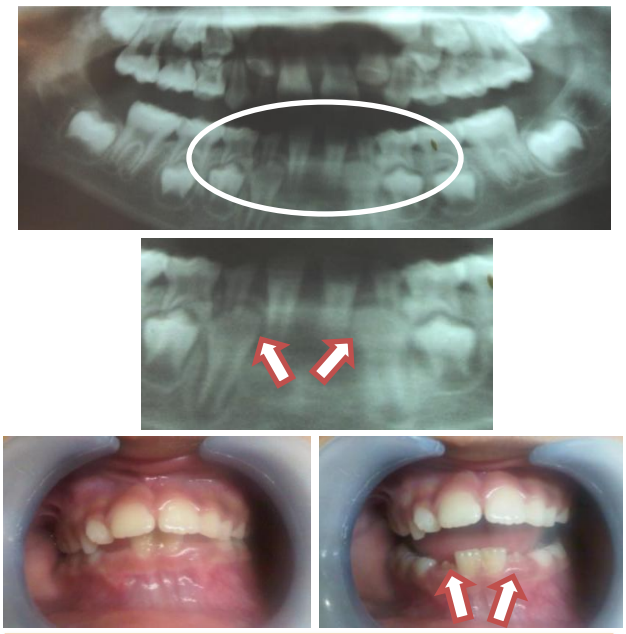

Fig2. Twin **B** orthopantomogram and intra oral photographs

Conclusion

In this case, both twins and parents didn't realize about the teeth missing and didn't complain about the teeth alignment. So, there is no treatment done but plan to do annual regular check up. Tooth development is a very complex process and involving many "players." The *Msx1* gene is one of them[5]. Reports done with confirmation that environmental or epigenetic factors can modify phenotype expression and involved in the multifactorial etiology of hypodontia.

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